

**REPORT ON THE JOINT UNESCO WORLD HERITAGE CENTRE /  
ICOMOS ADVISORY MISSION TO THE WORLD HERITAGE  
PROPERTY 'BRYGGEN' (NORWAY)**

**FROM 19 TO 21 SEPTEMBER 2022**



Bryggen seen from Vågen © NJ Clarke



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## ACKNOWLEDGEMENTS

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Particular acknowledgement is made of the contributions of Hege Agathe Bakke-Alisøy, Ole Søre Eriksen, Johanne Gillow, Marianne Knutsen and Ole Vegard Skauge.

The Mission expresses its gratitude for the contributions from both institutions and individuals from civil society and owners of buildings, and in particular *Stiftelsen Bryggen* (Foundation Bryggen) for the time, information and viewpoints that contributed to the Mission's understanding the urban setting of the World Heritage property 'Bryggen' and on how the ongoing plans for the Bybanen light rail project may affect the attributes of the property which support and convey its Outstanding Universal Value (hereafter 'OUV').

The Mission hopes that the insights and advice contained in this report will assist the State Party of Norway, in accommodating the Bybanen project, to avoid negative impacts of this important infrastructural investment – a major topic of this report – on the OUV of the World Heritage property while, and to realise its policy ambition to achieve best practice examples of World Heritage management in its management of the World Heritage properties located on its territory.

## EXECUTIVE SUMMARY AND LIST OF RECOMMENDATIONS

The 2022 joint UNESCO World Heritage Centre / ICOMOS Advisory Mission (hereafter 'Mission') to the World Heritage Property 'Bryggen' (Norway) took place on invitation of the State Party of Norway from 19 to 21 September. The Mission's main objective was to provide advice to the State Party with regards the proposed extension of the Bybanen Light Rail past the Bryggen World Heritage property. The Bybanen Light Rail project is being developed by the City of Bergen to provide efficient and sustainable public transport in the city, and thereby contribute to achieving a zero rate of private vehicle growth and a reduction in private vehicle usage by 2030. The project was addressed by the World Heritage Committee Decision in 2019 (Decision [43 COM 8B.47](#)) in which the Committee, in the light of a proposal to delineate buffer zone for the property submitted by the State Party:

1. *Having examined Documents WHC/19/43.COM/8B.Add and WHC/19/43.COM/INF.8B1.Add,*
2. *Refers the proposed buffer zone for **Bryggen, Norway**, back to the State Party in order to allow it to:*
  1. *Extend the buffer zone to include a wider area in the northeast part of the property, as it could prevent urban pressure to directly impact the World Heritage property; or to provide a clear and solid rationale for the exclusion of this area,*
  2. *Undertake a Heritage Impact Assessment regarding the future tram track that will pass in the buffer zone, to assess the potential impact on Bryggen's Outstanding Universal Value.*

The extension phase under discussion will connect the city centre to Åsane in the north. To do so it either needs to bypass the World Heritage property or be routed through a tunnel in the mountain behind the property. These options are referred to respectively as the 'Daylight Option' and the 'Tunnel Option'. The City of Bergen, in response to the World Heritage Committee's decision, commissioned an independent Heritage Impact Assessment (HIA) of the Bybanen extension past the property. This HIA has resulted in three reports, the most recent, its *Final Report*, submitted to the Mission team on 17 October 2022, before verification by the State Party of possible factual errors. The *Final Report* only assesses the Daylight Option, because the City of Bergen in 2021 decided to continue developing this option and discard the Tunnel Option alternative. An updated version of the HIA, dated 18 October, was transmitted to the World Heritage Centre on 19 October.

This HIA concludes that there are both positive and negative impacts on the OUV of the property. Importantly it also notes a number of risks which may have a high negative impact on the OUV of the property. It also notes that "not all direct impacts on the structure of World Heritage property Bryggen are known at present." This Mission also concludes that not enough is known about the potential risks of the Bybanen project to make an informed decision about it. As such the HIA process cannot yet be seen to have been completed. Further studies are required to be able to inform any impact assessment conclusions. This is especially true for the so-called subterranean cultural layers of the property. These are archaeological deposits made over centuries that, over time, extended the quayside into the Vågen Harbour. These archaeological deposits are important attributes of the OUV in their own right, but also physically support most of the built structures of Bryggen. They are also very sensitive to the changes in hydrology that the project may bring.

The quayside, over which the Daylight Option is projected, daily carries a lot of vehicular traffic, which will be removed should the Bybanen be constructed. Yet the sensitivity of the cultural layers, which extend beyond the boundaries of the property, to vibrations is not known.

Further studies on the impacts of vibrations on the cultural layers, the built fabric and the hydrology of the property and the Bryggen Quayside are required before the impact assessment can be completed and therefore before a final decision on the project can be taken.

The HIA process to date has proven to be greatly beneficial to the understanding of potential impacts on the OUV of the property. It has also led to design changes which have resulted in substantial reductions in the assessed impacts on the OUV of the property. The Mission has identified further steps that are worthy of investigation to further reduce the visual and functional impacts of the proposal.

The Mission was further requested to comment on the development of a buffer zone for the property and to provide advice on any other aspects that affect the property, noted during the course of the Mission.

The Mission commends the State Party of Norway for the importance it has given to the ongoing assessment of impact of the Bybanen extension on the OUV of the property, which serves as an example of best practice in managing World Heritage. This process needs to be extended, through further investigations, to include those unknown potential direct impacts on the OUV of the property.

The Mission also commends the State Party for the concerted efforts it has made over a number of years to maintain and improve the state of conservation of the property. Bryggen is, due to the sensitivity of the cultural layers, and the fragility of the built fabric, a property that requires and will keep on requiring close curation. The State Party with the owners of Bryggen, both the *Stiftelsen Bryggen* (Foundation Bryggen) and the private owners, have invested, and continue to invest much to achieve a good state of conservation of the property.

The Mission presents in this report substantive advice on the Bybanen project, the HIA process, the delineation and nature of the buffer zone and provides further advice on the functional use of the property, the Vågen Harbour and the functioning of the management system, specifically the World Heritage Board and its Advisory Board.

**ToR 1: Consider whether and how the ongoing plans for Bybanen will affect the OUV of the property and provide recommendations and guidance towards possible and necessary revisions/amendments/changes to the plans to safeguard OUV.**

Before any final decision on the implementation of the Daylight Option along the Bryggen Quayside is taken, the following additional measures need to be implemented:

1. Further archaeological, geological investigations and structural assessments at the Bryggen Quayside are required to create a more complete overview of the subsurface conditions;
2. Further studies on vibrations and vibration transference through the Bryggen cultural layers should be undertaken and if any significant negative impact can be expected, the project should be fundamentally reassessed;
3. As a precaution for any further development of the Bybanen Daylight Option, maximal technically viable vibration and reduction measures should be planned and, should the light-rail line be constructed, implemented for any light rail line along the Bryggen Quayside. No rail-switches should be positioned in the area in front of Bryggen or the length of the quayside;

4. Special attention is needed at the Finnegården curve of the Bybanen line to ensure that no vibrations of the turning light rail are transferred to the Finnegården building and to ensure that noise generated by the light rail wheels on the curved rail is reduced to a minimum (A single track line here would aid in avoiding noise development, as a curve with a larger radius would be possible);
5. A national programme to speed up and complete the full structural restoration of the buildings at Bryggen needs to be initiated and funded to ensure that the buildings are structurally resilient before the Bybanen commences construction and operations. This should not be implemented at the cost of other Norwegian World Heritage properties through budget reallocations, or at cost of the high quality of work current being implemented. It should also be carefully planned not to disrupt the commercial and functional use of the property is further eroded. A system of financial compensation to commercial operators and building owners may be called for;
6. A clear response protocol for any excavations and construction processes in which actions are linked to any negative monitoring indicators needs to be established and submitted to the World Heritage Centre for approval. A key action would be to stop construction or operation of the Bybanen track along Bryggen immediately if any negative structural consequences of hydrological consequences are noticed or significant archaeological discoveries are made. In all such cases all activities, be they construction works or operations of transport infrastructure should be halted and the World Heritage Centre notified under the provisions of paragraph 172 of the *Operational Guidelines*;
7. A structural and subsurface hydrological monitoring programme (one is already extant, but it may need to be extended) should be submitted to the World Heritage Centre for technical review. This process should be initiated, covering at least one year, well in advance of the construction and continue throughout and after for at least 10 years' operations;
8. All excavations should be undertaken with archaeological supervision and these excavations should be documented and reported. The archaeological supervision should be empowered with the authority to call to a halt all activities in the case of significant discoveries and these be reported to the World Heritage Centre;
9. Completion of the upgrading of the Fløyfell Road Tunnel should be a set as a precondition for the construction of the Daylight Option.

In the light of the great concern about the subterranean conditions at Bryggen, the Mission recommends that the risk assessment should be reassessed following in-depth and thorough studies into the potential long-term impacts of the construction of the Bybanen across the Bryggen Quayside, including the effects of vibrations on the built fabric, the archaeological attributes and the hydrology.

**ToR 2: In relation to the ongoing HIA, give advice on issues concerning the recently published “Guidance and Toolkit for Impact Assessment in a World Heritage Context”.**

The Mission notes that the *Final Report* of the HIA states that: “...not all direct impacts on the structure of World Heritage property Bryggen are known at present,”<sup>1</sup> A conclusion that the Mission supports. The HIA process can therefore not be seen to be completed until these impacts are investigated.

The Mission recommends for the HIA that:

1. The functional and visual impacts of the Daylight Option may still be reduced through investigating a single instead of a double light rail track along the Bryggen Quayside, and a reduction of the number of crossings per hour. This option should be further assessed to investigate whether this is viable for the operation of the Bybanen. A single instead of two bicycle lanes be investigated, taking the safety of pedestrians into account;
2. In the light of the great concern about the subterranean conditions at Bryggen, the risk assessment should be reassessed following in-depth and thorough studies into the potential long-term impacts of the construction of the Bybanen across the Bryggen Quayside, including the effects of vibrations on the built fabric, the archaeological attributes and the hydrology;
3. Recommendation 3 of the HIA be extended to not only address visitor management for the World Heritage property and its potential buffer zone, but also the function of the property in the city;
4. As a number of the recommendations call for follow-up iterations, e.g. the safety concept at the Hanseatic Museum/ Finnegården, the HIA process cannot yet be seen as having been completed, and that the results of the suggested studies, design iterations and investigations will need to be assessed in future and identified risks reduced.

**ToR 3: Provide guidance and recommendations concerning the ongoing establishment of a buffer zone which takes into account the context and wider setting of Bryggen in the historic city of Bergen.**

The investigations and planning undertaken to define the buffer zone of the property align and support the State Party’s commitment to best practice in the management of World Heritage. The Mission commends the Agency for Cultural Heritage Managing of the City of Bergen for its efforts.

The Mission recommends as guidance that:

1. It may be useful to approach the challenge of the incorporating a buffer zone into the planning system conceptually through two distinct but interdependent perspectives:
  - a. The protection offered to OUV by the buffer zone and thus its role, and
  - b. The active management and appropriate development of the buffer zone to ensure it supports the OUV of the property;
2. The State Party consider if it would not be more useful for a single buffer zone to be delineated that in the north-east follows the top of the ridge of Nordnes, include

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<sup>1</sup> Michael Kloos Planning and Heritage Consultancy, 2022. *Final Report: Heritage Impact Assessment (HIA) of the “Planforslaget Bybanen Ds/1 Kaigaten-Sandbrogaten” on the World Heritage Property Bryggen in Bergen*. Aachen. (18 October), p. 8.

Sandvicken as proposed by the Agency for Cultural Heritage Management and follow as northern boundary the ridge of the Fløyen mountain to the north of Vågen and the property. The management of individual zones within the buffer zone could then be arranged through a strategic plan.

**ToR 4: Give advice on any other relevant issue, observed during the visit.**

The Mission notes three additional relevant issued for comment observed during the Mission and advises that:

1. For the function integration of Bryggen into the City of Bergen, policies should be investigated and implemented at City and County level to halt the growth of monocultural tourism offering at Bryggen and to foster activities that serve the needs of the local population. The national project for stabilisation of Bryggen which is recommended to proceed before the construction of the Bybanen may also offer opportunity to restructure the commercial operations in the property to align it with the State Party's obligation as embodied by Article 5 of the *World Heritage Convention* on measures to give cultural and natural heritage a function in community life;
2. For the function of the World Heritage Board and Advisory Board, that both the World Heritage Board and the Advisory Board should engage, under the guidance of the World Heritage Coordinator for Bryggen, the Riksantikvaren, Vestland County and City of Bergen to continue the process to define and operationalise the purpose and function of the World Heritage Board and its Advisory Board in the management system for this World Heritage property';
3. For the continued functional use of the Vågen Harbour, that the City of Bergen and the Bergen Port:
  - a) Keep the Bryggen Quayside open to a wide range of maritime transport, not only historic vessels, but
  - b) Concurrently initiate a policy that Bergen Harbour limit the size of ships that can dock at the Bryggen Quayside.

The Mission concludes that if the Bybanen can be brought into operation along the Bryggen Quayside, it would be of great benefit not only to the property but also the City of Bergen. But this should only be undertaken with full cognisance of the risks inherent to the project so that they can at best be avoided or at least be minimised.



## INTRODUCTION

This joint UNESCO World Heritage Centre/ICOMOS Advisory Mission was undertaken from 19 to 21 September 2022 to the Bryggen World Heritage property (hereafter 'Bryggen' / 'the property'). Bryggen was inscribed on the World Heritage List in 1979. This Advisory Mission (hereafter 'the Mission') was conducted at the invitation of the State Party (the Kingdom of Norway). Its main aim was to consider whether and how the ongoing plans for the extension of the Bybanen City Rail (also 'light rail') project past the Bryggen World Heritage property may affect the attributes of the property which support and convey its OUV. The Mission came after two preliminary Heritage Impact Assessment reports and before the finalisation of the final HIA Report.

In addition, the Mission team was tasked to provide:

- guidance concerning the ongoing establishment of a buffer zone which is underway by the Bergen City Municipality in response to the decision of the World Heritage Committee in 2019 (43 COM 8B.47), to take into account the wider context and setting of Bryggen within the historic city of Bergen
- considerations on any other aspects that the mission may find pertinent to the maintenance and transmission of the OUV of the property (Refer to Annex 1).

The City of Bergen, cognisant of the potential of the Bybanen project to result in a negative impact on the OUV of the property, commissioned, in close collaboration with the Norwegian Directorate for Cultural Heritage (*Riksantikvaren*), an independent impact assessor to conduct a Heritage Impact Assessment for the project. The resultant HIA process resulted in a preliminary assessment as interim report, as well as an interim HIA preceding the final draft HIA. In the interim reports the impact assessor made recommendations to address identified impacts, including the re-evaluation of an alternative trajectory for the Bybanen in a tunnel through the mountain behind Bryggen and reducing the visual impact of a proposed alignment along the Bryggen Quayside. These led to the project being refined with significant changes made. The draft *Final Report* was delivered after the Advisory Mission visited the property and transmitted to the mission team on 17 October 2022, before verification by the State Party of possible factual errors. A corrected version was transmitted to the World Heritage Centre on 19 October.<sup>2</sup> The draft *Final Report* (HIA) is intended to provide input into the official public hearing process undertaken by the Municipality of Bergen between October 2022 and March 2023. The draft *Final Report* indicates that the intention is to compile a 'Full HIA UNESCO Report "Planforslaget Bybanen DS/1 Kaigaten-Sandbrogaten"' for submission to the World Heritage Committee. This "Planforslaget Bybanen DS/1 Kaigaten-Sandbrogaten" is also referred to as the 'Daylight Option' for the Bybanen alignment in the vicinity of the World Heritage property.

The planning for this Mission and its reporting had to be aligned with the State Party's internal timelines.<sup>3</sup> The World Heritage Centre and ICOMOS have agreed to unusually shortened timelines for finalising this Mission report so that it can inform the relevant processes that the Norwegian authorities have put in place.

The timeline for the planning process of the extensions of this section for the Bybanen includes a meeting for the City Council on 27 October 2022 to decide if the planning proposal was to

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<sup>2</sup> Micheal Kloos Planning and Heritage Consultancy, 2022. *Final Report: Heritage Impact Assessment (HIA) of the "Planforslaget Bybanen DS/1 Kaigaten-Sandbrogaten" on the World Heritage property Bryggen in Bergen*. Aachen. 18 October.

<sup>3</sup> The UNESCO World Heritage Centre and ICOMOS committed to transmitting this Advisory Mission report to the State Party by 9 November conditional to the draft Final HIA document being received on 14 October 2022.

be sent for a first public hearing opening from 1 November to 21 December 2022. A following second public hearing is planned in spring 2023. The two public hearings will be followed by the final decision in spring/early summer on the same year. The strict timeline is due to substantial national funding agreements for Bybanen, interrelated city development plans, and the fact that significant investments have already been made in the ongoing planning processes.

In planning this Mission, it was agreed that that the decision of the City Government whether or not to present the plan at the public hearing on 27 October 2022 could not be based on the findings of the Mission nor could the HIA be considered final as it had not yet been reviewed by the World Heritage Centre and ICOMOS.

The conclusions presented in the draft *Final Report* are discussed in this report. This report further provides recommendations and guidance towards possible and necessary avoidance of impacts on the OUV of the World Heritage property through revisions/amendments/changes to the Bybanen project to safeguard it. The outline conclusions of the Mission are presented in the final chapter and repeated in the Executive Summary.

## 1. THE PROPERTY

The Bryggen World Heritage property is located in Bergen, Norway. This is one of northern Europe's oldest port cities. Located on the west coast of Norway, it was already an established centre for trade by the 12th century.

Norway nominated Bryggen, the remains of the historic wharfs occupied by Hanseatic traders in Bergen, for inscription on the World Heritage List in 1978. The property was inscribed on the World Heritage List on the occasion of the third session of the World Heritage Committee, held in Luxor (Egypt) in 1979 (Decision **CONF 003 XII.46**) under criterion (iii):

*Bryggen bears the traces of social organization and illustrates the use of space in a quarter of Hanseatic merchants that dates back to the 14th century. It is a type of northern "fondaco", unequalled in the world, where the structures have remained within the cityscape and perpetuate the memory of one of the oldest large trading ports of Northern Europe.*

The Retrospective Statement of Outstanding Universal Value (RSOUV, see Annex IV) for the property, was adopted by the World Heritage Committee at its 37<sup>th</sup> meeting in 2013 (Decision **37 COM 8E**).

The Brief Synthesis introduces the property as:

*Bryggen is a historic harbour district in Bergen, one of North Europe's oldest port cities on the west coast of Norway which was established as a centre for trade by the 12th century. In 1350 the Hanseatic League established a "Hanseatic Office" in Bergen. They gradually acquired ownership of Bryggen and controlled the trade in stockfish from Northern Norway through privileges granted by the Crown. The Hanseatic League established a total of four overseas Hanseatic Offices, Bryggen being the only one preserved today.*

*During its history, the property has faced a number of fires which have led to its partial destruction. The city has been reconstructed after every fire closely following the previous property structure and plan as well as the traditional vernacular building techniques. The appearance of the district today reflects its reconstruction after the fire in 1702 and preserves its original compact medieval urban structure, composed by long narrow rows of buildings facing the harbour, separated by narrow wooden passages.*

*Of particular relevance today are some 62 buildings, showing the remains of this former townscape and demonstrating how this colony of bachelor German merchants lived and worked, as well as their use of space in the district. The urban setting is characterized by rows of two to three-storey buildings along the narrow passages running parallel to the docks... [excerpt]*

The size of the wharf complex Bryggen was reduced by some demolitions at the turn of the 19th century and several fires in the 1950s. About a quarter of the original Hanseatic wharf precinct remains today. The medieval urban structure is still discernible, and the remaining buildings have enough elements to demonstrate Bryggen's original functioning.

Bryggen is a recognisable entity within a larger urban landscape of Bergen, connected more closely to the areas of small wooden dwellings beyond Bryggen, including the warehouses at Sandvicken, and in the medieval city centre than to the larger 20th century buildings in its close proximity. Fire, excessive numbers of visitors as well as global changes in climate with

more extreme weather and possibly higher sea levels are noted in the **Statement of Integrity** as some of the potential risks that may threaten the integrity of Bryggen.

The **Statement of Authenticity** notes that Bryggen represents relevant evidence of the Hanseatic period through well-preserved buildings, archives and artefacts, as well as architectural surveys of the buildings from 1900 onwards, which all support its authenticity. A single notable change on to the urban structure was undertaken in 1965 to create an open area for fire emergencies, by moving some building at the back. Since then, the urban structure has not been modified. A directed programme aimed at the preservation of the built fabric of Bryggen commenced in the 1960s and had made major progress by the time of the inscription of the property on the World Heritage List in 1979. Concurrently the former trading in stockfish and commodities was gradually replaced by small arts and crafts businesses, and the establishment of restaurants and tourist businesses catering to tourist needs.

The World Heritage property consist of two components: the Hansa Quarter Bryggen area and, towards the head of the Vågen harbour at Finnegården, the building that houses the Hanseatic Museum.

The World Heritage Committee in 2006 adopted a delineation of the boundaries of the property submitted by the State Party in response to the Retrospective Inventory (Decision **30 COM 11A.2**).

There were no requirements for buffer zones at the time of inscription of Bryggen on the World Heritage List in 1979, and this World Heritage property still does not have a buffer zone delineation approved by the World Heritage Committee. A proposal for the delineation of a buffer zone submitted by the State Party was discussed by the Committee during its 43rd session in 2019 (Decision **43 COM 8B.47**).

The Committee referred the proposed buffer zone for Bryggen back to the State Party, in order to allow it to extend the buffer zone to include a wider area in the northeast part of the property, to prevent direct urban pressure.

The World Heritage Committee's 2019 Decision (**43 COM 8B.47**) is reproduced here for reference:

*The World Heritage Committee,*

1. *Having examined Documents WHC/19/43.COM/8B.Add and WHC/19/43.COM/INF.8B1.Add,*
2. *Refers the proposed buffer zone for **Bryggen, Norway**, back to the State Party in order to allow it to:*
  1. *Extend the buffer zone to include a wider area in the northeast part of the property, as it could prevent urban pressure to directly impact the World Heritage property; or to provide a clear and solid rationale for the exclusion of this area,*
  2. *Undertake a Heritage Impact Assessment regarding the future tram track that will pass in the buffer zone, to assess the potential impact on Bryggen's Outstanding Universal Value.*

## 2. REPORTS ON THE STATE OF CONSERVATION OF BRYGGEN

The state of conservation of the property has been the subject of one State of Conservation report to date, examined by World Heritage Committee at its 18<sup>th</sup> meeting (18COM) in 1994 (**WHC-94/CONF.001/3B**).

The report highlights the need:

1. to create a buffer zone around the existing site and enclose parts of the harbour and cityscape significant for the understanding of the historical context of Bryggen to integrate the cultural heritage dimension in the planning process and local decision-making;
2. to strengthen the division of responsibilities between central and local governments and private owners;
3. for systematic monitoring as a part of the day-to-day management of the sites, with regular inspections and a coherent maintenance strategy.

In addition, it was suggested that all treatments and changes to the monuments should be carefully documented and systematically archived.

The State Party of Norway submitted a report to the World Heritage Centre in 1998 prepared through on a contract between the Riksantikvaren (Directorate of Cultural Heritage, Norway) and ICOMOS Norway. This report 'Evaluation of Bryggen in Bergen, Norway' was authored by a working group including the president of ICOMOS Norway, representatives of ICCROM, ICOMOS International, and the Department of Geography of the University of Trondheim and a Conservation Architect which met in November 1993 to evaluate the area of Bryggen and assess the development of the site since its nomination. The report provides general background information on the nomination and documentation of the property, as well as on the legal status of the World Heritage site and surrounding area, and on the conservation management. Finally, the report provided an evaluation of the state of the property at that time, the limits and extension of the property and recommendations.

The World Heritage property 'Bryggen', being a district of the living and dynamic city of Bergen, is part of the **World Heritage Cities Programme**, which is one of the six thematic programmes approved and monitored by the World Heritage Committee.

### 3. SUMMARY OF THE NATIONAL SYSTEM FOR THE PRESERVATION AND MANAGEMENT OF THE WORLD HERITAGE PROPERTY

#### 3.1 Legislative protection

*The World Heritage sites in Norway have no formal protection other than the general National Heritage management system and the National Heritage Act. The Norwegian management system concerning cultural heritage in general works on three levels; national, regional and local. The Directorate for Cultural Heritage is a government agency under the Ministry of Climate and Environment, and plays an advisory role in the development of Norway's cultural heritage policy. The Cultural Heritage Act is managed by this government agency. At the regional level, the County municipalities are responsible for the management in their county and many paragraphs in the Cultural Heritage Act has been delegated to the regional level. At local level, the tool for managing cultural heritage is the Planning and Building Act. At local level, the City Council in many of the bigger cities like Bergen, has established a cultural heritage office with expertise in the cultural heritage field. Bryggen, including its cultural deposits, is listed pursuant to the Norwegian Cultural Heritage Act. Bryggen was listed in 1927 as one of the first listed objects in Norway (First Cultural Heritage Act 1920). The Cultural Heritage Act provides the strongest protection of the archaeological and built heritage in Norway.*

*Bryggen is also protected through the Norwegian Planning and Building Act. With the Planning and Building Act, it is possible to protect objects, structures and environments with Heritage value. A protection plan was adopted locally with the support of the government and the region in 2006 for the Vågen area.<sup>4</sup>*

In addition, the area of Bryggen is included in a larger archaeological area covering the medieval centre of Bergen which is automatically protected according to Section 4 of the same Cultural Heritage Act.

The World Heritage property is also protected as a 'special area' (conservation area) in the municipal area plan *Bergen. Kommuneplanens Arealdel 2010-2021* in accordance with the Norwegian Planning and Building Act (2008) §11-8c, with regulations and restrictions, covering the historic centre of Bergen. According to the *Kommuneplanens*, the objective of this conservation plan is to conserve the culturally valuable buildings and their environment. In this regard, the *Kommuneplanens* also specify measures for the preservation of the buildings and their use.

The area surrounding the World Heritage property is included in the general master plan for the city centre of Bergen dated 1984. A revised master plan was approved in 1991 and included a long-term plan for the conservation and development of the central city. In addition, the plan shows legally protected historic buildings, as well as other areas of interest that merit protection and conservation measures. The rebuilt section west of the World Heritage property and other modern buildings have also been identified.

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<sup>4</sup> *Scope of Services*, Annex 1 to the announcement of a call for contractors to undertake an HIA for the Bybanen project past Bryggen.

According to the Second Cycle of Periodic Reporting, the legal framework for the maintenance of the Outstanding Universal Value including conditions of authenticity and/or integrity of the World Heritage property and its surrounding provides an adequate basis for effective management and protection. Indeed, the district is subjected to “The Bryggen Project”, which is an extensive and long-term State-funded project, established formally in 2000 to monitor, safeguard and restore Bryggen, including both archaeological deposits and standing buildings.

### **3.2 The Norwegian Ministry of Climate and Environment’s *New goals for Norway’s Cultural Environment Policy* (Parliamentary White Paper)**

The Norwegian *New goals for Norway’s Cultural Environment Policy*, which guides the country’s activities with regard cultural programmes, makes direct reference to World Heritage and the State Party’s commitment to protect the OUV of the World Heritage properties located on its territories.<sup>5</sup> The White Paper sets ambitions for these World Heritage properties, including that:

- *With their unique qualities, World Heritage properties are expected to manage tourism according to best practices internationally and be good examples for other cultural and natural heritage destinations.*<sup>6</sup>
- *The county and municipal authorities develop Norway’s World Heritage sites as prime examples of best practice in the management of natural and cultural heritage through land-use planning.*<sup>7</sup>
- *...Norway has clear obligations to safeguard the World Heritage properties on its territory. County authorities and municipal authorities play an important role in fulfilling these obligations. Regional and municipal planning is essential to preserving the assets that won [sic] World Heritage status for eight Norwegian World Heritage properties.*<sup>8</sup>
- *...World Heritage properties shall be developed as beacons of best practice in the management of the natural and cultural environments and giving priority to securing Norway’s World Heritage properties. Importance is attached to clarification of the sectoral responsibilities, coordination of the national policy for the World Heritage properties, and good flow of information between the authorities and the local community.*<sup>9</sup>

The last-mentioned is also a pre-existing defined goal which has been continued through inclusion in the Policy as a conservation programme.<sup>10</sup> The White Paper also addressed sustainable development, diversity, and the World Heritage Leadership Programme, which “...aims to build the skills of practitioners working through the World Heritage Convention.”<sup>11</sup>

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<sup>5</sup> Norwegian Ministry of Climate and Environment, (2021). *New goals for Norway’s Cultural Environment Policy (Parliamentary White Paper)*. Norwegian Government Security and Service Organisation 06/2021, p. 33 & 74.

<sup>6</sup> Ibid., p. 66.

<sup>7</sup> Ibid., p. 71.

<sup>8</sup> Ibid., p. 74.

<sup>9</sup> Ibid., p. 74.

<sup>10</sup> Ibid., p. 79.

<sup>11</sup> Ibid., p. 109.

### 3.3 Management system

The area of Bryggen is privately owned. The stakeholders at Bryggen collaborate in different clusters of owners and authorities. The major owner of the buildings is the *Stiftelsen Bryggen* (Foundation Bryggen), which was established in 1962 with the aim to preserve the harbour district. It owns 38 of the 62 buildings that make up the property.<sup>12</sup> The remaining seven private owners, who individually own 23 buildings in Bryggen, established a separate association, the *Bryggen Private Owners Association* to safeguard their interests.<sup>13</sup>

The World Heritage property is managed according to a Management Plan that is revised regularly. The current plan covers 2021-2025 and includes an inventory of attributes that convey the OUV of the property (Refer to Annex V). It outlines, amongst others, measures to ensure the proper working of the fire protection system with detection and suppression and includes tailored measures to address future challenges related to the climate conditions and tourism impacts. Particular emphasis is given to the threat of pressure arising from urban development in the vicinity of the district. This aspect is closely monitored by the cultural heritage authorities to avoid adverse impacts on its Outstanding Universal Value.

The State Party provided the Mission with the following description of the management system from national to local level:

*The government white paper on the cultural environment policy [refer to section 4.2, above] outlines the roles and responsibilities on the municipal, county and national levels. In a very simplified way, the system may be summarised as follows: the municipality is responsible in terms of the planning and building act, while the county and the national level (Directorate for cultural heritage) have a right to object/stop plans within our responsibilities. The directorate also has the right to take over planning matters from the county if deemed necessary in special cases. The county has the first line responsibilities in relation to the cultural heritage act, with the exception of archaeology/the medieval city in Bergen specifically, where the Directorate has the first line responsibility. The Ministry of Climate and Environment is responsible for the World Heritage Convention as the State Party representative on the national level, with delegated powers to the two directorates Norwegian Environment Agency and Directorate for Cultural Heritage. In the case of Bryggen, the Directorate for Cultural Heritage ensures that the role and obligations of the State Party in relation to the World Heritage Convention are followed up.*

*The Management Plan for Bryggen also outlines the roles and responsibilities of the different levels and agencies.*

The World Heritage Board is composed of political representatives at the municipal and regional levels. It has a mandate to ensure long-term management and protection of Bryggen in line with [the Convention's provisions and operational] guidelines and the management plan for Bryggen (which the Board adopts). The Advisory Board is established to ensure that high quality and scientifically based development and management is implemented, and to ensure broad representation and contact with the high number of stakeholders at Bryggen. The Advisory Board prepares various matters for the World Heritage Board and is instrumental in the implementation of the management plan and related work plans. The World Heritage

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<sup>12</sup> <https://stiftelsenbryggen.no/stiftelsen-br/>

<sup>13</sup> Michael Kloos Planning and Heritage Consultancy, 2022. Heritage Impact Assessment (HIA) of the "Planforslaget Bybanen Ds/1 Kaigaten-Sandbrogaten" on the World Heritage Property Bryggen in Bergen, p. 33.



coordinator (site manager) acts as the contact point for the World Heritage site and is the link between the different horizontal and vertical authorities and stakeholders involved in the conservation, management and protection of Bryggen. The coordinator is the secretariat for both boards mentioned above.<sup>14</sup>

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<sup>14</sup> Information provided on request by the State Party of Norway to the World Heritage Centre by email on 9 September 2022.

#### 4. THE MISSION

The Mission team was composed of Berta de Sancristóbal, Head of the Europe and North America Unit of the UNESCO World Heritage Centre and Dr Nicholas Clarke, for ICOMOS.

The Mission programme (Annex II), hosted by the City of Bergen's Byantikvaren (City Cultural Heritage Department) and accompanied by a representative of the Riksantikvaren (Directorate for Cultural Heritage) included:

- Site visits (repeated) and a boat journey to view the property and its maritime context from the Bergen harbour;
- Meetings with a very wide range of governmental organisations and non-state institutions and individuals including:
  1. Riksantikvaren (Directorate for Cultural Heritage)
  2. Vestland County Regional Cultural Heritage Authority
  3. Byantikvaren (Agency for Cultural Heritage Management, Department for Urban Development, City of Bergen)
  4. The Bybanen project team, project managers etc.
  5. The Bryggen World Heritage Board
  6. The Bryggen World Heritage Advisory Board
  7. The Port of Bergen
  8. VisitBergen
  9. Bergen Commissioner for Climate, Environment, City Development
  10. Director of Hanseatic Museum
  11. Bryggen Private Owners
  12. Stiftelsen Bryggen
  13. The Department for Mobility and Public Transport, Vestland county
  14. The NIKU Norsk Institutt for Kulturminneforskning (niku.no)
  15. Geological Survey of Norway (NGU) Norges Geologiske Undersøkelse (ngu.no).

For more information refer to Annex III.

The Mission did not have the opportunity to meet with the organisation *Folkeaksjonen Nei til Bil og bybane over Bryggen* (translates to: *People's action No to cars and light rail over Bryggen*, a Facebook-based group with a Facebook membership of over 15 500), who contacted the State Party representatives arranging the mission after the mission team had departed from Bergen. This organization was requested to submit a statement in writing to the City of Bergen for forwarding to the mission team. No transmission had been received at the time of finalization of this report.

The Terms of Reference (ToR, Annex I) stipulated that the Advisory Mission undertake the following tasks:

1. Visit the World Heritage property and meet with local, regional and national authorities, as well as local stakeholders/owners of the buildings at Bryggen and the team undertaking the ongoing HIA.
2. Consider whether and how the ongoing plans for Bybanen will affect the OUV of the property and provide recommendations and guidance towards possible and necessary revisions/amendments/changes to the plans to safeguard OUV (Reported to in Chapter 7 as **ToR 1**).
3. In relation to the ongoing HIA, give advice on issues concerning the recently published "Guidance and Toolkit for Impact Assessment in a World Heritage Context" (Reported to in Chapter 7 as **ToR 2**).
4. Share, if any, relevant management examples from other World Heritage properties.

5. Provide guidance and recommendations concerning the ongoing establishment of a buffer zone which takes into account the context and wider setting of Bryggen in the historic city of Bergen (Reported to in Chapter 7 as **ToR 3**).
6. Give advice on any other relevant issue, observed during the visit (Reported to in Chapter 7 as **ToR 4**).

As part of the pre-Mission information package, the State Party submitted documents. These were augmented following the Mission. All material received from the State Party is listed in Annex VIII.

## 5. ASSESSMENT OF THE STATE OF CONSERVATION OF THE PROPERTY

Bryggen is located in the historic heart of Bergen, between the medieval city centre and the defensive Bergenhus Fortress. The mountain slope raises steeply behind Bryggen. Bryggen stands on a narrow stretch of land, much of it reclaimed, along Vågen Harbour.

The Bryggen World Heritage property can be conceptually described as three distinct, but interdependent parts:

1. The most evident is the built fabric of the property: the timber and stone buildings, many dating to the years after the 1702 fire, and used historically by the Hanseatic traders in Bergen, with the kitchen gardens located at the back of the property against Øvregaden (street). The Finnegården component consist only of a single building.
2. The second constituent is the urban context of these built structures: the relationship of these wharf-warehouses with the ocean (the Vågen harbour), the built city and the mountains behind it. This is both a spatial and functional relationship.
3. The archaeological deposits (cultural deposits) below Bryggen are essential to the authenticity and integrity of the OUV of the property. These deposits of varying depth were built up over many centuries to a depth of up to 10m under and in front of Bryggen. They not only carry the weight of the buildings above (constructed on rafts), but are of unquestionable importance in themselves. The maintenance of the water level in the cultural deposits is critical to maintaining their structural integrity and their state of conservation.

The property is vulnerable due in a large part to the decay of the timber raft foundations under the buildings floating on the water-logged cultural deposits, but receives due attention from both the State Party as well as the Stiftelsen Bryggen, supported by the Directorate for Cultural Heritage, to maintain its state of conservation. Apart from the ever-present threat of fire, the fragile historic timber constructions are liable to sink into the cultural layers below due to rotting timber raft foundations and continuous compression of the cultural layers below. The Stiftelsen Bryggen has provided the Mission with a diagram indicating the overall average subsidence of the front gables of the property since 1945, which shows the scale of the problem.

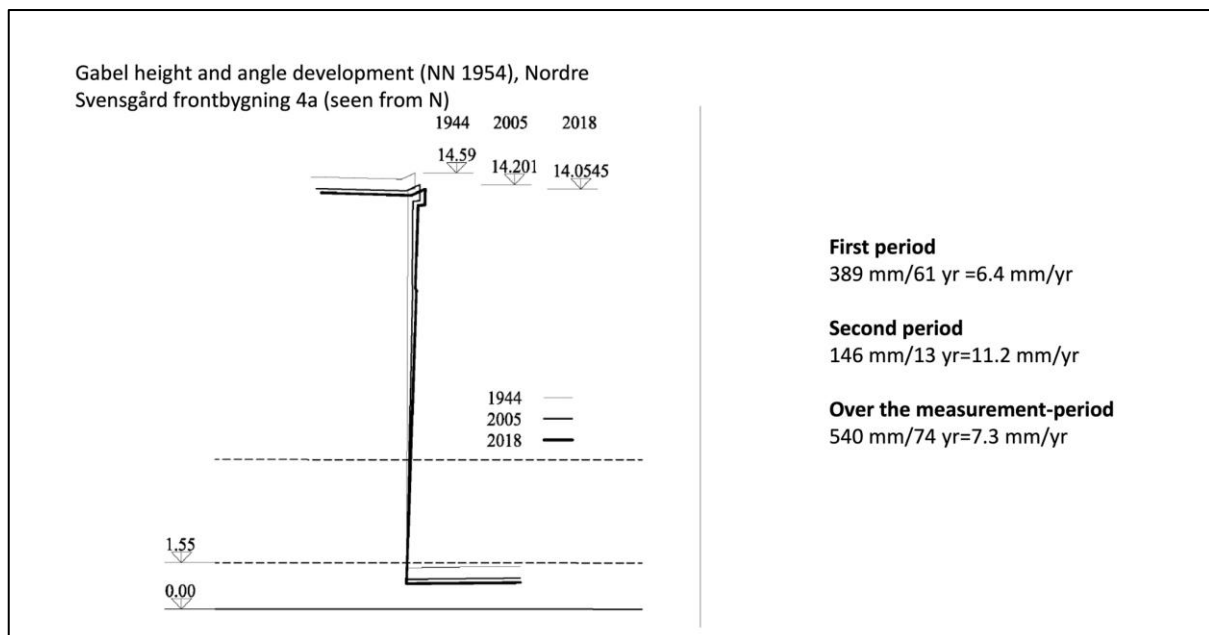


Figure 1. Schematic representation of the subsidence of the main gable-ends at Bryggen (Stiftelsen Bryggen).

An important contribution to the maintenance of the state of conservation was the nationally funded project *Monitoring, Mitigation, Management* which has provided an understanding of the critical contribution of maintaining the hydrology of the Bryggen area for the maintenance of its integrity and authenticity. Important actions to stabilise the groundwater table (and attempt to lower the temperature of the water) were undertaken and seep wells drilled which are constantly monitored through digital loggers. The Mission was informed that a review process of the groundwater monitoring undertaken since that project was completed had started.

The Mission visited one building that is undergoing foundation repairs and stabilisation and was impressed by the scale of the challenge and the thoroughness with which it is being addressed through the Project Bryggen. Project Bryggen is implemented by the Riksantikvaren through the Stiftelsen Bryggen. Annually about NOK 20 million (Approx. US\$1.86 million) is made available for the project. Only two buildings are stabilised at time: a slow pace necessitated by the application of traditional craftsmanship and available budgets. The five-year national *Cultural heritage for everyone* programme, which commenced in 2016 and aims to preserve intangible heritage, including construction crafts, held a workshop at Bergen in 2018 to train young craftspersons in traditional timber construction, required to maintain the built fabric of the property.<sup>15</sup>

A challenge faced by the Project Bryggen is the loss of revenue, both for the Stiftelsen and private owners, due to far-reaching interventions in the foundations which require lengthy period during which buildings cannot be used. It is comprehensible that owners may prioritise rental incomes over foundation stabilisation, with years of lost income.

The Mission commends the Stiftelsen and the State Party for these well-thought through and carefully executed conservation projects which, with a view to guaranteeing the long-term integrity and authenticity of the property, have greatly improved its state of conservation.

The property however remains very fragile and its long-term integrity under pressure. More and faster stabilisation would be welcome, but should not compromise the quality of the work executed.

The slow pace of stabilisation of this fragile built fabric may increase the risk that the Bybanen project may hold to the fragile buildings and the vulnerable cultural layers located in the property.

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<sup>15</sup> Norwegian Ministry of Climate and Environment, (2021). *New goals for Norway's Cultural Environment Policy (Parliamentary White Paper)*. Norwegian Government Security and Service Organisation 06/2021, p. 50.

## 6. RESPONSE TO THE TERMS OF REFERENCE FOR THE MISSION

### ToR 1: **Recommendations and guidance towards possible and necessary revisions/amendments/changes to the plans to safeguard OUV in relation to the ongoing plans for the Bybanen City Rail system extension**

#### Background

The 'Light Railway Project' ("Bybanen/the City Rail") is a major project for the city of Bergen in solving infrastructure challenges, to achieve a zero growth of vehicle traffic and – over the long term – to decrease private vehicular traffic in the entire city. The State Party initially notified the UNESCO World Heritage Centre of the project in 2015. The State Party explained that the aim of the project was to develop three light railway lines, of which the third, which should connect Bergen city centre to Åsane in the north, would be the most complex one as it had the potential to impact adversely on the World Heritage property.

A wide range of proposals were explored at the outset of the project, some of which avoided the World Heritage property in total, for instance by tunnelling under the Nordnes peninsular and under the entrance to Vågen (harbour). Other trajectories were projected as tunnels to be drilled under Skansemyren, roughly following the Fløyfjellstunnel.

**From these variants, three alternative proposals** for the northward line were explored in 2013: two of them considered the **construction of an underground tunnel** under the centre of Bergen with different entry points, while the third one, called the '**day alternative**', foresaw the line to run in the length of the quayside of the World Heritage property. All options would result in having the potential to impact the cultural heritage of Bergen to different degrees, mainly because of the presence of a high number of areas with **archaeological evidence** from the Middle Age and earlier, or due to the required demolition of historic structures to accommodate tunnel entrances and subterranean station entrances.

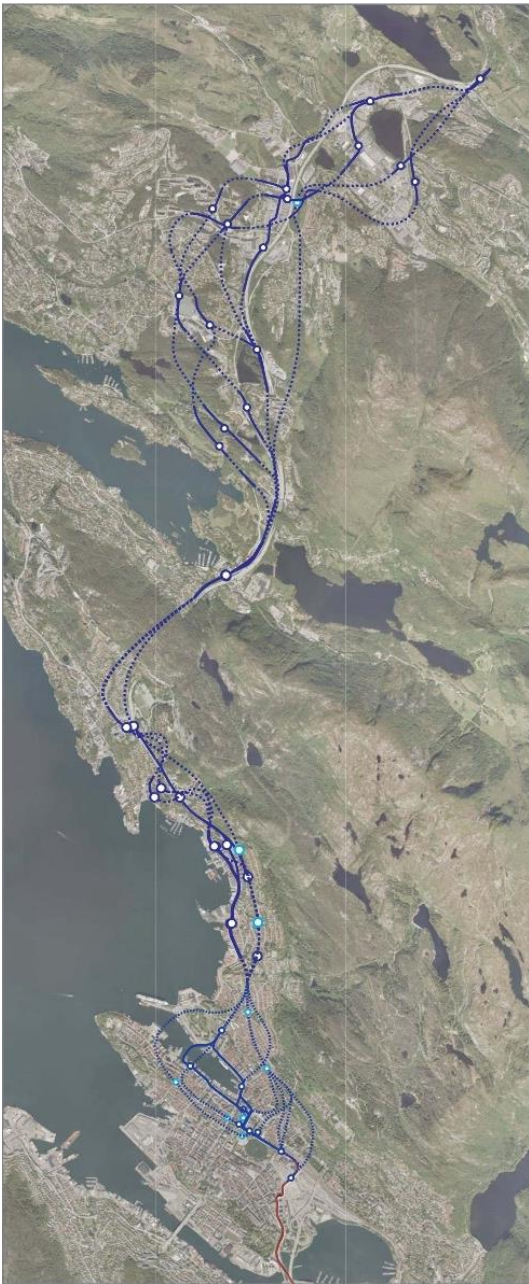


Figure 2. Possible trajectories for the Bybanen through Bergen as assessed in 2013. (State Party)

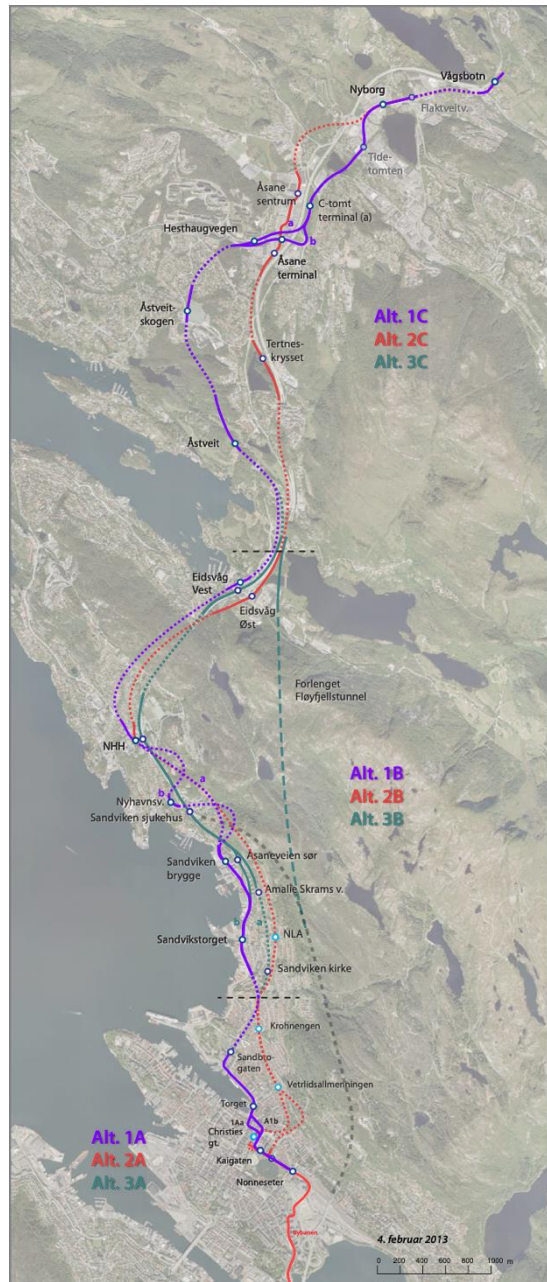


Figure 3. The three viable possible trajectories for the Bybanen through Bergen selected for further development in 2013. (State Party)

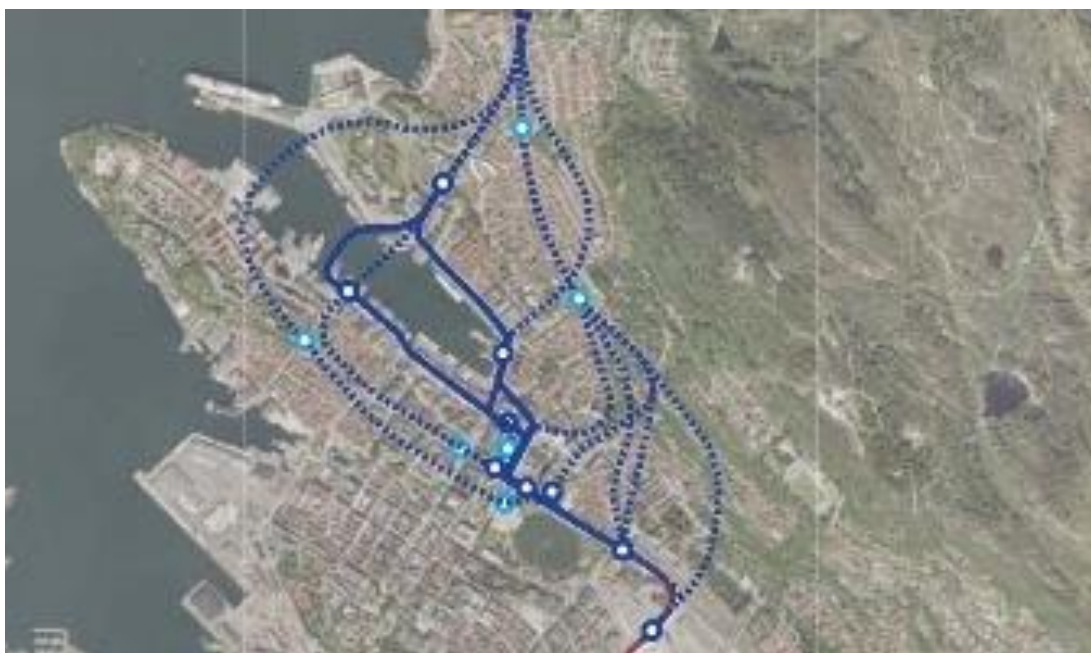


Figure 4. Enlargement of a section of the 2013 proposals for routing the Bybanen around Vågen. (State Party)

#### Process to date

A number of cultural heritage impact assessments and other assessments were conducted in order to gain an understanding of the potential impacts of the three alternatives. On 17 **June 2014**, the Bergen Municipality decided to implement one of the tunnel alternatives with entry points that were planned to be located very close to the World Heritage property 'Bryggen'. The State Party informed the UNESCO World Heritage Centre that the selected alternatives had not been impact assessed yet since it was considered too complex to be implemented. The State Party stated that the Vestland County, as Regional Authority, and the Directorate for Cultural Heritage had already made it clear to the municipality that they would not accept the tunnel alternative and the chosen entry points. The Bergen Municipality at this point turned to the development of the southward line from the Bergen Flesland Airport to the city centre.

In May 2018, the City Council in Bergen, departing from its 2014 decision, decided to proceed with the 'day alternative', opting for the light rail line passing on the quay in front of the World Heritage property of Bryggen. In response, the World Heritage Committee's decision in **July 2019 (43 COM 8B.47)** requested the State Party of Norway to "undertake a Heritage Impact Assessment regarding the future City Rail track that will pass in the buffer zone, to assess the potential impact on Bryggen's Outstanding Universal Value."

In **August 2019**, the State Party informed the World Heritage Centre that the Bergen Light Rail Project was examining specific mitigation measures, including traffic management, and minimization of visual impacts. At the time, a design competition for the urban environment in front of Bryggen was already ongoing, and the progress plan indicated that a final decision on the local area plan was expected by the end of 2022. The Bergen Light Rail project established a dialogue forum where the local, regional and national cultural heritage authorities were invited to a mutual exchange of information, and requested advice from the Directorate for Cultural Heritage on the timing and terms of reference for a Heritage Impact Assessment (HIA), which would have the aim to "assess the potential impact on Bryggen's Outstanding Universal Value." (**Decision 43 COM 8B.47**).



Following the World Heritage Committee's decision **43 COM 8B.47** (July 2019), the State Party informed the World Heritage Centre in **November 2021** that the Municipality of Bergen had commissioned a **Heritage Impact Assessment (HIA)** in early 2020. A first preliminary report of the HIA was completed in **October 2020**,<sup>16</sup> outlining positive and negative impacts related to the 'day alternative', defining its significant visual and functional negative consequences, and proposing specific recommendations to mitigate these consequences and reduce risks.

The report includes two key recommendations:

1. Two alternative options for the Bybanen connection through this historic city of Bergen should be further developed:
  - a. the Daylight Option, and
  - b. an option for a tunnel to run behind the property through the mountain
2. An integrated Management Plan be developed for the World Heritage property

In response, the Bergen City Council, decided in **May 2020** to further extend the planning area to develop a tunnel alternative, based on existing assessments from 2013.

A second (**September 2021**) **HIA preliminary report** presents an analysis of potential impacts, consequences, and uncertainties for both the day and tunnel alternatives. The report distinguishes between impact- and risk assessments.<sup>17</sup>

The second preliminary report weighed the Daylight and Tunnel Option against each other, identifying large positive impacts on the accessibility of the areas that the light rail would pass through or behind.

However, the report lists the anticipated positive and negative impacts expected from both the alternatives, and especially identifies large positive impacts for both options on the overall traffic situation:

<b>Tunnel Option</b>	<b>Daylight Option</b>
Positive: the Tunnel Option would reduce the number of buses passing on Bryggen.	Positive: the Daylight Option would have a positive impact on risk preparedness for sea water rise and flooding.
Negative: large risks associated with construction works at tunnel portals in relation to built heritage and changes of groundwater levels in the World Heritage property and its potential buffer zone.	Negative: large functional deficits due to the barrier effects of the light rail trains combined with a cycle path at the Hanseatic Museum and Bryggen, and moderate negative impact on Øvregaten (medieval street in Bergen) due to bus traffic diversion.
Both options are expected to create negative structural impacts and large risks related to underground water levels.	

*Table 1. Summary of main expected impacts of the Tunnel and Daylight Options reported to in the first (October 2020) preliminary report.*

<sup>16</sup> Michael Kloos Planning and Heritage Consultancy, 2020. *Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen / Bergen*. Aachen, 16 October.

<sup>17</sup> Michael Kloos Planning and Heritage Consultancy, 2021. *HIA PRELIMINARY REPORT 2 Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen / Bergen*. Aachen, 30 September.

The second report also highlights possible **large risks** for built heritage foundations of Bryggen and the medieval archaeological deposits at Sandbrogaden (outside the property) associated with the Daylight Option and potential changes to the hydrology should the Tunnel Option be implemented. It recommended both options be further developed to be able to better evaluate their potential impacts.

In February 2022, the State Party provided UNESCO with additional updates on the status of the Bergen Light Rail project. It reported that the Bergen City Council decided on 15 December 2021 to continue planning on only the Daylight alternative and terminate the planning work in relation to the tunnel alternative.

The Bergen City Council decision of 15 December 2021 includes, as a legal requirement in the final plan:

1. the omission of the masts and infrastructure for the overhead high voltage lines in from of the World Heritage property,
2. the minimum visual impact of masts for lighting,
3. the construction of a cycle road in front of Bryggen as part of the project.

Furthermore, it was decided to minimize as far as possible the construction period, to protect the medieval street Øvregaten during the traffic diversion, and to follow up the recommendations of the Heritage Impact Assessments, in order to safeguard the World Heritage property.



Figure 5. Day Option: Bybanen light rail tracks shown in red, bicycle route, planned to run in parallel, in blue (Michael Kloos Planning and Heritage Consultancy; Preliminary Report - Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen / Bergen (16 October 2020); p.24).

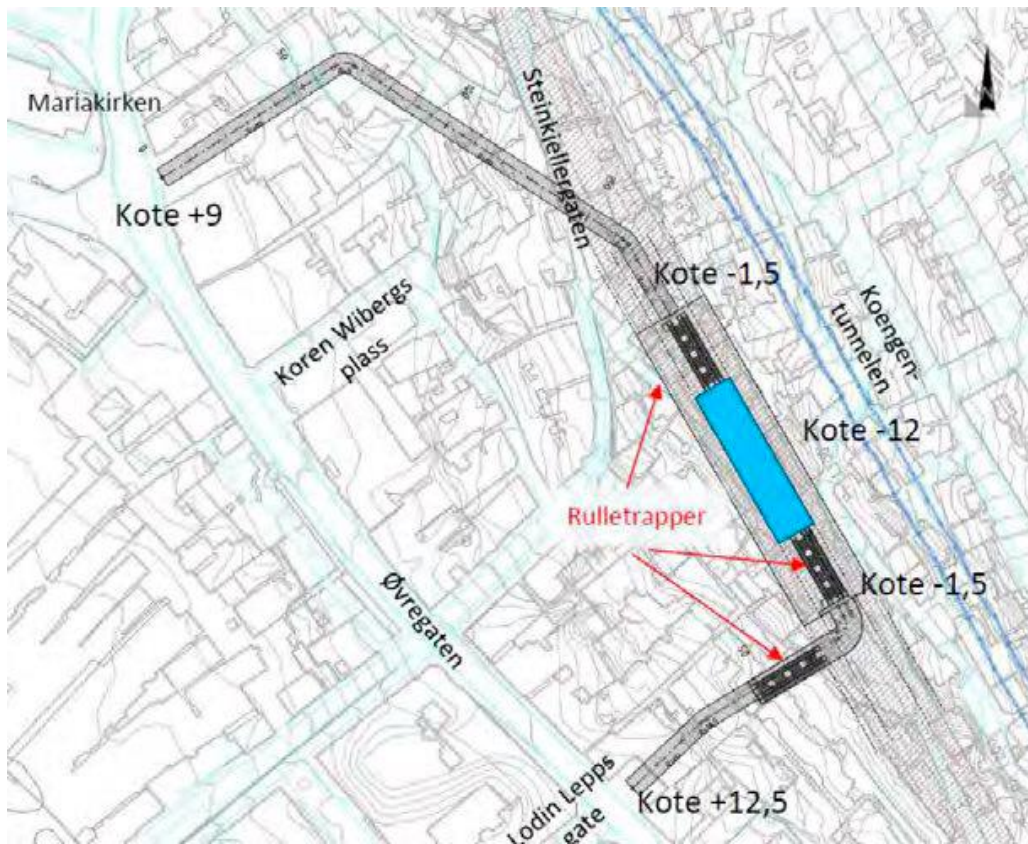


Figure 6. Tunnel Option: Planned tunnel entrance (Michael Kloos Planning and Heritage Consultancy; HIA PRELIMINARY REPORT 2 - Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen / Bergen (30 September 2021); p.12).

The final planning proposal for the Daylight alternative is expected towards the end of 2022, but the City of Bergen has already adopted an 'illustration plan' for the Bryggen Quayside which limits the location of the tracks Bybanen project (light rail), stipulates the location of the bicycle tracks, and the definition of the public space design, including not permitting any form of fence on either side of the Bybanen track.

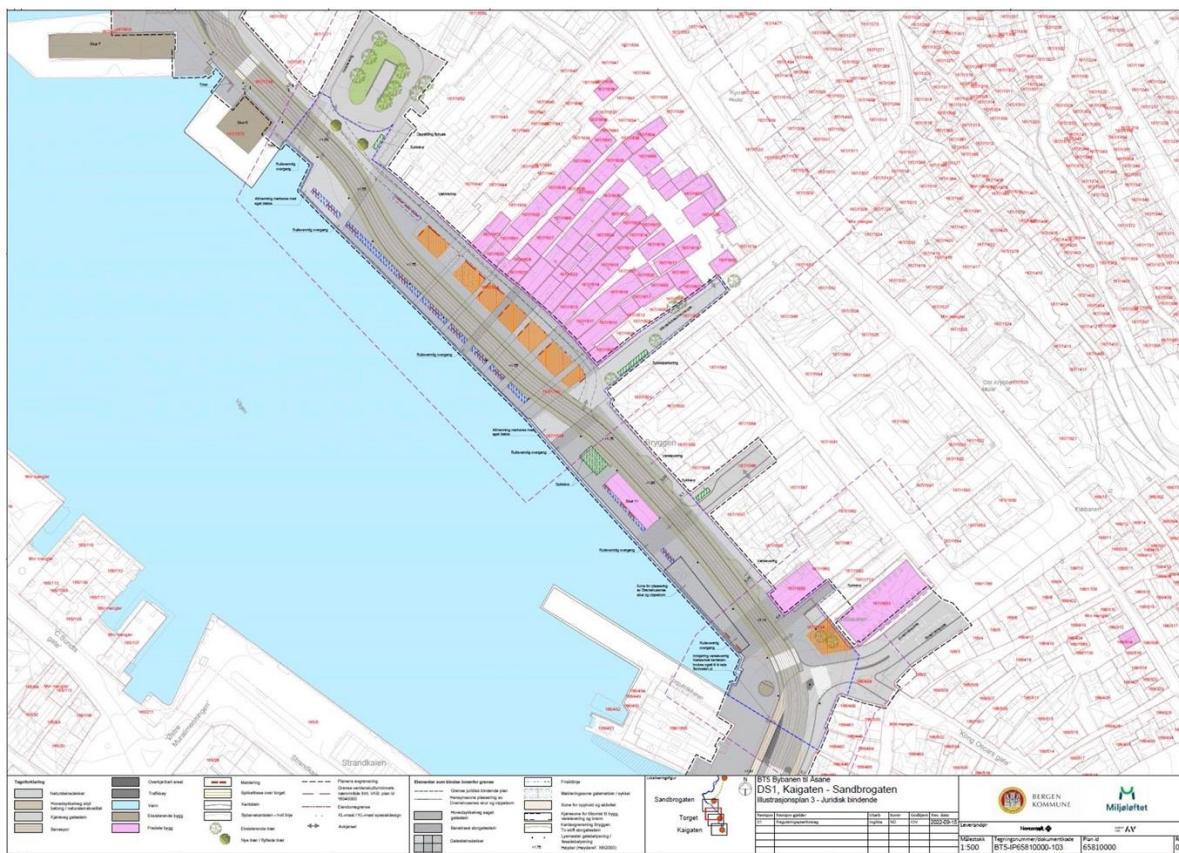


Figure 7. Adopted 'illustration plan' for the Bryggen Quayside (City of Bergen, Miljøloftet).

The Mission received a copy of the draft HIA on 17 October 2022, before verification by the State Party of possible factual errors, and the final version on 19 October. In terms of process, this draft HIA notes that it is the intention to complete a so-called 'Full HIA UNESCO Report "Planforslaget Bybanen Ds/1 Kaigaten-Sanbrogaten"', will be completed after the Bergen Municipality hearing process, which ends in March 2023, for submission to the World Heritage Centre.<sup>18</sup>

The State Party, in its letter to the World Heritage Centre of 10 February 2022, reported that the **regional authority, Vestland County**, had indicated that it would raise formal objections to the future plan if the conclusions, recommendations, and mitigation measures presented through the HIA were not taken into consideration and implemented.

<sup>18</sup> Michael Kloos Planning and Heritage Consultancy, 2022. Heritage Impact Assessment (HIA) of the "Planforslaget Bybanen Ds/1 Kaigaten-Sandbrogaten" on the World Heritage Property Bryggen in Bergen, p. 15.

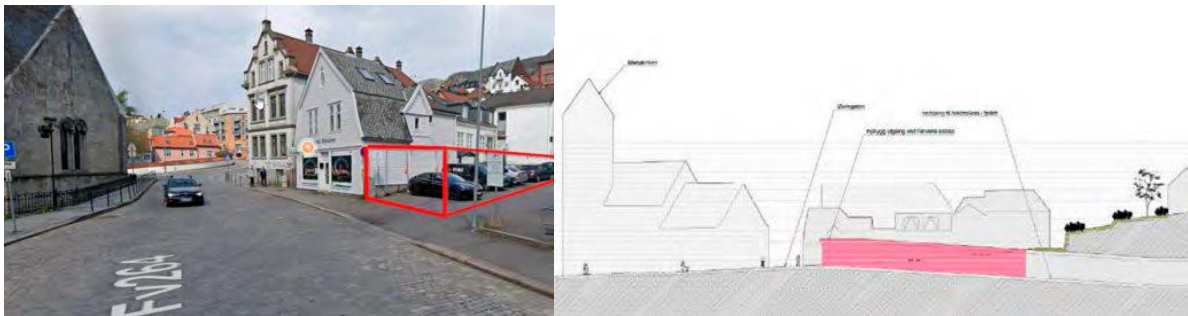


Figure 8. Tunnel Option: Planned tunnel entrance at Mariakirken (Michael Kloos Planning and Heritage Consultancy; HIA PRELIMINARY REPORT 2 - Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen / Bergen (30 September 2021); p.12).

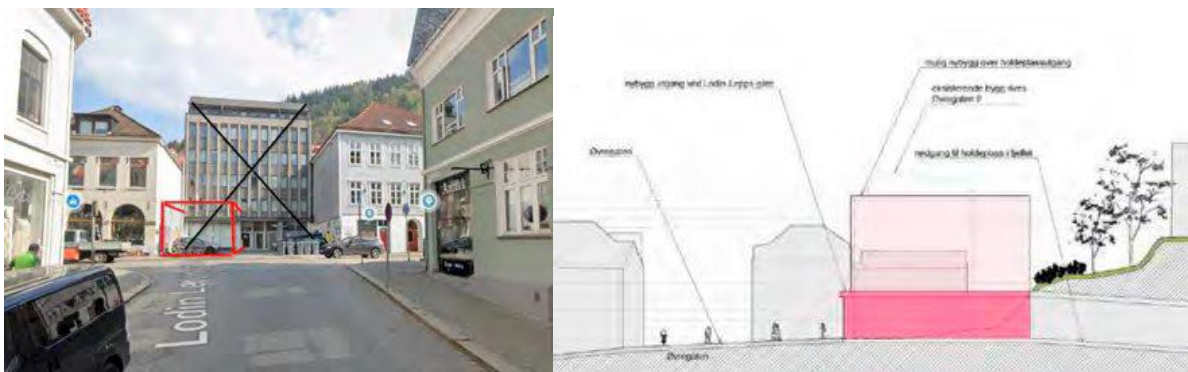


Figure 9. Tunnel Option: Planned tunnel entrance at Øvregaten 9/11 (Michael Kloos Planning and Heritage Consultancy; HIA PRELIMINARY REPORT 2 - Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen / Bergen (30 September 2021); p.12).



Figure 10. Comparison of the Day Option (left picture) and Tunnel Option (right picture) (Michael Kloos Planning and Heritage Consultancy; HIA PRELIMINARY REPORT 2 - Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen / Bergen (30 September 2021); p.13).



Figure 11. Comparison of the Day Option (left picture) and Tunnel Option (right picture) from Viewpoint 2 (Michael Kloos Planning and Heritage Consultancy; HIA PRELIMINARY REPORT 2 - Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen / Bergen (30 September 2021); p.24).

## Discussion

The City of Bergen has already voted to continue with the Daylight Option, but the Mission, like the HIA-process, will explore both the tunnel and the Daylight Option. At the outset it must be stated that neither of the two options for the Bybanen alignment currently on the table are ideal when measured against their potential impact on the OUV of the property based on its attributes as presented in the management plan (see Annex V). At the same time, it must be acknowledged that the current situation on the Bryggen dock is also far from ideal with the street carrying heavy traffic, affecting the immediate setting of the property.

Of the two options, the Daylight Option presents the most obvious visual change to the setting of the property. Other parties, including the Stifflisen Bryggen in association with the organization Bergen Sentrum 2050, have developed alternatives for the tunnel proposals. They present two alternatives for the Daylight Option: a tunnel starting at Peter Motzfeldts gate and a more ambitious option commencing at Marken and including a side-line to the Bergen ferry harbour.



Figure 12. The Bergen Sentrum proposal for a tunnel starting at Peter Motzfeldts gate (<https://www.bs2050.no/hvorfor>). The World Heritage property has been indicated with a red dotted square.



Figure 13. The Bergen Sentrum proposal for a tunnel commencing at Marken and including a side-line to the Bergen ferry harbour (<https://www.bs2050.no/hvorfor>). The World Heritage property has been indicated with a red dotted square.

Reporting on the operational or financial feasibility of these proposals lies outside the scope of this Mission. It notes that both avoid an alignment along the Bryggen waterfront and propose a subterranean tunnel above, parallel to Øvergaten, running roughly under Steinkjellerbakken. From the available information, it seems that the route in the vicinity of the World Heritage property roughly matches the alignment of the Tunnel Option assessed in the HIA. The entrances are, however located in different locations. A station is projected under Langeveien, its three entrances are projected at (1) Vetrilidsallmenningen 27, (2) adjacent Bryggen on the

corner of the Rozenkranzgaten and Nikolaikirkellmenningen and (3) roughly at Koren Wilbergs plas 1, above Bryggen.

This Advisory Mission report does not aim to provide a full impact assessment of the various options for the Bybanen trajectory: this is the task of the consultant employed by the State Party to undertake the HIA. The Mission provides comments on the HIA, as requested in the Mission's Terms of Reference, under the heading ToR2.

The alignment for the Bybanen from the city centre of Bergen through to Sandvicken poses a significant challenge, particularly due to the topography of Bergen which limits the options available for north-south transport planning. Historically, transport infrastructure either hugged the shore-line (a historic train and electric trolley line ran along the Bryggen Quayside and around the end of the Bergenhus Fortress, towards Sandvicken – this was discontinued in the 1960s, the Mission was told, due to subsidence along the Bryggen Quayside); in instances, infrastructure development has been made possible by tunnelling through the mountains (such as the Koegen railway tunnel that historically ran from the railway station to the harbour).

These two strategies are, in broad terms, the only available strategic options for the Bybanen City Rail project to connect the city centre to Sandvicken. The Mission accepts and acknowledges that the Bybanen project is important to maintain and improve the liveability of the city of Bergen, of which Bryggen forms an integral part. The liveable city Bergen is an important aspect of the historic, cultural, functional, social, visual and economic setting of the OUV of this World Heritage property. However, both the aforementioned strategic options present risks of negative impact on the integrity of the OUV of the Bryggen World Heritage property.

It is critically important to reduce risks and avoid impacts on the integrity of the property. These risks of impact from both Daylight and Tunnel options relate to all three above-mentioned constituent parts:

1. The timber and stone buildings of Bryggen. Here the Mission harbours concern for the cultural layers and their hydrology and consequently structural integrity of the structures as well as their use over an extended period of time.
2. The archaeological deposits (cultural deposits) below Bryggen and the Bryggen Quayside.
3. The spatial and functional relationship of the historic wharfs, warehouses and meeting rooms with the urban context of the property. Here the area in front of Finnegården deserves special discussion as the Bybanen line will pass directly in front of the Hanseatic Museum and reduce the functional possibilities for museal programmes of the outdoor spaces;

It should be stressed that the long-term stability of the timber buildings at Bryggen is directly dependent on the hydrological stability of the archaeological deposits (cultural deposits) below Bryggen.

The Daylight trajectory is projected to pass over medieval cultural layers at Sandbrogaten. While not located inside the property, these provide an archaeological setting to the cultural layers of the property and are therefore intrinsically important to the maintenance of the OUV of the property, as they provide one of its attributes ('location and setting').<sup>19</sup> The Mission was informed that the protection of these cultural layers is a concern of the Bybanen project.

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<sup>19</sup> Refer to paragraphs 82 and 112 of the *Operational Guidelines*.

### Tunnel Option

The Tunnel Option would avoid visual impacts on the OUV of the World Heritage property. No light rail infrastructure would be located on the Bryggen Quayside, therefore the linear barrier (a visual and functional impact) inherent to the Daylight Option would not exist. This option is promoted by a number of stakeholders as the most viable strategy, but it also holds many **potential significant risks**, especially with regards groundwater systems. These risks are difficult to predict, may lead to long-term continuous/permanently occurring impacts and therefore require unforeseen permanently implemented mitigation.

The construction of the tunnel entrances and subterranean station entrances may have an impact on the built heritage fabric of Bergen, with possible demolition of built fabric as inevitable consequence. Although this would not have a direct impact on the OUV of property, as these structures are not part of its attributes or located within its boundaries, such changes can be seen as altering the setting of the property, an important support to the OUV of the property.

This Tunnel Option holds high risks due to the unknown nature of the deeper geology. Most notable is that drilling a tunnel hydrologically speaking 'upstream' of Bryggen presents the risk of changes in the hydrology of Bryggen with consequences for both the cultural layers and the built fabric that stands thereon.<sup>20</sup>

A tunnel may create a significant barrier to, or create new avenues for transport of water through the mountain behind Bryggen. The geological experts of the Norwegian Geological Institute were clear in their assessment that such consequences could not pre-emptively be avoided. The Mission notes that a further risk is posed by potential hydrological leakage into any drilled tunnel, potentially affecting the water levels and movement over a wide area away from the tunnel itself. Redressing this may call for a large number of compensatory measures, which may require constant and continuous management for continued correction, and constant monitoring. Actively removing (pumping) water from a leaking tunnel could have significant consequences for the hydrology of the mountainside as well as the area around Bryggen. To construct a sealed tunnel would considerably increase costs, may require substantial injection into existing or new seams in the geology and may result in unexpected changes to the water flow through fissures and layers in the rock from the mountain to Vågen Harbour.

### The Daylight Option

Implementation of the Daylight Option holds acknowledged impacts, notably visually and functionally. The visual impact of a double light rail line along the length of the quayside are deemed to be potentially large, in part due to the possibility of infrastructure (overhead lines) as well as the length and size of the light railway trains themselves (at a length of 42 metres). The commitment of the City of Bergen to avoid any over-head infrastructure is welcome in this regard.

This proposal will also result in a functional barrier between Bryggen and the Bryggen Quayside and harbour, further strengthened by two cycle paths, one on either side of the light rail line.

It should, however, be acknowledged that the current situation also results in an unsatisfactory visual setting of the property, with many tour and public transport busses, trucks, and other private vehicles using the road along the Bryggen Quayside. This road consists of two lanes

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<sup>20</sup> As confirmed during the Mission in a meeting on 21 September with Dr. Hans de Beer of the Norwegian Geological Survey (NGU), a leading expert on the hydrology of the cultural layers at Bryggen.



plus bus lay-by for more than 80% of the length of the road in front of Bryggen. Two bus stops are located directly in front of Bryggen, between the property and the Vågen harbour. These are of a relatively humble scale. The current road therefore currently serves as a functional barrier between Bryggen and the quayside. The Daylight Option will in principle extend the lifespan of this less-than-ideal circumstance.

The Daylight Option has potential benefits for the setting of the property and the maintenance of its OUV arising from the requalification of the urban space between Bryggen and the quayside (repaving the area, removal of light and heavy through-traffic). The beneficial improvement of the quayside to better shield Bryggen from extreme high tides will also assist in safeguarding the property's OUV. Additionally, the construction of a continuous pile wall along the tramline trajectory will assist in maintaining a beneficial groundwater level in the cultural layers under Bryggen.<sup>21</sup> In theory, however, all these benefits could be achieved without the construction of a light railway line across the waterfront, through urban landscape upgrades, the construction of a pile wall and improvement of the quayside at Dreggekaaien. Furthermore, the owners of Bryggen question to what extent it is legitimate/ necessary to 'use' Bryggen to solve the development challenges of the larger city of Bergen.

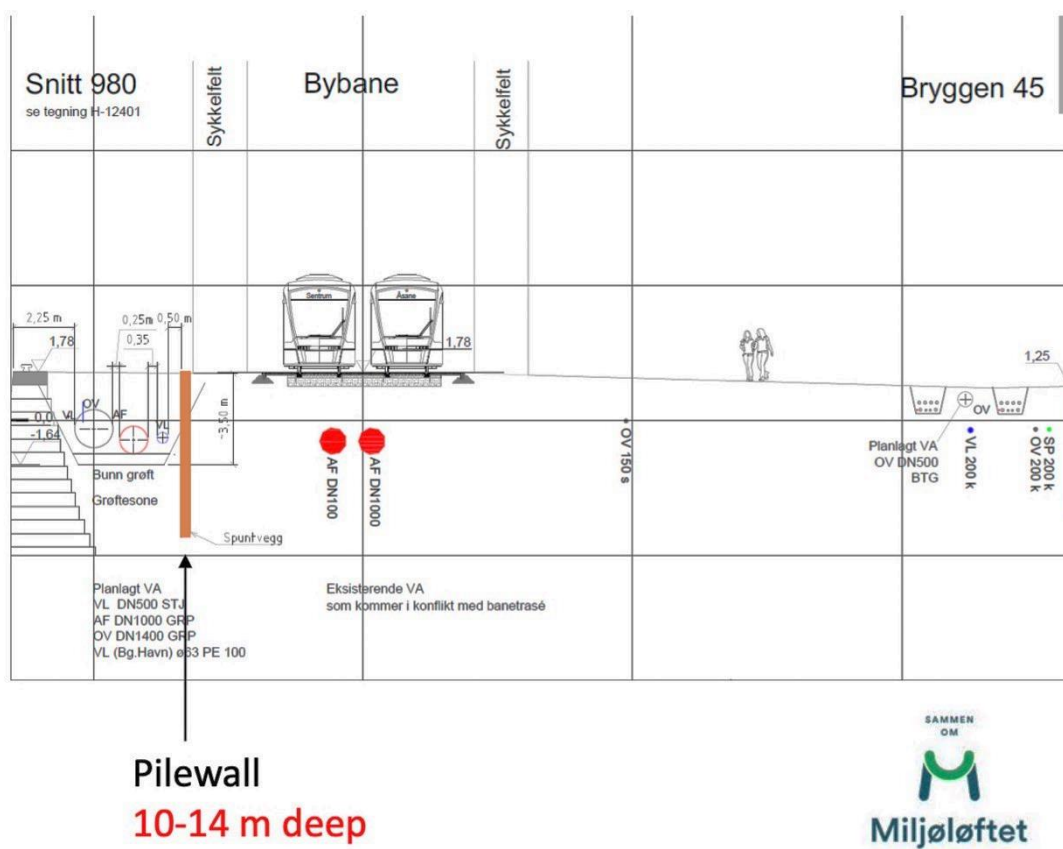


Figure 14. Current design for of the section through Bryggen Quayside at Bryggen 45 (the Radisson Blue Royal Hotel, on the right of the image), with the pile wall indicated between the Bybanen track and the quay wall. This proposal excludes overhead infrastructure. (City of Bergen, Miljøløftet)

<sup>21</sup> As communicated to the mission team during a meeting on 21 September by Dr. Hans de Beer of the Norwegian Geological Survey (NGU).

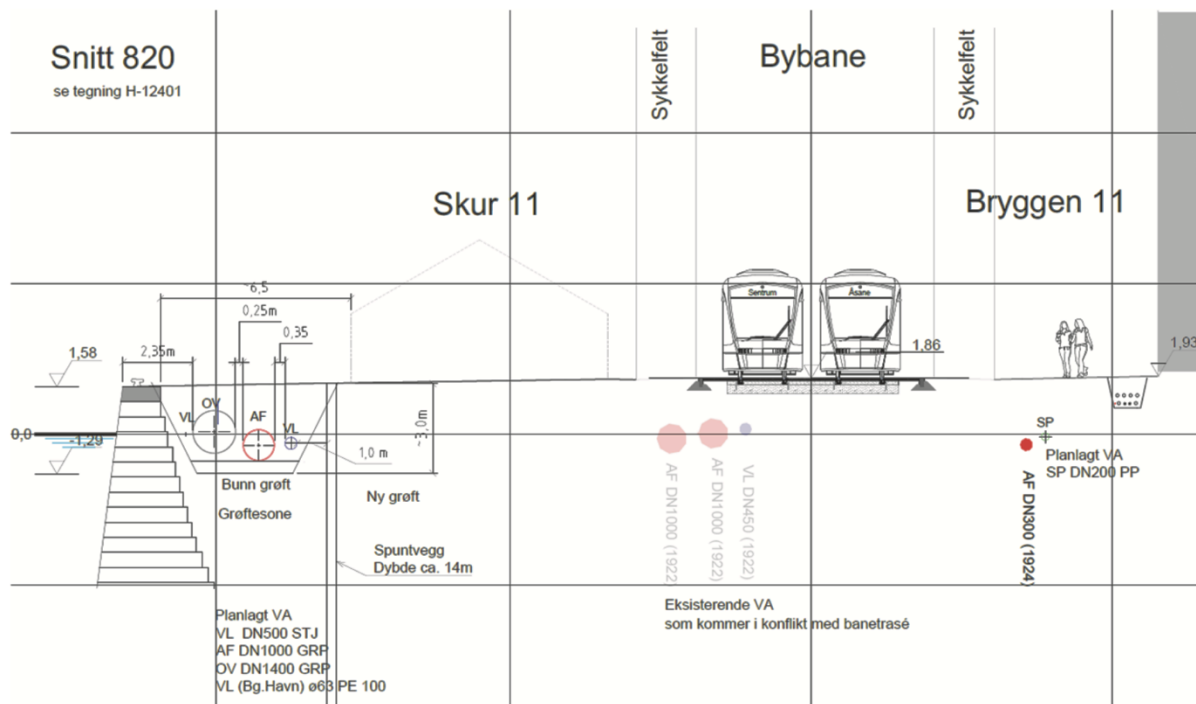


Figure 15. Latest iteration of the section through Bryggen Quayside (with Bruggen 11, close to Finnegarden, indicated to the right), with the pile wall indicated between the Bybanen track and the quay wall on the left. This proposal excludes any overhead infrastructure. (City of Bergen, Miljøløftet)

The removal of bus stops, road, buses and private vehicles is however directly dependent on the extension of the Bybanen through towards the north of Bergen. In the case of the Tunnel Option, a limited number of buses is still planned to run along Bryggen Quayside.

A benefit of the Bybanen option along the quayside is that it would assist in maintaining Bryggen as landmark in the cognitive map of the inhabitants of Bergen, whereas the Tunnel Option would redraw the mental map of Bergen, removing Bryggen from the daily experiences of those inhabitants who currently pass by it daily.

The Mission was informed that the City of Bergen Council has voted to disallow any overhead infrastructure along the Bryggen Quayside, in response to a recommendation from the HIA process. An exception is planned for the markings of the Bybanen alignment: the standard 'white lining' demarcating the Bybanen zone will be omitted. This exception still however needs to be confirmed by the Regional Directorate of Public Roads.<sup>22</sup>

The impact of the functional barrier between the wharfs and quayside however remains and should be mitigated as far as possible if it cannot be avoided. A great concern noted by the Mission during its visit is that the Bryggen quayside is often used for festivals and an operating light rail line would disrupt or make such festivals impossible. Currently busses do not operate or are rerouted during festival days. Light rails systems cannot be temporarily rerouted. The

<sup>22</sup> Micheal Kloos Planning and Heritage Consultancy, 2022. *Final Report: Heritage Impact Assessment (HIA) of the "Planforslaget Bybanen DS/1 Kaigaten-Sandbrogaten" on the World Heritage property Bryggen in Bergen*. Aachen. 18 October. p. 47.

draft Final HIA notes that the Bybanen will terminate (so-called 'turn arounds') at Torget and Sandbrogaten stops during festival days.<sup>23</sup>

With these decisions and intentions, the negative visual impacts of the Daylight Option on Bryggen have been mitigated to a considerable extent. The corner at the Hanseatic Museum remains problematic. Here the light rail will need to pass, along a curve, very close to the front of the building and will limit the functional use of this space. The functional, visual and especially possible **noise impacts** here are a challenge.

In general, the visual impacts remain, but has/will be reduced if the decision of the City of Bergen Council not to allow overhead infrastructure holds and is not overturned. Further reduction may still be possible (refer to ToR 2, below).

### Risks

There is a great number of risks involved in both Tunnel and Daylight Options.

A first notable risk is that posed by construction and operational vibrations associated with the Daylight Option. Here it should be noted that currently the Bryggen Quayside carries heavy traffic which could lead to vibrations. Any reduction in vibrations should be welcomed, but if vibrations are having a negative impact on the integrity of the cultural layers and the built fabric, it should be reduced to a level that avoids this impact.

The Bybanen project team commissioned an initial assessment of vibrations to sensitive cultural layers at Bryggen, Finnegaarden, Sandbrogaten and Øvregaten. The report<sup>24</sup> provides an assessment of risk of damage to buildings and degradation of the soil as well as the impact on people. Importantly, the report does not investigate impact on any archaeological objects in the soil. This report assessment bases its assessment on national Norwegian norms, including the NS 8141, which describes a method for determining a limit value for vibrations with the aim of avoiding damage to buildings (due to plant operations). The authors note that they expect that the limit values for buildings on soft ground conditions will be increased when the NS 8141 standard is revised (in the near future).

It is of critical importance to note that this standard only applies to the risk of pure vibration damage and not to damage from deformations/settlements in the ground due to vibration-inducing activities. Applying this standard in the context of the Bryggen World Heritage property does not address all possible risks.

The report concludes that: "If a conservative approach is taken as a basis (very soft ground conditions, fragile buildings and the most unfavourable foundation solution), the limit value for the relevant buildings along Bryggen and Finnegaarden is approx. 3 mm/s. However, the buildings can probably withstand a good deal of higher vibration values than this without being damaged."<sup>25</sup>

The report does not indicate on what such assumptions are based ("...probably withstand a good deal of higher vibration"), especially as the buildings at Bryggen are fragile, constructed on raft foundations and recorded as subsiding.

The report takes that a sheet pile wall can act as a vibration-reducing screen, but that the screen could amplify vibrations on the side of the source (the light rail), even doubling the

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<sup>23</sup> Ibid., pp. 10; .118.

<sup>24</sup> Provided to the mission team in Norwegian. Norges Geotekniske Institutt, 2021. *Vurdering av vibrasjoner fra bybanentrsé til kulturlag ved Bryggen, Finnegaarden og Snadbrogaten*. Document number 20180567-01-TN.

<sup>25</sup> Norges Geotekniske Institutt, 2021. *Vurdering av vibrasjoner fra bybanentrsé til kulturlag ved Bryggen, Finnegaarden og Snadbrogaten*. Document number 20180567-01-TN. Slide 3.

frequency (i.e. the pile wall may double the force of the vibrations that the quayside wall will need to withstand).<sup>26</sup>

The report concludes:

- *The vibrations from the future light rail route are lower than what is expected to cause exceedances of the limit value in the Technical Regulations.*
- *Vibration values from the future light rail route are lower than what is expected to cause building damage.*
- *Vibration values from the future Bybane route are lower than what is expected to give rise to irreversible changes in the soil's grain structure, settlements, increased degree of compaction or pore pressure build-up in cultural layers next to the track.*
- *Previous calculations for railways indicate that the vibrations from the Bybanen culture layer directly below the track can exceed the threshold strain if the layers are very soft (low shear wave velocity). It is therefore recommended that FE [Finite Element] calculations are made to elucidate this in a later phase of the project when the basic conditions have been examined. The results of the calculations may have an impact on recommendations about the construction of the track in Sandbrogaten.*
- *Vibrations from a bus will be roughly of the same order of magnitude as vibrations from light rail. Potholes, speed bumps and other unevenness in the road surface, however, will give rise to significantly higher vibration values than a smooth road surface and must be avoided.<sup>27</sup>*

It is important to note that the report did not investigate impact on any archaeological objects in the cultural layer, nor assess the potential for subsidence of the timber buildings ('floating' on raft foundations on the muddy cultural layers), nor the possible (if any) effect that vibrations could have on the hydrology of the cultural layers.

The conclusions of the report also highlight significant gaps in the knowledge of the cultural layers over which the property stands and those over which the Bybanen Daylight Option is projected to run. These gaps pose a significant risk.

*Overview of Daylight Option risks identified by the Mission:*

1. The removal vehicular through-traffic along the Bryggen Quayside is dependent on the upgrade of the Fløyfjellstunnelen (road tunnel) to ensure unhindered vehicular movement from north to south. (The Mission was informed that the tunnel is currently regularly closed due to safety incidents and traffic is being rerouted through Bergen and past Bryggen when this happens. Additional tunnel tubes are needed);
2. Questions remain about the composition and bearing strength of the subsurface of the Bryggen Quayside and the quay wall itself. There may be archaeologically important cultural layers located under the projected alignment (credible evidence that this may be the case was presented to the Mission). A defective structural bearing capacity of the quayside and quay wall may not manifest during the construction process, but may

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<sup>26</sup> Norges Geotekniske Institutt, 2021. *Vurdering av vibrasjoner fra bybanentrsé til kulturlag ved Bryggen, Finnegaarden og Snadbrogaten*. Document number 20180567-01-TN. Slide 9.

<sup>27</sup> Ibid., Slides 11–12. [Own translation]

- become visible once the light rail enters operation, either due to loads or (amplified) vibrations;
3. Vibrations during construction and operations may lead to further compaction of the cultural layers and subsidence of the built fabric of Bryggen, or simply lead to slow sinking of the buildings into the mud of the cultural layers;
  4. The impact on the archaeological remains contained in the cultural layers under Bryggen and the Bryggen Quayside has not been assessed.
  5. There is a potential risk that the vibrations may affect the hydrology of the cultural layers, potentially lowering the water level, which has not been assessed.
  6. Construction of the light rail might lead to new archaeological/subsurface discoveries, which may be significant.
  7. The disallowing of any overhead infrastructure may prove to be technically or financially impractical as it would require train sets with technical capacity for both overhead electrical feed and battery operation. While the City has decided to not have overhead lines, technical and financial restraints may still lead to future installation of overhead gantries and lines.

The construction process, planned over a number of phases, may lead to uncertainty of the survival of the businesses located in Bryggen if the work extends over too long a period. Once completed, the Daylight Option is not considered by some to be so beneficial to businesses that are currently predominantly focused on the tourism industry.

*Overview of Tunnel Option risks identified by the Mission:*

1. The main risk of the Tunnel Option is an unpredictable change to the hydrology of the mountain and the property;
2. Diverting public transport away from Bryggen may reduce local association with the property, strengthen the highly tourist-oriented nature of its businesses, thereby reducing its meaning in the function lives of the inhabitants of Bergen.

When viewed superficially the Tunnel Option may seem to present lower impacts and hold lower risk as it avoids the immediate environment of Bryggen. However, the Tunnel Option will not lead to a removal of all through traffic from the quayside, and the already existing causes of vibration will continue. Of even greater concern is the risk that the Tunnel Option poses due to potential changes in the hydrology of the property as the tunnel would need to be drilled 'upstream' of Bryggen. These risks cannot be predicted either, as the exact geological morphology of the mountain behind Bryggen cannot be predicted with certainty. Although the Daylight Option holds significant risks, these can better be predicted, investigated and managed than those of the Tunnel Option. Impacts identified only during construction can be addressed and managed. This lower risk profile makes this the preferred option, especially with regards to the protection of the cultural layers and the built fabric of Bryggen. However, a clear project plan with pre-emptive monitoring undertaken at least one annual cycle before any implementation and continuous monitoring during and following implementation would be key, should such a project be implemented.

Recommendations

Bryggen has been valorised as having OUV and "therefore need to be preserved as part of the World Heritage of mankind as a whole."<sup>28</sup> In view of this international significance of Bryggen, any available action to avoid risk to and impact on its OUV needs to be taken.

The Mission acknowledges the potential benefits of the Tunnel Option for the property specifically with regards the visual and functional setting of the World Heritage property, while

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<sup>28</sup> UNESCO, 1972. *Convention Concerning the Protection of the World Cultural and Natural Heritage*. Preamble.

also having functional negative effects. At the same time, this option holds unpredictable risks of an unpredictable range.

**Without prejudicing the outcomes of further Impact Assessment investigations for Bybanen project, the Mission recommends the Daylight Option be further investigated, taking into account the following recommendations:**

### **Risk reduction**

**Before any final decision on the implementation of the Daylight Option along the Bryggen Quayside is taken, the following additional measures need to be implemented:**

- 1. Further archaeological, geological investigations and structural assessments at the Bryggen Quayside are required to create a more complete overview of the subsurface conditions;**
- 2. Further studies on vibrations and vibration transference through the Bryggen cultural layers should be undertaken and if any significant negative impact can be expected, the project should be fundamentally reassessed;**
- 3. As a precaution for any further development of the Bybanen Daylight Option, maximal technically viable vibration and reduction measures should be planned and, should the light-rail line be constructed, implemented for any light rail line along the Bryggen Quayside. No rail-switches should be positioned in the area in front of Bryggen or the length of the quayside;**
- 4. Special attention is needed at the Finnegården curve of the Bybanen line to ensure that no vibrations of the turning light rail are transferred to the Finnegården building and to ensure that noise generated by the light rail wheels on the curved rail is reduced to a minimum (A single track line here would aid in avoiding noise development, as a curve with a larger radius would be possible);**
- 5. A national programme to speed up and complete the full structural restoration of the buildings at Bryggen needs to be initiated and funded to ensure that the buildings are structurally resilient before the Bybanen commences construction and operations. This should not be implemented at the cost of other Norwegian World Heritage properties through budget reallocations, or at cost of the high quality of work current being implemented. It should also be carefully planned not to disrupt the commercial and functional use of the property is further eroded. A system of financial compensation to commercial operators and building owners may be called for;**
- 6. A clear response protocol for any excavations and construction processes in which actions are linked to any negative monitoring indicators needs to be established and submitted to the World Heritage Centre for approval. A key action would be to stop construction or operation of the Bybanen track along Bryggen immediately if any negative structural consequences of hydrological consequences are noticed or significant archaeological discoveries are made. In all such cases all activities, be they construction works or operations of transport infrastructure should be halted and the World Heritage Centre notified under the provisions of paragraph 172 of the *Operational Guidelines*;**
- 7. A structural and subsurface hydrological monitoring programme (one is already extant, but it may need to be extended) should be submitted to the World Heritage Centre for technical review. This process should be initiated, covering at least one year, well in advance of the construction and continue throughout and after for at least 10 years' operations;**
- 8. All excavations should be undertaken with archaeological supervision and these excavations should be documented and reported. The archaeological supervision should be empowered with the authority to call to a halt all activities**

**in the case of significant discoveries and these be reported to the World Heritage Centre;**

- 9. Completion of the upgrading of the Fløyfell Road Tunnel should be set as a precondition for the construction of the Daylight Option.**

**In the light of the great concern about the subterranean conditions at Bryggen, the Mission recommends that the risk assessment should be reassessed following in-depth and thorough studies into the potential long-term impacts of the construction of the Bybanen across the Bryggen Quayside, including the effects of vibrations on the built fabric, the archaeological attributes and the hydrology.**

**ToR 2: Advice on issues concerning the recently published “Guidance and Toolkit for Impact Assessment in a World heritage Context” in relation to the ongoing HIA**

Background

On the occasion of the 50<sup>th</sup> anniversary of the World Heritage Convention, the three Advisory Bodies to the World Heritage Committee (ICOMOS, ICCROM and IUCN) and UNESCO published the new *Guidance and Toolkit for Impact Assessments in a World Heritage Context*,<sup>29</sup>. The aim of the publication is to assist heritage management institutions, governments, and project developers in finding the best possible solutions to meet both conservation priorities and development needs.

The Guidance provides a methodology and a set of easy-to-use tools for elaborating impact assessments to the best practice currently existing for World Heritage. It fosters cross-sectoral, multidisciplinary collaboration, and helps to:

1. Identify and define the values and attributes of the site concerned, whether it is a cultural, natural or mixed cultural-natural site; and
2. Explain the process for evaluating potential impacts, and finding appropriate mitigation measures and alternative options.

This manual has been jointly coordinated by the IUCN-ICCROM World Heritage Leadership Programme, with generous funding received from Norway, and is the result of several years of collaboration, consultation, and analysis between the three Advisory Bodies and UNESCO.

It is important in the context of the Terms of Reference of this mission to note that the Guidance integrates and updates the 2011 *ICOMOS Guidance on Impact Assessment for Cultural World Heritage Properties* and the 2013 *IUCN World Heritage Advice Note on Environmental Assessment*. It does therefore not fundamentally depart from the 2011 *ICOMOS Guidance*, which has guided the HIA process on the Bybanen project.

Noting that the HIA-process for the Bybanen project is not yet complete,<sup>30</sup> the Mission will report on the HIA process and method, its substantive conclusions on impact, and the appropriateness of any mitigative measures proposed.

The three documents reporting the conclusions of the HIA process provided to the mission are:

- Michael Kloos, Planning and Heritage Consultancy, 2020. *Preliminary Report 2020, Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen in Bergen*, Aachen. 16 October.
- Michael Kloos, Planning and Heritage Consultancy, 2021. *Preliminary Report 2021, Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen in Bergen*, Aachen. 30 September.
- Michael Kloos Planning and Heritage Consultancy, 2022. *Final Report, Heritage Impact Assessment (HIA) of the “Planforslaget Bybanen Ds/1 Kaigaten-Sandbrogaten” on the World Heritage Property Bryggen in Bergen*. Aachen. (18 October).

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<sup>29</sup> Available at <https://whc.unesco.org/document/195279>

<sup>30</sup> Michael Kloos Planning and Heritage Consultancy, 2022. *Final Report: Heritage Impact Assessment (HIA) of the “Planforslaget Bybanen Ds/1 Kaigaten-Sandbrogaten” on the World Heritage Property Bryggen in Bergen*. Aachen. (18 October), p. 15.



## Process and method

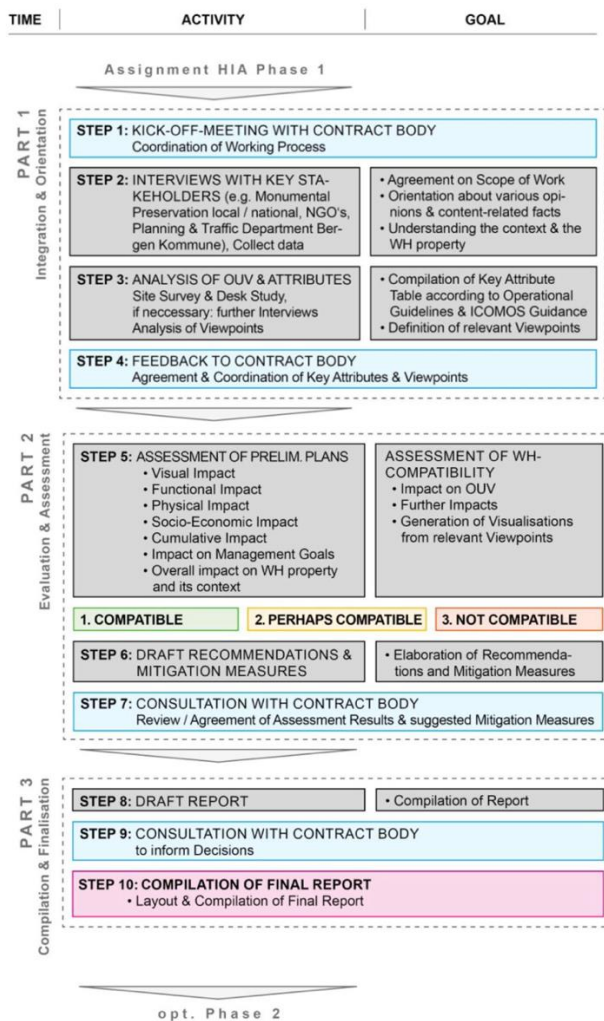


Figure 16. The process defined for the Bybanen HIA (Kloos, 2020, p.8).



Figure 17. The 11-Step process presented in the 2022 Guidance and Toolkit for Impact Assessments in a World Heritage Context (p.24).

As illustrated in Figure 16, the HIA process was defined as a three-part process, each culminating in a report:

- Integration and Orientation
- Evaluation and Assessment
- Compilation and Finalisation

When comparing the 11-step process included in the 2022 *Guidance* with the process followed by the Bybanen HIA, it is evident that the HIA process undertaken aligns in principle with the steps to be undertaken by the consultant (Steps 1-8) proposed in the 11-step process of the *Guidance*. The *Final Report* continues the use of the grading method used in the earlier 2020 and 2021 reports which was based on the 2011 *ICOMOS Guidance*. The 2022 *Guidance* proposes the use of a reduced gradation of impacts. The Mission considers that the choice to continue with the already adopted grading method is correct, as this allows for direct comparison.

The *Preliminary Report 2020*, the culmination of the Integration and Orientation phase, poses as main issues for the HIA two questions:

- *Will the planned Bybanen Light-Rail Extension be compatible with the World Heritage Property of Bryggen?*
- *In case of yes, to what extent the Outstanding Universal Value is threatened by the project?*<sup>31</sup>

The report has as aims to inform stakeholders about the HIA, present the working process and method, analyse the OUV of the property and identify the attributes that support it, describe the project, undertake a scoping of the potential impacts on the property and report on the findings at the time of submission.

The Management Plan for the property contains an inventory of attributes that support the OUV of the property (Refer to Annex V). The HIA takes this list of attributes as the basis for the assessment of the impact on the property, abstracting these to two themes with five key attributes:

<i>Context and Setting: Bergen Hanseatic Trading Port</i>	<i>Continued visual and structural relation of Bryggen with Bergen medieval cityscape and urban layout</i>
	<i>Continued visual functional setting of Bryggen in living Vågen Harbour</i>
	<i>Cultural layers of medieval Bergen</i>
<i>The Hanseatic Testimony: Bryggen Hanseatic office</i>	<i>Maintained built structure of the Hanseatic quarters and its quay</i>
	<i>Story telling: Testimony of the Hanseatic League and the Hanseatic way of life</i>

*Table 2. Themes and attributes that form the basis for the Bybanen HIA.*<sup>32</sup>

The impact assessment process subsequently focusses on impacts on visual, functional, and immaterial aspects. This was done through evaluation of carefully constructed visual models showing the size, location and change to selected viewpoints from within and towards the property.

The September 2021 *Preliminary Report* compares the Daylight and the Tunnel Option. It also introduces the important distinction between impacts and risks. It assesses impacts on the functional and the visual integrity of the OUV of the property and risks related to the structural integrity of the OUV of property. It notes specifically in its method description that uncertainties and potential risks for example due to vibrations through traffic are considered in the assessment as posing a **slight risk**. It presents issues and recommendations for both the Daylight and Tunnel options, finding that not enough information on both options is available to inform a thorough assessment.

The October 2022 *Final Report* assesses only the Daylight Option, due to the 2021 City of Bergen decision to only continue developing that option. The assessment notes, importantly, that the distinction between **impacts** and **risks** is necessary as: "...not all direct impacts on

<sup>31</sup> Michael Kloos Planning and Heritage Consultancy, 2022. *Final Report: Heritage Impact Assessment (HIA) of the "Planforslaget Bybanen Ds/1 Kaigaten-Sandbrogaten" on the World Heritage Property Bryggen in Bergen*. Aachen. (18 October), p. 5.

<sup>32</sup> *Ibid*, p. 30.

the structure of World Heritage property Bryggen are known at present".<sup>33</sup> This is a very important aspect to take into consideration, as it indicates that the impact assessment process has been hampered by a lack of information. In the *Final Report*, the risk to the subsurface cultural layers has come into sharper focus, and the risk to the Cultural Layers (KA3 in the report) and the built structure of the Hanseatic quarters (KA4) due to excavations and construction is indicated as **large negative**,<sup>34</sup> but potential risks due to operational vibrations is not included in the risk assessment. The report repeatedly notes that archaeological surveys are underway at the time of writing.<sup>35</sup>

### Substantive conclusions

The HIA process has led to an iterative process to reduce the negative impacts of the Bybanen Daylight Option on the OUV of the Bryggen World Heritage property. The focus of the assessment has been on the visual and functional impacts and the changes made to the project proposal have successfully reduced many of the identified impacts, but has led to a late identification of possible structural impacts due to vibrations (large **negative risk**).<sup>36</sup> The subsequent distinction between impacts and risks is useful and important to be able to understand the predictable (impact) and possible not firmly predictable (risks) of the construction and operation of the Bybanen Light Rail past the World Heritage property, but the Mission considers that more attention needs to be paid to understanding the risks in order to be able to predict, avoid and manage them.

### Appropriateness of mitigative measures proposed

The conclusions on the visual and functional impacts are appropriate and are supported, but further impact reduction may be possible. The Mission however wishes to nuance the conclusion that, with regards the large negative visual impact, "...all possible mitigation measures were already applied."<sup>37</sup> This Mission has already (in the section dealing with TR1, above) indicated possible additional mitigation measures (a single track along Bryggen Quayside with halts at Torget and Sandbrogaten) which may still hold opportunity for further impact mitigation. This would also aid in mitigating the moderate negative impact identified due to the barrier effects of the Bybanen between Bryggen and the Bryggen Quayside.

### **The Mission recommends that:**

- 1. The functional and visual impacts of the Daylight Option may still be reduced through investigating a single instead of a double light rail track along the Bryggen Quayside, and a reduction of the number of crossings per hour. This option should be further assessed to investigate whether this is viable for the operation of the Bybanen;**
- 2. A single instead of two bicycle lanes be investigated, taking the safety of pedestrians into account.**

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<sup>33</sup>Michael Kloos Planning and Heritage Consultancy, 2022. *Final Report: Heritage Impact Assessment (HIA) of the "Planforslaget Bybanen Ds/1 Kaigaten-Sandbrogaten" on the World Heritage Property Bryggen in Bergen*. Aachen. (18 October), p. 8.

<sup>34</sup> Michael Kloos Planning and Heritage Consultancy, 2022. *Final Report: Heritage Impact Assessment (HIA) of the "Planforslaget Bybanen Ds/1 Kaigaten-Sandbrogaten" on the World Heritage Property Bryggen in Bergen*. Aachen. (18 October), p. 9.

<sup>35</sup> Ibid.

<sup>36</sup> Ibid.

<sup>37</sup> Ibid.

The HIA recommends a risk management and a monitoring programme of the groundwater and archaeological deposits at Sandbrogaten and Bryggen Quayside as measure to manage the risks identified there. The HIA itself has noted that the large risks are in part due to a lack of information on the possible impacts of construction and operations of the Bybanen on the subterranean cultural layers, stating that: “potential risks due to vibrations caused by operational activities of Bybanen cars are still to be investigated.”<sup>38</sup> The Mission concludes in the light of the great uncertainty that still prevails, that Recommendation 1 on developing a coordinated risk management programme and monitoring plan for the archaeological deposits and groundwater as worded in the HIA is insufficient, as impacts due to for instance vibrations may take a number of years to manifest and difficult, if not impossible to reverse.

**In the light of the great concern about the subterranean conditions at Bryggen the Mission recommends that:**

- 3. The risk assessment should be reassessed following in-depth and thorough studies into the potential long-term impacts of the construction of the Bybanen across the Bryggen Quayside, including the effects of vibrations on the built fabric, the archaeological attributes and the hydrology;**

The HIA, cognizant of the high volume of visitors to Bryggen, and the potential increase that the Bybanen might bring, includes a recommendation (Recommendation 3) to develop a visitor management strategy for the property. This Mission has argued (Refer to ToR 4, below) that a concerted effort is required to give the property meaning in the functional lives of the inhabitants of Bergen.

**The Mission therefore further recommends that:**

- 4. Recommendation 3 of the HIA be extended to not only address visitor management for the World Heritage property and its potential buffer zone, but also the function of the property in the city;**
- 5. As a number of the recommendations call for follow-up iterations, e.g. the safety concept at the Hanseatic Museum/ Finnegården, the HIA process cannot yet be seen as having been completed, and that the results of the suggested studies, design iterations and investigations will need to be assessed in future and identified risks reduced.**

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<sup>38</sup> Ibid.

**ToR 3: Guidance and recommendations concerning the ongoing establishment of a buffer zone which takes into account the context and wider setting of Bryggen in the historic city of Bergen**

**Background**

The municipality of the City of Bergen is currently undertaking a process to define a buffer zone for the property in response to the World Heritage Committee's decision in 2019 (43 COM 8B.47).

The "Vågen, kaiene og Bryggen" zoning plan was adopted in 2006 in order to protect the World Heritage property and ever since, the delineated area of the local plan is implemented as a *de facto* buffer zone in accordance with the Norwegian Cultural Heritage Act and the Norwegian Planning and Building Act. However, it has never been officially recognized in the framework of the World Heritage Convention.

In 2013, during the Second Cycle of Periodic Reporting, the self-assessment of the State Party noted that "the boundaries of the World Heritage property do not limit the ability to maintain the property's Outstanding Universal Value but they could be improved."<sup>39</sup> In those circumstances the need for the establishment of the buffer zone became particularly relevant for effective management and protection of the property, contributing to the maintenance of its Outstanding Universal Value including conditions of authenticity and/or integrity.

In January 2019, the State Party of Norway submitted to the World Heritage Centre a buffer zone proposal which corresponded to the existing management and protection mechanisms for Bryggen.<sup>40</sup>

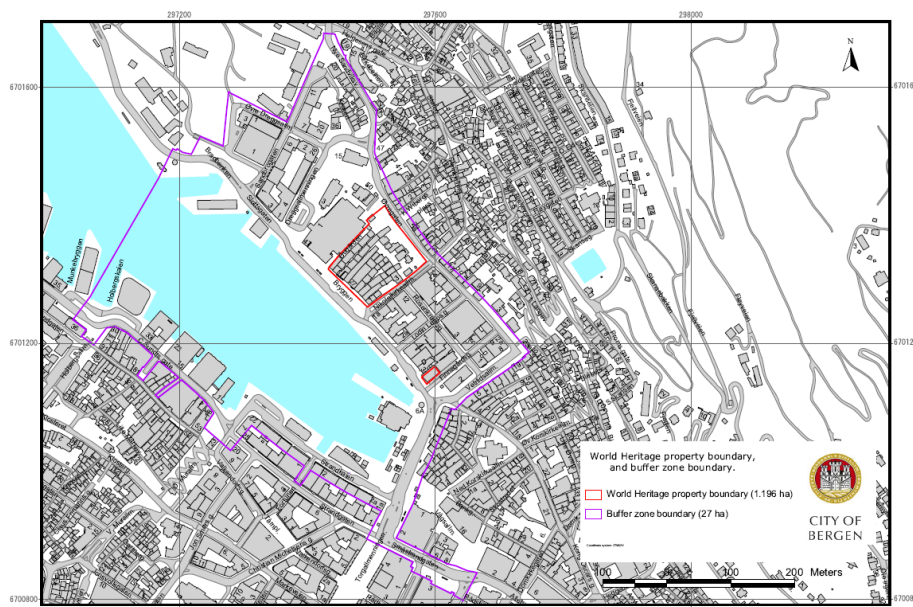


Figure 18: World Heritage property boundary and the "Vågen, kaiene og Bryggen" zoning plan boundary (proposed as buffer zone in 2019) (Norwegian Directorate for Cultural Heritage on behalf of the Ministry of Climate and Environment; *Bryggen, Bergen, Norway Minor boundary modification – establishment of buffer zone* (31 January 2019); p.9).

<sup>39</sup> <https://whc.unesco.org/document/164302>

<sup>40</sup> In accordance with paragraphs 107, 164 and Annex 11 of the *Operational Guidelines for the Implementation of the World Heritage Convention*.

After examination and in line with the recommendations of ICOMOS, the World Heritage Committee referred the proposed buffer zone back to the State Party, to allow it to:

*Extend the buffer zone to include a wider area in the northeast part of the property, as it could prevent urban pressure to directly impact the World Heritage property; or to provide a clear and solid rationale for the exclusion of this area (Decision **43 COM 8B.47**).*

The Committee also referred the buffer zone proposal back to the State Party to undertake a Heritage Impact Assessment (HIA) for the Bybanen, noting that it will pass in the buffer zone. This indicates that, in the view of the Committee, the quayside should form part of a future buffer zone.

The Agency for Cultural Heritage Management, City of Bergen are spearheading the development of the extended buffer zone proposal. The mission team was provided with an English summary and partial translation the *Project description Buffer zone for the World Heritage Site Bryggen*<sup>41</sup> following the Mission.

The *Project description Buffer zone for the World Heritage Site Bryggen* outlines the purpose of buffer zones for World Heritage properties and describes current management of the current *de facto* buffer zone as presented in the *Vågen, kaiene og Bryggen* zoning plan (which the Mission understands is an Area Plan).

### Plan Type

The *Project description Buffer zone for the World Heritage Site Bryggen* explores various options for implementing a buffer zone for Bryggen available in the general planning instruments available. The three options are:

<b>Plan type proposal</b>	<b>Description in the <i>Project description Buffer zone for the World Heritage Site Bryggen</i></b>
An area plan *(also translatable as a land-use plan)	<i>...will be a good tool to secure the physical surroundings, buildings and infrastructure. However, OUV and supporting values include issues that cannot be determined or regulated in an areaplan, like a zoning plan.</i>
A strategic plan	<i>...part of the community planning, is on a more general level, has got clear objectives but not actual actionplans or specific measures a more extensive community plan. It includes objectives, strategies and measures.</i>
A thematic plan	<i>...a more extensive community plan. It includes objectives, strategies and measures. By including measures and actions it will also have more direct economic consequences compared to a strategic plan.</i>

*Table 3. Overview of assessment by the Agency for Cultural Heritage Management of the applicability of various plan type alternatives for implementing buffer zone protection as presented in the Project description (English summary, partly translation) Buffer zone for the World Heritage Site Bryggen document.*

<sup>41</sup> Agency for Cultural Development Management, Department of Urban Development, City of Bergen, 2022 (September). *Project description (English summary, partly translation): Buffer zone for the World Heritage Site Bryggen*. (Digital document).

The Agency for Cultural Heritage Management currently favours a **strategic plan** (Refer to table 3, above) to define and outline the buffer zone as: *...it would be preferable to see this in connection with a future management plan, with an action plan, for the Buffer zone. Hence, our suggestion will be to work within the opportunities of the strategic plan.*<sup>42</sup>

### Boundary delineation

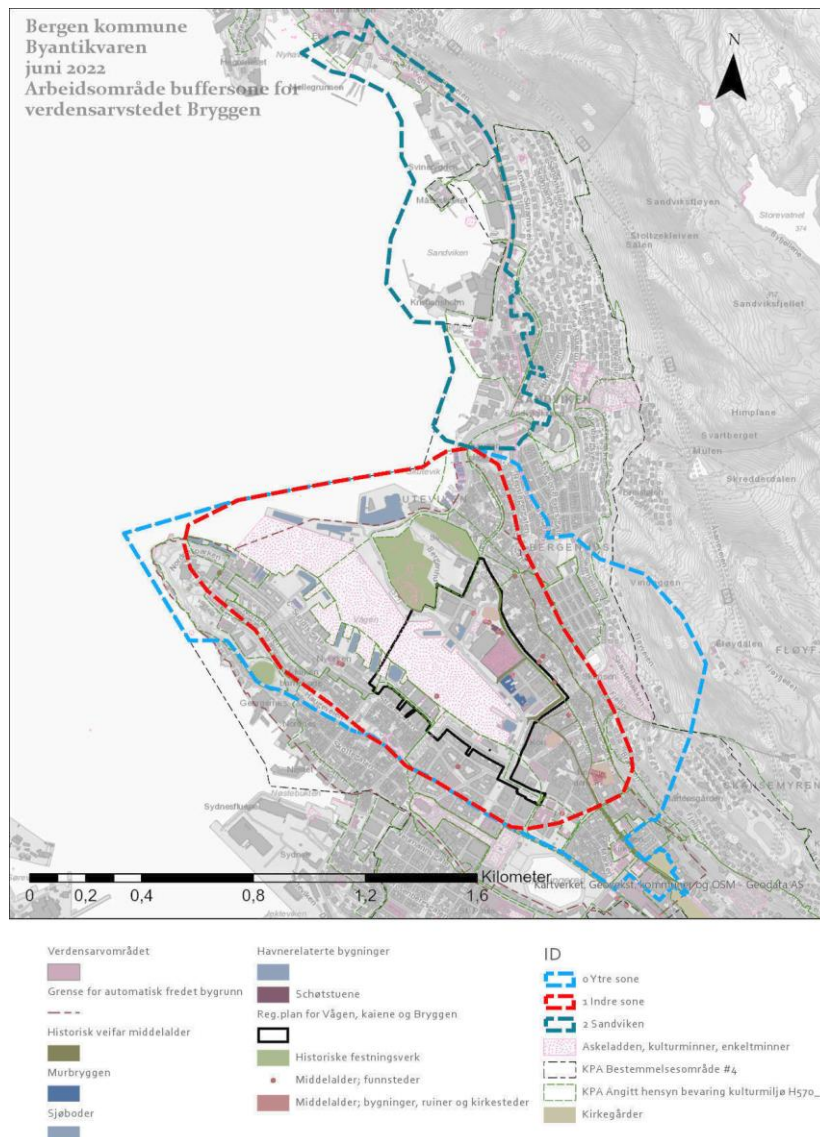


Figure 19. Proposed buffer zone(s) with three distinct areas identified, each with its own functional contribution to the protection of the OUV of the Bryggen World Heritage property.

The Agency for Cultural Heritage Management has, subsequent to the 2019 World Heritage Committee decision, developed a proposed buffer zone (figure 19), consisting of three individual 'zones' with different guidelines and detailing. These three 'zones' respond to varying functional protective objectives for the three areas. These were selected with the

<sup>42</sup> Agency for Cultural Heritage Management, September 2020. *Project description (English summary, partly translation) Buffer zone for the World Heritage Site Bryggen.* (Digital document), p. 5.

intention to "...encompasses Bryggens setting and supporting values as described in the Management plan for Bryggen."<sup>43</sup>

These proposals are preliminary and are expected to change following further analysis and a participation process.<sup>44</sup>

## Discussion

Paragraph 104 of the *Operational Guidelines* provides guidance on the delineation and functioning of buffer zones for World Heritage properties:

*...a buffer zone is an area surrounding the nominated property which has complementary legal and/or customary restrictions placed on its use and development in order to give an added layer of protection to the property. This should include the immediate setting of the nominated property, important views and other areas or attributes that are functionally important as a support to the property and its protection.*

There are no prescripts on the mechanisms to be used to constitute a buffer zone. An important principle is, however, that buffer zone delineations are submitted by a State Party to the World Heritage Committee, and once adopted, become a permanent part of the regulatory maintenance and protection mechanisms of a World Heritage property in the context of the *Convention*. It is therefore important that buffer zone delineations are given continuity and are able to be enforced in local planning systems following their adoption by the World Heritage Committee. Their careful delineation is therefore of great importance.

As noted in the quoted paragraph 104 above, a buffer zone should include "...important views and other areas or attributes that are functionally important as a support to the property and its protection." The inclusion of Vågen, Sandvicken and portions of Nordnes as supporting to the OUV of the property is therefore welcome.

The Agency for Cultural Heritage Management is also actively searching for the best mechanism with which to manage and control the proposed buffer zone. These activities are laudable, but the proposal for a strategic plan instead of an area plan raises questions about ensuring longevity of the buffer zone delineation and its ongoing effectiveness in protecting OUV.

The division of the buffer zone into three functionally different areas is appropriate to the topography of Bergen. The State Party may, however, wish to further explore if such a division into three separate buffer zones is ideal. Rather, a single buffer zone with an outline boundary may be preferable. Such a boundary could be legally defined in the same way and with the same legal assurance as the boundary of Bryggen: through the Norwegian Planning and Building Act. The delineation should also, as already noted, include important views towards and from the property. The Mission therefore suggests that it would be appropriate for the northern boundary of the buffer zone to be projected to follow the ridge of the Fløyen mountain to the north of Vågen and the property.

The implementation and development of the overarching buffer zone, with specific functional zones, could, subsequent to its delineation, be arranged through a strategic plan, which could

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<sup>43</sup> Agency for Cultural Heritage Management, September 2020. *Project description (English summary, partly translation) Buffer zone for the World Heritage Site Bryggen.* (Digital document), p. 12.

<sup>44</sup> Agency for Cultural Heritage Management, September 2020. *Project description (English summary, partly translation) Buffer zone for the World Heritage Site Bryggen.* (Digital document), p. 12.



possibly be defined, inter alia, to limit the size of ships allowed to dock directly in front of the property.

Concurrently, the Mission advises that the visual setting of the property should be identified, and these areas be assessed to ensure that current land use plans do not allow for developments that may have a negative impact on the setting of the property. This should include the entire 'bowl' between the mountains in which historic Bergen is located: from mountain ridge to mountain ridge (including the Øvre Fyllingen and Ulricken mountain peak areas). Careful attention should be given to developments in this entire area, including new (high-rise) developments, telecommunication infrastructure and renewable energy developments.

### Conclusions and Recommendations

The Mission acknowledges the careful and asserted actions of the Agency for Cultural Heritage Management in developing the alignment and protection mechanisms for a buffer zone for Bryggen.

#### **The Mission recommends as guidance that:**

- 1. It may be useful to approach the challenge of the incorporating a buffer zone into the planning system conceptually through two distinct but interdependent perspectives:**
  - a. The protection offered to OUV by the buffer zone and thus its role, and**
  - b. The active management and appropriate development of the buffer zone to ensure it supports the OUV of the property.**

The alignment of the buffer zone boundary to the north-east of the property needs further careful consideration.

#### **The Mission further recommends that:**

- 2. The State Party consider if it would not be more useful for a single buffer zone to be delineated that in the north-east follows the top of the ridge of Nordnes, include Sandvicken as proposed by the Agency for Cultural Heritage Management and follow as northern boundary the ridge of the Fløyen mountain to the north of Vågen and the property. The management of individual zones within the buffer zone could then be arranged through a strategic plan.**

The Mission further advises that it would be useful to identify the visual setting of the property, as well as other historic, social and economic aspects that might link the buffer zone to the property and thus contribute to its support of the property, as has been suggested in the project plan in relation to the property being an inextricable part of a wider urban landscape.

**ToR 4: Advice on any other relevant issue, observed during the visit.**

The Mission notes three relevant issues for comment observed during the Mission:

1. The functional integration of Bryggen into the City of Bergen,
2. The function and of the World Heritage Board and Advisory Board, and
3. The continued functional use of the Vågen Harbour.

Functional integration of the World Heritage property to the city of Bergen

The Mission notes that Bryggen receives over 2 million visitors per year, most of which are tourists. The Management Plan also notes that this creates traffic challenges.<sup>45</sup> The Mission is not convinced that the construction of a Bybanen project would alleviate these challenges as much of tourism-related traffic is touring car (bus) based. The Management Plan also notes a great ...*dependence on tourism for traders and other actors at Bryggen.*<sup>46</sup> It does not, as far as the Mission can ascertain, include any actionable activities to manage tourism growth and impact.

The 1998 state of conservation report for Bryggen, compiled by the Working Group following their 1993 visit to the property reported that: *[t]hese buildings are rented out to institution and firms compatible with the character of Bryggen. Apart from commercial firms, these include some offices and studios for designers and architects.*<sup>47</sup>

Article 5 of the *World Heritage Convention* states that:

*To ensure that effective and active measures are taken for the protection, conservation and presentation of the cultural and natural heritage situated on its territory, each State Party to this Convention shall endeavor, in so far as possible, and as appropriate for each country:*

*...to adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programmes;*

During the Mission, the mission team noted that the occupational use of Bryggen has changed since the 1998 report. Bryggen is today occupied predominantly by tourism-directed shops and businesses. The Mission would like to highlight that Bryggen may be losing or may even already have lost a real function in the life of the community of Bergen. Even though the Bybanen project may increase the likelihood of feasible locally-focussed businesses at Bryggen, this may not be enough to 'turn the tide'. A concerted effort seems necessary to ensure that Bryggen retains a function in the life of inhabitants of Bergen.

**The Mission therefore recommends that:**

- 3. Policies are investigated and implemented at City and County level to halt the growth of monocultural tourism offering at Bryggen and to foster activities that serve the needs of the local population. The national project for stabilisation of Bryggen which is recommended to proceed before the construction of the Bybanen may also offer opportunity to restructure the commercial operations in the property to align it with the State Party's obligation as embodied by Article**

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<sup>45</sup> Management Plan Forvaltningsplan 2021 - Verdensarvstedet Bryggen, p 56.

<sup>46</sup> Management Plan Forvaltningsplan 2021 - Verdensarvstedet Bryggen, p 59.

<sup>47</sup> Working Group, 1998. Evaluation of Bryggen in Bergen, Norway. World Heritage Convention, p. 5.

## **5 of the *Convention* on measures to give cultural and natural heritage a function in community life.**

### Functioning of the World Heritage Board and the Advisory Board

The World Heritage Board is a political body that is advised by the Advisory Board, a team of experts. This structure is relatively new. The Mission notes that the World Heritage Board and Advisory Bodies are still exploring their mandates as these do not seem to be very clearly articulated.

The Mission advises that the World Heritage Board and the Advisory Board are important new additions to the management system of the World Heritage property. However, their functioning is currently curtailed by the aforementioned uncertainty. The Mission was informed that both boards are currently exploring their mandates and purpose.

#### **The Mission recommends that:**

- 4. Both the World Heritage Board and the Advisory Board should engage, under the guidance of the World Heritage Coordinator for Bryggen, the Riksantikvaren, Vestland County and City of Bergen to continue the process to define and operationalise the purpose and function of the World Heritage Board and its Advisory Board in the management system for this World Heritage property.**

### The continued functional use of the Vågen Harbour

The continued functional use of the Vågen Harbour is of great importance to the maintenance of the OUV of the Bryggen World Heritage property, providing a functional continuity to the setting that created the property. The Mission was very pleased to note that the harbour is vital and dynamic. However, this positive contribution is threatened by increases in scale of maritime infrastructure, including the size of ships that dock at Vågen. This was made very evident by the presence throughout the duration of the Mission of a temporarily idle cruise ship docked directly in front of the property, dwarfing it in scale and also dramatically, if temporarily, disrupting the visual relationship between property and harbour.

The Mission was informed of a recent decision of the City Council of Bergen to designate the area in front of Bryggen as historic harbour. This decision may at the outset seem to be of great benefit to the property, but also inverts the positive contribution made by the functional harbour to the maintenance of the setting of the property, romanticising it. The continued use of the quayside as real living harbour is important, but the scale of the vessels that make use of the Bryggen quay should be carefully considered. A policy decision by the City, owner of the Port, would be of great benefit for the continued character of Vågen as vital part of the setting of the property.

#### **The Mission recommends that the City of Bergen and the Bergen Port:**

- 5. Keep the Bryggen Quayside open to a wide range of maritime transport, not only historic vessels, but**
- 6. Concurrently initiate a policy that Bergen Harbour limit the size of ships that can dock at the Bryggen Quayside.**

## 7. CONCLUSIONS AND RECOMMENDATIONS

The Bryggen World Heritage property poses very specific conservation challenges. The maintenance and transference of its OUV is dependent on careful management of not only the fragile built fabric and its relationship to its setting, but also to the maintenance of the structural integrity of the cultural layers located below the built fabric.

The State Party of Norway has achieved substantial and notable milestones in both understanding the unique nature of and managing the unique conditions and challenges presented by this World Heritage property and deserves to be commended. Its commitment to the Convention, as articulated in the *Cultural Environment Policy* to manage its World Heritage properties "...as beacons of best practice in the management of the natural and cultural environments and giving priority to securing Norway's World Heritage properties"<sup>48</sup> is exemplary.

This commitment is mirrored in the process to plan and assess the potential impacts of the Bybanen project, through an independent HIA process.

The HIA process has already resulted in an increase in knowledge of the substantial potential positive and negative impacts of both the Daylight and Tunnel options on the OUV of the property. This process has also led to an increased realization of the risks that at present cannot yet be assessed, due to a lack of information. The HIA has proposed monitoring processes to reduce these risks.

The Mission concludes that the Bybanen project is of great importance to the sustainable development of the City of Bergen. Yet the Bybanen holds risks of impact on the OUV from both Daylight and Tunnel options on:

1. The timber and stone buildings of Bryggen. Here the Mission harbours concern for the cultural layers and their hydrology and consequently structural integrity of the structures as well as their use over an extended period of time;
2. The archaeological deposits (cultural deposits) below Bryggen and the Bryggen Quayside;
3. The spatial and functional relationship of the historic wharfs, warehouses and meeting rooms with the urban context of the property. Here the area in front of Finnegården deserves special discussion as the Bybanen line will pass directly in front of the Hanseatic Museum and reduce the functional possibilities for museal programmes of the outdoor spaces.

It should be stressed that the long-term stability of the timber buildings at Bryggen is directly dependent on the hydrological stability of the archaeological deposits (cultural deposits) below Bryggen.

Of the Daylight and Tunnel options, the Tunnel Option has the lowest visual impact, but carries risks that cannot be pre-emptively studied or managed. The Daylight Option presents substantial positive and negative impacts, but also holds substantial risks. However, the Mission concludes that the Daylight Option risks can be better investigated and managed. It also has the potential to improve the physical setting and accessibility of the World Heritage property. These benefits make further investigation of this option preferable.

A benefit of the Bybanen option along the quayside is that it would assist in maintaining Bryggen as landmark in the cognitive map of the inhabitants of Bergen, whereas the Tunnel

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<sup>48</sup> Norwegian Ministry of Climate and Environment, (2021). *New goals for Norway's Cultural Environment Policy (Parliamentary White Paper)*. Norwegian Government Security and Service Organisation 06/2021, p. 74.

Option would redraw the mental map of Bergen, removing Bryggen from the daily experiences of those inhabitants who currently pass by it daily.

The HIA process has led to an iterative process to reduce the negative impacts of the Bybanen Daylight Option on the OUV of the Bryggen World Heritage property. The conclusions on the visual and functional impacts are appropriate and are supported, but further impact reduction may be possible. The impact of the functional barrier between the wharfs and quayside however remains and should be mitigated as far as possible if this impact cannot be avoided. The potential of noise impacts at Finnegården needs to be further investigated and risks due to vibrations during construction and especially operations of the Bybanen are not yet thoroughly understood. Other risks also still need to be further addressed and explored, a number of which are listed in Chapter 6, above.

The risk management and a monitoring programme of the groundwater and archaeological deposits at Sandbrogaten and Bryggen Quayside as measure to manage the risks identified there does not adequately safeguard the property from potential long-term impacts on the OUV. The risks need to be further investigated. The Mission, in the light of the great concern about the subterranean conditions at Bryggen, recommends that the risk assessment should be reassessed following in-depth and thorough studies into the potential long-term impacts of the construction of the Bybanen across the Bryggen Quayside, including the effects of vibrations on the built fabric, the archaeological attributes and the hydrology.

The Mission therefore recommends for the Bybanen Daylight Option:

Before any final decision on the implementation of the Daylight Option along the Bryggen Quayside is taken, the following additional measures need to be implemented:

2. Further archaeological, geological investigations and structural assessments at the Bryggen Quayside are required to create a more complete overview of the subsurface conditions;
3. Further studies on vibrations and vibration transference through the Bryggen cultural layers should be undertaken and if any significant negative impact can be expected, the project should be fundamentally reassessed;
4. As a precaution for any further development of the Bybanen Daylight Option, maximal technically viable vibration and reduction measures should be planned and, should the light-rail line be constructed, implemented for any light rail line along the Bryggen Quayside. No rail-switches should be positioned in the area in front of Bryggen or the length of the quayside;
5. Special attention is needed at the Finnegården curve of the Bybanen line to ensure that no vibrations of the turning light rail are transferred to the Finnegården building and to ensure that noise generated by the light rail wheels on the curved rail is reduced to a minimum (A single track line here would aid in avoiding noise development, as a curve with a larger radius would be possible);
6. A national programme to speed up and complete the full structural restoration of the buildings at Bryggen needs to be initiated and funded to ensure that the buildings are structurally resilient before the Bybanen commences construction and operations. This should not be implemented at the cost of other Norwegian World Heritage properties through budget reallocations, or at cost of the high quality of work current being implemented. It should also be carefully planned not to disrupt the commercial and functional use of the property is further eroded. A system of financial compensation to commercial operators and building owners may be called for;

7. A clear response protocol for any excavations and construction processes in which actions are linked to any negative monitoring indicators needs to be established and submitted to the World Heritage Centre for approval. A key action would be to stop construction or operation of the Bybanen track along Bryggen immediately if any negative structural consequences of hydrological consequences are noticed or significant archaeological discoveries are made. In all such cases all activities, be they construction works or operations of transport infrastructure should be halted and the World Heritage Centre notified under the provisions of paragraph 172 of the *Operational Guidelines*;
8. A structural and subsurface hydrological monitoring programme (one is already extant, but it may need to be extended) should be submitted to the World Heritage Centre for technical review. This process should be initiated, covering at least one year, well in advance of the construction and continue throughout and after for at least 10 years' operations;
9. All excavations should be undertaken with archaeological supervision and these excavations should be documented and reported. The archaeological supervision should be empowered with the authority to call to a halt all activities in the case of significant discoveries and these be reported to the World Heritage Centre under the provisions of paragraph 172 of the *Operational Guidelines*;
10. Completion of the upgrading of the Fløyfjell Road Tunnel should be a set as a precondition for the construction of the Daylight Option.

In the light of the great concern about the subterranean conditions at Bryggen, the Mission recommends that the risk assessment should be reassessed following in-depth and thorough studies into the potential long-term impacts of the construction of the Bybanen across the Bryggen Quayside, including the effects of vibrations on the built fabric, the archaeological attributes and the hydrology.

The Mission further notes that the *Final Report* of the HIA states that: *...not all direct impacts on the structure of World Heritage property Bryggen are known at present*,<sup>49</sup> A conclusion that the Mission supports. The HIA process can therefore not be seen to be completed until these impacts are investigated.

The Mission recommends for the HIA that:

11. The functional and visual impacts of the Daylight Option may still be reduced through investigating a single instead of a double light rail track along the Bryggen Quayside, and a reduction of the number of crossings per hour. This option should be further assessed to investigate whether this is viable for the operation of the Bybanen. A single instead of two bicycle lanes be investigated, taking the safety of pedestrians into account;
12. In the light of the great concern about the subterranean conditions at Bryggen, the risk assessment should be reassessed following in-depth and thorough studies into the potential long-term impacts of the construction of the Bybanen across the Bryggen

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<sup>49</sup> Michael Kloos Planning and Heritage Consultancy, 2022. *Final Report: Heritage Impact Assessment (HIA) of the "Planforslaget Bybanen Ds/1 Kaigaten-Sandbrogaten" on the World Heritage Property Bryggen in Bergen*. Aachen. (18 October), p. 8.

- Quayside, including the effects of vibrations on the built fabric, the archaeological attributes and the hydrology;
13. Recommendation 3 of the HIA be extended to not only address visitor management for the World Heritage property and its potential buffer zone, but also the function of the property in the city;
  14. As a number of the recommendations call for follow-up iterations, e.g. the safety concept at the Hanseatic Museum/ Finnegården, the HIA process cannot yet be seen as having been completed, and that the results of the suggested studies, design iterations and investigations will need to be assessed in future and identified risks reduced.

The investigations and planning undertaken to define the buffer zone of the property align and support the State Party's commitment to best practice in the management of World Heritage. The Mission commends the Agency for Cultural Heritage Managing of the City of Bergen for its efforts.

The Mission recommends as guidance on the buffer zone delineation that:

15. It may be useful to approach the challenge of the incorporating a buffer zone into the planning system conceptually through two distinct but interdependent perspectives:
  - c. The protection offered to OUV by the buffer zone and thus its role, and
  - d. The active management and appropriate development of the buffer zone to ensure it supports the OUV of the property;
16. The State Party consider if it would not be more useful for a single buffer zone to be delineated that in the north-east follows the top of the ridge of Nordnes, include Sandvicken as proposed by the Agency for Cultural Heritage Management and follow as northern boundary the ridge of the Fløyen mountain to the north of Vågen and the property. The management of individual zones within the buffer zone could then be arranged through a strategic plan.

The Mission was given an open-ended terms of reference, which included giving advice on any other relevant issue, observed during the visit.

The Mission notes three additional relevant issued for comment observed during the Mission and advises that:

17. For the function integration of Bryggen into the City of Bergen, policies should be investigated and implemented at City and County level to halt the growth of monocultural tourism offering at Bryggen and to foster activities that serve the needs of the local population. The national project for stabilisation of Bryggen which is recommended to proceed before the construction of the Bybanen may also offer opportunity to restructure the commercial operations in the property to align it with the State Party's obligation as embodied by Article 5 of the *World Heritage Convention* on measures to give cultural and natural heritage a function in community life;
18. For the function and of the World Heritage Board and Advisory Board, that both the World Heritage Board and the Advisory Board should engage, under the guidance of the World Heritage Coordinator for Bryggen, the Riksantikvaren, Vestland County and City of Bergen to continue the process to define and operationalise the purpose and

- function of the World Heritage Board and its Advisory Board in the management system for this World Heritage property;
19. For the continued functional use of the Vågen Harbour, that the City of Bergen and the Bergen Port:
- a) Keep the Bryggen Quayside open to a wide range of maritime transport, not only historic vessels, but
  - b) Concurrently initiate a policy that Bergen Harbour limit the size of ships that can dock at the Bryggen Quayside.

The Mission concludes that if the Bybanen can be brought into operation along the Bryggen Quayside, it would be of great benefit not only to the property but also the City of Bergen. But this should only be undertaken with full cognisance of the risks inherent to the project so that they can at best be avoided or at least be minimised.



## **ANNEXES**

### **Annex I: Terms of Reference (ToR) of the Mission**

#### Terms of Reference

Joint UNESCO WHC/ICOMOS Advisory Mission to the World Heritage property "Bryggen" in Bergen, Norway

Bryggen, the old wharf of Bergen, was inscribed on the World Heritage List in 1979 under Criterion (iii): Bryggen bears the traces of social organization and illustrates the use of space in a quarter of Hanseatic merchants that dates back to the 14th century. It is a type of northern "fondaco", unequalled in the world, where the structures have remained within the cityscape and perpetuate the memory of one of the oldest large trading ports of Northern Europe.

The World Heritage property Bryggen is an integrated part of a living city and must be seen and understood in relation to its context and surroundings, extending beyond the borders of the World Heritage property. Bryggen is inscribed on the World Heritage List as a northern "fondaco", commemorating one of the oldest large trading ports of Northern Europe and the Hanseatic office at Bryggen.

The World Heritage status and its implications have informed a number of decisions related to spatial planning, conservation, restoration and management of Bryggen as well as the historic city of Bergen. The municipality, the regional authorities and the State Party all aim to safeguard the Outstanding Universal Value (OUV) of Bryggen and continue to improve its state of conservation in the dynamic circumstances of a living, historic city. Bryggen is integrated in a city which has witnessed continuous transformations throughout its more than 950 years long history, yet Bryggen itself and its setting in a larger medieval cityscape is still highly understandable.

Bybanen is of local, regional and national importance and crucial for the city of Bergen in solving serious infrastructure challenges and reducing climate gas emissions. The project will have implications for the World Heritage property Bryggen and its surroundings, as outlined in the two preliminary Heritage Impact Assessment (HIA) reports presented thus far.

Based on Bergen City Council's decision of 15 December 2021, the municipality continues its planning for the alternative where Bybanen passes on the quay in front of Bryggen. The final decision on whether to start construction of Bybanen past Bryggen is expected to be made in the spring/early summer of 2023. There are many significant, and complex, issues to assess in the ongoing planning process and the project will have impacts on the World Heritage property Bryggen and its surroundings.

The municipality, the City of Bergen, has initiated the ongoing and phased HIA for the Bybanen development and started planning for revision of its buffer zone proposal as a follow-up to the World Heritage Committee's decision in 2019 (43COM 8B.47). Further, the City of Bergen in May 2022 sent a letter to the Norwegian Directorate for Cultural Heritage (Riksantikvaren) inquiring whether inviting an advisory mission would be advisable. The Directorate recommended the Ministry of Climate and Environment that a joint World Heritage Centre and ICOMOS advisory mission should be invited, given the complexity of the case and the significant values and status of the iconic Bryggen World Heritage property. Such a mission might not only provide important recommendations and advice in relation to impacts on the OUV of Bryggen following the Bybanen development, but also possibly inform the important work related to the buffer zone development to safeguard Bryggen and its surroundings for the future as well as future management. A letter of invitation for the mission was sent to the

UNESCO World Heritage Centre by the Norwegian Ministry of Climate and Environment 13 June 2022.

To secure local, regional and national decision making that takes into account the provisions in the Operational Guidelines and policies of the World Heritage Committee, the City of Bergen, Vestland County and the State Party of Norway seeks advice and guidance in matters concerning the proposed development and management of the Outstanding Universal Value.

The timeline for the planning process states that all relevant documents for the public hearing are finalised by the municipality and made available 4 October 2022. The final HIA report will be submitted 14 October 2022. The City Government will make its recommendations and decision 27 October 2022. The public hearing will be opened 1 November 2022 and closed 21 December 2022. Given the importance of this matter, relevant stakeholders including regional and national authorities, will depend on the report of the advisory mission to provide relevant guidance and considerations in the public hearing process. Hence, the advisory mission report must be submitted in due time before the closure of the public hearing. The deadline for submission of the advisory mission report is 9 November 2022.

Further, the outcomes of the report will be crucial for the municipality and the Bergen City Council in their continued planning process and decision-making towards the second public hearing in spring 2023, and final decision in spring/early summer of 2023. This also implies the necessity of a very strict timeline to allow the municipal planning authority to make good use of the advice and recommendations of the advisory mission.

The mission experts will be given access to all relevant documents, visit the World Heritage property and meet with relevant stakeholders and authorities at local, regional and national levels.

The advisory mission will undertake the following tasks:

1. Visit the World Heritage property and meet with local, regional and national authorities, as well as local stakeholders/owners of the buildings at Bryggen and the team undertaking the ongoing HIA.
2. Consider whether and how the ongoing plans for Bybanen will affect the OUV of the property and provide recommendations and guidance towards possible and necessary revisions/amendments/changes to the plans to safeguard OUV.
3. In relation to the ongoing HIA, give advice on issues concerning the recently published "Guidance and Toolkit for Impact Assessment in a World heritage Context".
4. Share, if any, relevant management examples from other World Heritage properties.
5. Provide guidance and recommendations concerning the ongoing establishment of a buffer zone which takes into account the context and wider setting of Bryggen in the historic city of Bergen.
6. Give advice on any other relevant issue, observed during the visit.

## **Annex II: Itinerary and programme of the Mission as implemented**

Monday 19 September

**1325** Arrival BGO Flesland 1325 (KLM/AF)

Pickup at the airport by Johanne Gillow, Director of Agency of the City Heritage management (Byantikvaren). Transport to Thon Hotel Rosenkrantz where you will meet Ole Søre Eriksen from the Directorate for Cultural Heritage (Riksantikvaren)

**1730** Meeting at Byantikvarens Office. Introduction to Bryggen World Heritage and medieval Bergen. Short introduction to the City Rail project. You will meet representatives from national, regional and local Heritage Management.

Walking tour of Bryggen and immediate surroundings,

**2000** Dinner at Bjerck Restaurant & Bar, invitation by The City of Bergen, Byantikvaren

Tuesday 20 September

**0900-1045** Meeting at Byantikvarens office. Presentation of City rail planning project. Ongoing planning process, city development, city transport/traffic/infrastructure and short presentation of the HIA process. You will meet representatives from different Agencies and Departments of the City of Bergen dealing with planning and urban development.

**1100-1215** World Heritage Board (Verdensarvråd) and Advisory Board (Fagråd)

**1230-1330** Lunch on Mount Fløyen

**1400-1500** Meeting at Byantikvarens Office. Meeting with Bergen Chamber of Commerce and Industry, Port of Bergen, VisitBergen.

**1515-1600** Meeting with the Commissioner for Climate, Environment, City Development, who is also responsible for Cultural Heritage and Byantikvaren.

**1600-1630** Meeting with Elisabeth Bjørsvik, Director of Hanseatic Museum in front Finnegården.

**1630-1715** Meeting with representatives from Bryggen Private Owners

**1715-1800** Meeting with Stiftelsen Bryggen.

**1815-1845** Meeting with tenants/shopkeepers Gunvor Rasmussen (<https://gunvor.no/>)

**1915-1945** If needed a short Meeting with representatives from Regional Heritage Management level in Hotel Lobby.

**2000** Dinner – Bryggen Tracteursted, by invitation of Riksantikvaren

Wednesday 21 September

**0900-1130** Participation on regular "Prosessmøte", arranged by Planning and Building Departement (the Bybanegroup) These meetings has been held monthly trough out the whole project period to inform and discuss relevant issues.

You will meet representatives from the different Heritage management levels, the City of Bergen and the Bybanegroup, Bybane Consultants and Håkon Rasmussen from the Regional Office for Infrastructure, Rory Dunlop from NIKU ([niku.no](http://niku.no)), and Hans De Beer from Geological Survey of Norway (NGU) ([ngu.no](http://ngu.no)) via Teams.

Meeting will be held at Byantikvarens Office.

**1200-1400** We hope to be able to arrange lunch onboard a boat, to observe the property and its wider context/setting from the water, the waterway is a crucial part of understanding Bryggen and Bergen.

**1400-1530** Mission team wrapup

Thursday 22 September

Departure independently. We recommend to travel by Bybanen to the airport.

Digital meeting with Magnus Borgos, President of ICOMOS Norway, arranged separately

### Annex III: List of people met

Anbjørg Reinsnos	Vestland County Council
Anders Nyland	CEO, VisitBergen
Arne Skivenes	Former Chief Archivist at the Bergen Municipal Archives
Atle Grung	Bryggen Private Owners
Bernt-Håvard Øyen	Director of the Bryggen Foundation
Charlotte Spurkeland	Deputy Chair, WH Board & City of Bergen
David Sandved Aasen	WH Board & Vestland County Council
Einar Børs	Bryggen Private Owners
Eirik Brynjulfsen	Local Residents Association
Elisabeth Bjørsvik	Director of the Hanseatic Museum and Schøtstuene
Erlend Hofstad	Advisory Board & Vestland County Council
Gudrun Mathiesen	Bryggen Foundation Board
Gunnar Ellingsen	Hanseatic Museum and Schøtstuene
Gunvor Rasmussen	
Håkon Rasmussen	Director of the department for mobility and public transport, Vestland county
Hanne Merethe Moldung	Directorate for Cultural Heritage
Hans De Beer	NGU, Geological Survey of Norway
Hege Agathe Bakke-Alisøy	Secretariat WH Board and Advisory Board & WH Coordinator
Heidi Jokk	Vestland County Council
Ingrid Nergaard Fjeldstad	Commissioner for City Development
Janicke Runshaug Foss	Bryggen Foundation, leader of Bryggen group
Jette Meyer	Bryggen Private Owners
Johanne Gillow	Agency for Cultural Heritage Management, City of Bergen
Karin van Wijngaarden	The Light Rail Project, the planning and building department, City of Bergen
Kim F. Lingjærde	Leader of board, Bryggen Foundation
Kjell Håland	Chair, WH Board & Vestland County Council
Kjetil Hauge	Bryggen Private Owners
Knut Hellås	Urban Environment and Design, City of Bergen
Line Bårdseng (Teams)	Directorate for Cultural Heritage
Line Veidung	Bryggen Private Owners
Maja Norheim Gloppen	Urban Environment and Design, City of Bergen
Marianne Knutsen	Agency for Cultural Heritage Management, City of Bergen

May Britt Hernes	City Council Department for City Development, City of Bergen
Nina Dybwad (Teams)	Norconsult AS
Ole S�e Eriksen	WH Board, Advisory Board & Directorate for Cultural Heritage
Ole Vegard Skauge	WH Board & Vestland County Council
Ole-Magne N�ttveit	Norconsult AS
Petter Visted	Advisory Board & The Friends Association
Roald Aandahl	City Council Department for Urban Planning, City of Bergen
Rory Dunlop	NIKU
Solveig Mathiesen	The Light Rail Project, the planning and building department, City of Bergen
Tarje Wanvik	Planning and building department, City of Bergen

## **Annex IV: SOUV of the property**

### **Brief synthesis**

Bryggen is a historic harbour district in Bergen, one of North Europe's oldest port cities on the west coast of Norway which was established as a centre for trade by the 12th century. In 1350 the Hanseatic League established a "Hanseatic Office" in Bergen. They gradually acquired ownership of Bryggen and controlled the trade in stockfish from Northern Norway through privileges granted by the Crown. The Hanseatic League established a total of four overseas Hanseatic Offices, Bryggen being the only one preserved today.

Bryggen has been damaged by a number of fires through the centuries and has been rebuilt after every fire, closely following the previous property structure and plan as well as building techniques. Bryggen's appearance today stems from the time after the fire in 1702. The buildings are made of wood in keeping with vernacular building traditions. The original compact medieval urban structure is preserved with its long narrow rows of buildings facing the harbour, separated by narrow wooden passages. Today, some 62 buildings remain of this former townscape and these contain sufficient elements to demonstrate how this colony of bachelor German merchants lived and worked, and illustrate the use of space in the district. It is characterized by the construction of buildings along the narrow passages running parallel to the docks. The urban units are rows of two- to three-storey buildings signified by the medieval name "gård". They have gabled facades towards the harbour and lie on either one or both sides of the narrow passages that have the functions of a private courtyard. The houses are built in a combination of traditional timber log construction, and galleries with column and beam construction with horizontal wooden panel cladding. The roofs have original brick tiling or sheets, a result of fast repairs after an explosion during World War II. Towards the back of the gård, there are small fireproof warehouses or storerooms (kjellere) built of stone, for protection of special goods and valuables against fire. This repetitive structure was adapted to the living conditions of the Hanseatic trading post. The German merchants took up winter residence in the small individual wooden houses and the storerooms were used as individual or collective warehouses. A true colony, Bryggen enjoyed quasi-extraterritoriality which continued beyond the departure of the Hanseatic merchants until the creation of a Norwegian trading post in 1754, on the impetus of fishermen and ship owners of German origin. Today, Bryggen is a significant part of the historic wooden city of Bergen.

Criterion (iii): Bryggen bears the traces of social organization and illustrates the use of space in a quarter of Hanseatic merchants that dates back to the 14th century. It is a type of northern "fondaco", unequalled in the world, where the structures have remained within the cityscape and perpetuate the memory of one of the oldest large trading ports of Northern Europe.

### **Integrity**

Only around a quarter of the original buildings that existed in Bryggen remained after demolitions at the turn of the 19th century and several fires in the 1950s; the property is comprised of these remaining buildings. Notwithstanding, the medieval urban structure is maintained and the buildings include all elements necessary to demonstrate how Bryggen functioned: offices and dwellings at the front, warehouses in the midsection and assembly rooms ("Schøtstuer"), kitchen facilities and fireproof stone cellars at the back.

Bryggen can be experienced as an entity within a larger harmonious urban landscape. It is connected more closely to the areas of small wooden dwellings beyond Bryggen and in the medieval city centre than to the larger 20th century buildings in its close proximity.

The risk of fire, excessive numbers of visitors as well as global climate changes with more extreme weather and possibly higher sea levels are some of the potential risks Bryggen faces today.

## **Authenticity**

The Hanseatic period at Bryggen ended long ago, but the Hanseatic heritage is documented through buildings, archives and artefacts which are well preserved for posterity. There are also series of architectural surveys of the buildings from 1900 onwards.

The preservation of the buildings commenced on a larger scale in the 1960s and had made major progress by 1979, the year of inscription on the World Heritage List. Some buildings at the back were moved in 1965 to create an open area for fire emergencies, but no further changes have been made to the urban structure since. The solutions and methods chosen have been well documented, and limiting the replacement of original materials has been an objective. Bryggen is built of wood, which is subject to rot, insect attack and ageing. Since 2000, there has been an increased focus on maintaining original methods and building materials in the restoration, with careful consideration given to the choice of material, paint, plugs, nails, etc. and the use of original tools as far as possible.

As the activity at Bryggen decreased after 1900, the buildings became derelict. However, from the 1960s the former trading in stockfish and commodities was gradually replaced by small arts and crafts businesses. An increase in the number of visitors has led to the establishment of restaurants and tourist businesses. This has resulted in inevitable changes in the spirit of the place, particularly along the front facades, whereas the atmosphere of the Hanseatic period can still be sensed in the more secluded area further back.

### **Protection and management requirements**

Bryggen, including its cultural deposits, is listed pursuant to the Norwegian Cultural Heritage Act and is also protected through the Norwegian Planning and Building Act. The adopted protection plan includes an extensive area that functions as a buffer zone.

Bryggen is privately owned and the majority of the buildings are owned by the Bryggen Foundation, which was established in 1962 with the objective of preserving Bryggen. The remaining owners have established a separate association to secure their interests. The stakeholders at Bryggen collaborate in different constellations of owners and authorities.

“The Bryggen Project” was established formally in 2000. This is an extensive and long-term project for monitoring, safeguarding and restoring Bryggen, including both archaeological deposits and standing buildings.

Bryggen is managed according to a management plan that is revised regularly. A fire protection system with detection and suppression has been installed and is continually being improved. Climate conditions are a key issue and measures have been taken to prepare for future changes. Possible impacts resulting from tourism are monitored.

There is ongoing pressure for urban development in the vicinity of Bryggen. Any development which may have visual impact on the World Heritage property is monitored closely by the cultural heritage authorities.



## **Annex V: List of Attributes as defined in the Management Plan**

The *Management Plan 2021-2025, World Heritage property 'Bryggen'* was made available to the Mission in Norwegian. The section of the Management Plan that identifies the attributes that support the OUV of the World Heritage property was translated to English for reference and is reproduced here. This overview also formed the basis for the Bybanen HIA process.

### **6.2 ATTRIBUTES AND SIGNIFICANT OBJECTS**

#### **6.2.1 CULTURAL LAYERS**

The buildings at Bryggen stand on thick layers of building remains and waste from several hundred years of human activity. Through archaeological excavations, examination of written source material and interdisciplinary research, we have gained more and more knowledge about building phases and filling in Vågen back to the early 12th century. The excavations have shown that under the buildings that stand today there are in some places more than 10 previous building phases in cultural layers up to 8-10 meters thick. The fillings and development in the harbor basin, and settlements in the ground, mean that large parts of the cultural layers at Bryggen lie below elevation 0.

#### **6.2.2 BUILDING STRUCTURE**

In the largest, northern part of the World Heritage Site, a continuous part of Bryggen's old building structure and building mass has been preserved. Facing Vågen is a continuous row of 11 gable facades, and behind these are eight more or less complete rows of houses. The Rain from the North World Heritage Site includes the following farms:

Farmyard:

Of this double farm, the two leading houses in the southern row of houses, as well as a couple of buildings at the far back of the farm, have been preserved.

Bredsgården:

This is the largest and one of the most intact of the preserved farms, with continuous rows of houses on both sides of the wide passage. At the far end, a galley is built over the gate to the passage, so that the yard has three gables at the front.

Unicorn Farm:

The only preserved single farm on Bryggen, with a row of houses only on the south side of the passage.

Svensgården:

A double farm, where the rows of houses are so close together that the passage is for a large part completely covered. In the middle of the farm is the Pütterstuen, which spans the entire width of the farm and therefore has an exceptionally high ceiling.

Jacobsfjorden and Bellgården:

These can be considered a double farm where each half has its own name. The farm is also called Hjortegården. Halfway up the yard, the passage divides into two runs and makes room for a third row of houses in the middle.

Holmedalsgården:

A normal double farm, but most of the southern row of houses burned down in 1958 and lie as open plots.

Finnegården:

This farm is located furthest south on Bryggen, separated from the rest of the preserved Brygge settlement by brick yards from the early 20th century. Sjøstuen in the southern row of houses is the best preserved of all the remaining trading rooms and has housed the Hanseatic Museum since 1872. On the south side, it has a three-storey brick extension. Further back in Finnegården, there are preserved buildings on both sides of the farm passage, but these are not included in the world heritage area.

### 6.2.3 WOODEN BUILDINGS

The wooden architecture that you see at Bryggen today can be traced back to the 12th century, and the same building pattern and building types have probably been repeated and, as far as we know, have been gradually developed over 800-900 years. The building structure is characterized by a common European building tradition, but the use of materials and main constructive forms have their origins in Norwegian and Nordic building customs. The need to be able to quickly resume trading after a fire, in addition to the complicated property conditions, probably helped preserve this building pattern. The buildings were also well adapted to trade in goods with shipping across the sea and the storage requirements this gave. The first rafted building of which traces have been found of at Bryggen is from the early 13th century. This house had open corridors, the same principle as one looks at the buildings at Bryggen today. This is a type of construction and a layout that is well adapted to a building environment where space is at a premium. The laft technique eventually became the dominant construction technique at Bryggen.

The wooden buildings that stand on Bryggen today were all built after the great fire in 1702. They were built according to the medieval tradition, as continuous rows of buildings with narrow passages and drops between them. The most common type of building is wooden parcel sheds on three floors plus an attic, with an inner core of lath that was used as a warehouse, and open corridors towards the passages. The roofs are erected with a simple rafter structure with a thatched roof of rough boards, covered with unglazed tile pans. Most of the buildings have sheets with pinwheels. Lifting hooks, ropes and winches act as a goods lift and the winches are driven by hand.

In many of the buildings there were originally also trading rooms, i.e. furnished offices, and bedrooms for merchants, journeymen and boys. These are called searooms when they are located in the front buildings towards Vågen, and country houses when they are located in houses further up in the farms. The furnishings of the living rooms followed suit fixed pattern, but variations occur. A searoom usually contained on the first floor packing sheds and farm closets, on the second floor an outer living room, living room, inner living room, packing rooms and hallway, on the third floor master's closet, journeyman's closet, boy's closet, sitting rooms, storerooms and hallway. In the country houses, all the living rooms and living rooms were gathered on the third floor. In total, there are more than 20 trading rooms in the remaining part of Bryggen, most of which are heavily influenced by later conversions.

Of other types of buildings within the world heritage site, a schøstue and two firehouses have been preserved: Svensgården's schøstue and firehouse, and a small firehouse in the south of Bugården. The so-called Stolpehuset, which today stands furthest back in Holmedalsgården, may also have been used as a firehouse. It is otherwise the only preserved example of a pure post construction at Bryggen. Of other building types, a building must be the longest at the back of Svensgården have been used as stables. Tasker was the term for single-storey extensions on the long sides of the buildings, which existed in a number of places on Bryggen. No bags of the original type have been preserved, however in Finnegården, the storehouse facing the public was newly built in the 1870s as a three-storey pole structure with brick cladding and medieval-style architecture. This forms a distinctive end to Bryggen towards the south.

The buildings that stand on Bryggen today represent a sum of changes in building practice.

The most important change was probably when the traditional northern shipping trade ceased in the latter half of the 19th century. At the end of the 1800s and the beginning of the 1900s, the architecture, which was adapted to the functions of the terminal, was partially rebuilt and adapted to a new pattern of use with small shops, offices and workshops. The first floor of all the front buildings was furnished as shop premises.

#### 6.2.4 STONE BUILDINGS - STONE CELLARS

Devastating fires, with the destruction of large warehouses, have been a costly experience for the merchants in Bergen throughout history. Material proof of this realization is the many stone cellars that are preserved today at the back of the farms at Bryggen. The stone cellars are a characteristic building type for Bergen and is primarily linked to fire protection. Stone cellars at the rear of the wooden buildings were important fire-proof warehouses. It is at Bryggen that we first hear of stone cellars in Bergen, in connection with a mention of the farm "Skjeggen" in 1334. However, most of the cellars were built later, from the end of the late Middle Ages until the 18th century.

At Bryggen, six stone cellars have been preserved, all of which are at the far back of the rows of houses. The stone cellars are built in one to two storeys of roughly hewn quarry stone, set in lime mortar and with plastered walls with visible masonry anchors. The rooms on the first floor have vaulted or fireproof ceilings, the window openings are small and in the doorways there have been metal-clad, fire-proof doors. Several of the cellars have finely carved portals and stone tablets with coats of arms and inscriptions. All the stone cellars at Bryggen appear as free-standing buildings above ground level. The exact age of the cellars is unknown, but some of them may date back to the 15th and 16th centuries.

#### 6.2.5 THE PASSAGES

The narrow passages that ran from the quay to Øvregaten through each farm were primarily used for the transport of goods. The passages were closed off with gates at night. The public roads were used for public traffic between the quay and Øvregaten. Preserved within the world heritage area are the passages in Bredsgården, Enhjørningsgården, Svensgården, Bellgården/Jacobsfjorden and Holmedalsgården - the latter, however, lacks much of the "passage character" since most of the southern row of houses is gone. Only the front and back parts of Bugården's passage remain. Outside the world heritage area, parts of Finnegården's passage have also been preserved, but covered with a glass roof. The passages have a plank deck from the wharf front up to Bryggestredet. Bredsgården's passage runs continuously all the way up to Øvregaten.

#### 6.2.6 CABBAGE GARDENS

Each wharf yard had its own garden at the rear facing Øvregaten, in the area which was to be kept free of buildings for fire safety reasons. The Hanseatic League mainly grew various vegetables and herbs for use in cooking in the Schøtstuene. Beyond the 18th century, several gardens were turned into ornamental gardens. This was the case at Dramshusen and Finnegården at the end of the 18th century. The garden at Dramshusen had an ornamental garden with a gazebo and only a small part of the area was kept as a kitchen garden. The change was probably the result of good finances among certain merchants at Bryggen and may have been connected with the transition from Det Yske Kontor to Det Norske Kontor. Little has been explored about the layout of the cabbage gardens, but based on maps and photographs, the main features can be described as they were in the second half of the 19th century: Towards Øvregatens the cabbage gardens were bounded by a high, whitewashed wall, with covered gates where some of the courtyard passages were led right up to the street. The individual cabbage gardens were separated by high stone walls or plank fences. There

were few or no larger trees in the gardens themselves, but a row of clipped linden trees on the outside of the wall towards Øvregaten. In 1870-72, Øvregaten was widened by approx. 5 m, and the cabbage gardens correspondingly shortened. The wall was replaced by an iron fence along the curb, which rested on a dry-brick retaining wall.

Today, the area where the cabbage gardens were located is still an open zone between Bryggen's buildings and Øvregaten, but the layout has changed a lot. The cabbage garden areas from the southern Bredsgården to the Nikolaikirke allmenningen were developed as a park in 1989 ("Bryggehagen"). A gravel-covered walkway runs through the entire green area, parallel to Øvregaten, with grassy terrain on the slopes down towards Bryggen's rows of houses. There are also several trees, some very large. Some of the boundaries between the individual gardens are marked with low stone walls. To the north-west of this, the cabbage gardens in Bredsgården are laid out as a geometrically divided, planted parterre, while the cabbage gardens furthest to the north in the World Heritage area, behind Bugården, lie as a continuous lawn.

### 6.2.7 NEWER ROADS AND OPEN LANDS

In - and right next to - the world heritage area, there are more recent roads. Bryggestredet is a street in the rear part of the wharf development, across the rows of farms. It was established in 1965-67 to ensure access for fire emergency vehicles by having a building in each row of houses from Nikolaikirkeallmenningen to Bredsgården demolished or moved to vacant plots elsewhere on Bryggen. The jetty is paved with cobblestones, and the location of buildings and passages is marked by the cobblestones being laid either lengthwise or crosswise.

Other undeveloped plots are the majority of Holmedalsgården's southern row of houses, facing the Nikolaikirkeallmenningen, which was destroyed by fire in 1958. The plots behind four buildings are undeveloped and two of these are used as car parks. A longitudinal passage runs along the north side of the world heritage site, between Bredsgården and the SAS hotel. It is built on the site of Bugården's southern row of houses, which was largely destroyed in the fire in 1955. The extent of the burnt row of houses is marked with red brick paving, while passageways and drops are marked with cobblestones.

At the far back of Bugården in the south and Bredsgården in the north are the plots of land behind three buildings as grassy areas bordered by low stone walls. These appear as part of the same greenery as the adjacent cabbage gardens.

## 6.3 SURROUNDINGS OF THE WORLD HERITAGE SITE

The World Heritage site itself is narrowly defined, and both the experience and the historical understanding of Bryggen are dependent on areas and elements outside the boundaries of the World Heritage site. In addition to constituting the immediate physical context of the World Heritage Site, there are parts or traces of Bryggen's former extent and structure, and the surroundings contain important aspects of Bryggen's cultural history. The most important of these areas and elements are therefore described below.

### 6.3.1 THE DOCK

Characteristic of Bryggen is that a continuous quay front was established in front of the building throughout the Middle Ages. This is what gave Bryggen its name. Parallel to the development, the quay was also moved further out into Vågen throughout the Middle Ages, but from 1476 both the front facade and the quay front were located in the same place until the beginning of the 20th century. The quay was actually made up of a series of separate quays, which belonged to the individual farms at Bryggen and were jointly owned by all the farm's trading houses. The quays were wooden, with plank decks on bulwark foundations. Facing the quay front, each farm had a tipping boom and one or two small sheds for temporary

storage of goods. The sheds were mostly built with open, post-supported dormers around a small rafted core. This room utedo. In the 1870s, the quay was partially rebuilt, with a 6.9 m wide cobbled street laid directly in front of the facades. Outside this, the rest of the old wooden quays remained. The distance from the facades to the quay front was 15-22 m. Gas lanterns on poles stood along the divide between the paved street and the wooden quays.

At the same time as the southern part of Bryggen was demolished, a completely new quay was built. It was completed in 1901 from the Square to the Nikolaikirkeallmenningen. The quay front was moved up to 20 m out into Vågen and straightened. Behind a solid quay wall made of stone was filled up with masses and a continuous cobblestone cover was laid. The entire quay was laid at a higher level than before, with the quay front at an elevation of +190 cm and the pavement in front of the new brick houses at +230 cm. In the early 1920s, the new quay was also extended in front of the northern half of Bryggen, in accordance with a zoning plan from 1917. Bergen municipality obtained an expropriation permit for the old quays in 1919. Here the new quay front is from 20 to 22 m outside the old one. Since the old houses were still standing, the surface had a clear fall inwards.

The existing design of the quay area in front of the preserved, northern part of the Bryggen was established in 2003. The road was then moved further out onto the quay, and the area within was redeveloped with cobblestone and plank decking, as a hint of the old quay's design. Farthest towards the quay front is an 8-9 m wide quay zone, followed by a two-lane road with an almost continuous pocket for buses/taxi on the inside. Within this is a wide, asphalted pavement. The quay front from before 1920 went under this pavement. Between the pavement and the facades is a continuous cobblestone surface, except for some larger fields where a plank surface has been laid. The plank decks are located in front of Holmedalsgården, and in front of all the reconstructed front buildings from 1982. The continuation of passages and drops are marked in the plank deck with boards laid across the length of the quay. During the summer season, part of this area is occupied by outdoor seating.

Near Finnegården stands a copy of one of the old quay sheds. Dramshusen's shed was reconstructed in 1989 and placed near the new quay front and slightly further away from the Square than the original, i.e. shifted approx. 18 m to the west compared to its original location. Dramshusen's shed served as the stock exchange for Bergen 1789-1813. A little further out on this inner part of the quay stands Skur 11, a port shed from 1906 with a supporting structure of steel, clad with metal sheets and decorated with granite columns and wrought iron ornaments. The shed is listed.

### 6.3.2 STREETS AND COMMONS

#### **Øvregaten (Upper Street)**

In the east, Bryggen is bounded by Øvregaten. Since the city's oldest times, this has been a longitudinal main artery in the street network. Øvregaten probably essentially follows its medieval route, but has been widened several times. The current width of 12.5 m was given to the street in the 1870s, at the expense of Bryggen's cabbage gardens. Above Øvregaten is a large, continuous area where the older urban structure and buildings are well preserved.

#### **Allmenningene (The commons)**

The three commons on the east side of Vågen; The Dreggsallmenningen, the Nikolaikirkeallmenningen and the Vetrilidsallmenningen are part of a street system that was already described in Magnus Lagabøte's bylaw from 1276. The allmenningen were the public counterpart to the private passages on Bryggen. The first commons were quite narrow, but eventually they were widened to also function as fire escapes. After the 1702 fire, it was legislated that the commons should have a minimum width of 100 cubits down by Vågen and

75 cubits further up. At that time, Bryggen stretched from Vetrilidsallmenningen in the south to the Dreggsallmenningen in the north, and the two wide commons provided a clear demarcation between Bryggen and the rest of the building. Today, this is not as clear. The meat bazaar was built in the middle of Vetrilidsallmenningen in the 1870s, and the part of the commons that is closest to Finnegården was given the name Finnegårdsgaten. The Dreggsallmenningen still has the width from 1702, but the south side of the commons is less clearly defined, as Gullskoen's storehouse was not recreated when the front buildings were rebuilt in the early 1980s.

Nikolaikirkealmenningen forms the southern boundary of the large, continuous area with preserved wharf buildings. This commons is of relatively recent date and was laid out in the 1860s on the site of the Kappen shipyard. (The medieval Breidaallmenningen was a little further south, roughly under the row of houses along the south side of the Nikolaikirkealmenningen.) When Bryggen's southern half was newly regulated around 1900, the south side of the commons was also raised to get an even rise. The northern part follows Bryggen's natural terrain, with an almost flat section closest to Vågen and a steep climb up towards Øvregaten.

### 6.3.3 BUILDINGS ASSOCIATED WITH BRYGGEN

#### Rear parts of Finnegården

When the southern half of Bryggen was demolished around 1900, parts of Finnegården's old buildings were left standing. Finnegården 1 A, the foremost building on the south side of the passage, houses the Hanseatic Museum and is the only part of Finnegården located within the World Heritage area. The other buildings in Finnegården are located behind this one, on both sides of the passage. Three of the buildings are original from the early 18th century, built as lofted warehouses on three floors, with corridors towards the passage. Two buildings are newly built from the early 1980s. Externally, they are approximate copies of the earlier buildings on the same site, but with modern load-bearing construction and interiors. The passage is built in with a glass roof and walls. The preserved and reconstructed buildings in Finnegården together correspond to around half of the building stock in the farm, as it stood until approx. 1900.

#### The shooting rooms

The Schøtstue facility is established in the cabbage gardens of the northernmost brewery yards, and is a connected building complex erected as a museum and function rooms in 1935-38 on the initiative of the cultural historian Christian Koren Wiberg (1870-1945). The facility consists of three original buildings moved from other places on Bryggen: Dramshusen's schøtstue and firehouse, and Bredsgården's schøtstue; and three reconstructions: Bredsgården's firehouse, Svensgården's schøtstue, and Bellgården/Jacobsfjorden's schøtstue. Around Schøtstuene is a fenced area. Facing Øvregaten, the fence has the form of a whitewashed gray stone wall with a hipped roof, of a similar type to the wall that before approx. 1870 separated Bryggen's cabbage gardens from Øvregaten. On the other side are partly plank fences, partly high wrought iron fences. On the inside of the wall, a number of old marker stones have been bricked in, many of which are from stone cellars at Bryggen, and also the marker stone from the German poor house in Kong Oscars gate (Katarina poor house). During the establishment of the museum, the remains of a stone building from the second half of the 13th century were discovered under Dramshusen's shooting room and firehouse.

#### Mary's Church

St. Mary's Church was built in the 12th century as a Romanesque basilica with a two-tower facade. In the 13th century, it received an extended choir in the Gothic style. Around 1400, it

became the parish church for the northern half of the Hanseatic Office. The second German parish church, the Martinskirken, was not rebuilt after the fire in 1702, and from then on the Mariakirken was the parish church for the whole of Bryggen. St. Mary's Church belonged to the Hanseatic Office until 1766, then it was the church of the German congregation in Bergen until 1874. Even after it became an ordinary parish church, services were held in German in St. Mary's Church right up to 1906. The church has a particularly rich inventory, donated by the merchants at Bryggen. Around the church is a cemetery, with a number of older gravestones preserved.

### **Murbryggen**

Between the two areas that make up the world heritage site Bryggen, there are four blocks of business premises which at the beginning of the 20th century replaced Bryggen's southern half. These are sometimes referred to today as "Murbryggen". The buildings with facades facing Vågen were given a distinctive design, in order to take care of some of Bryggen's character and traditions: steep gables, and a number of decorative details taken from or inspired by the earlier buildings. Extensive use of brick in the facades gives associations to the northern German Hanseatic cities. The design was based on an overall plan by architect Jens Z.M. Kielland (1866-1926). He also designed several of the houses. In total, there are seven houses with a total of nine gables. In contrast to the former wharf front, which lay in a slight arc, the brick houses lie along a straight facade line. The houses carry on the names from the demolished Bryggegården.

### **The SAS hotel**

Immediately until the world heritage site is located in the north-west area which was destroyed by fire in 1955. After the fire there was a long debate about how the fire site should be developed. Along the way, adaptation to the burned and remaining old buildings became an increasingly important criterion. The result of this process is the Radisson Blu Royal Hotel (most often referred to as the SAS hotel), completed in 1982 and designed by Øivind Maurseth (1928-). The six front buildings in Engelgården, Søstergården and Gullskoen were rebuilt as external copies, but with a concrete support system. Bugården's northern nave was not rebuilt, and the "hole" after it marks the division between the preserved part of the Bryggen and the recreated front buildings. Behind these, the hotel itself has been given an adapted design, in that it is visually broken up into a series of elongated volumes laid parallel to Bryggen's farm rows, each with its own salt roof. The facades are covered with red brick.

Bryggens Museum, furthest north on the fire site, was also designed by Maurseth, but in a refined modern design language with large glass areas and sandblasted concrete and flat roofs. The long side towards Dreggsallmenningen roughly follows the property boundary of the Gullskoen wharf and thus also marks the northern end of the Wharf between 1702 and 1955.

### **6.3.4 THE URBAN ENVIRONMENT AROUND BRYGGEN**

Outside the World Heritage area itself and its immediate surroundings, there are a number of areas, buildings and objects that have substantial value for World Heritage. This means that they are linked to Bryggen's history, are part of and complement the story about Bryggen, and/or are important for the experience of Bryggen and the connection between Bryggen, the harbor and the surrounding urban environment. These places and objects

are categorized in the tables in chapter 10.1, 10.2 and 10.3. They can be summarized as follows: The overall landscape space that is the framework for Bergen's historic core around Vågen; Vågen, both as a historic port environment and a living port; the urban landscape with older wooden buildings and a medieval street network; public buildings that express the social

context of the Hanseatic Office – royalty, church and urban society; and the visual connections and sight lines between Bryggen and these elements.

In addition, substantial values are attached to some individual facilities with a particularly close connection to the Hanseatic Office:

#### **Martin's church**

Martinskirken, on the upper side of Øvregaten just north of Vetrliidsallmenningen, was the parish church for Bryggen's southern half from 1528 until it was destroyed in the town fire in 1702. The church's location can still be traced in the cityscape, as Christi Krybbe school is located in the same place, and the school site corresponds to the cemetery .

#### **Katarina Hospital**

Katarinahospitalet was from the 16th century until 1781 a hospital or poorhouse under the Hanseatic office at Bryggen. It was located on the property Kong Oscars gate 44. It is unknown what physical remains of the hospital may be found in the ground or in the current building.

#### **Køpmannsstuen/Matre hotel**

The merchant's room was the Hanseatic Office's administration building and was located in the middle of Bryggen. When the southern half of Bryggen was demolished in the early 20th century, the building was dismantled and rebuilt as a hotel in Matre in Nordhordland.

#### **Wine cellar ruin/Rådhusruinen (stemnestova)**

It is assumed that the construction of Bergen's own town hall took place around 1276, when the city received its own town law that institutionalized the town council. The town hall is first mentioned in 1315 as "the stone living room in Breidaalmenningen", while the wine cellar is first mentioned in 1389, but is probably the same age. with the town hall. The town hall and the wine cellar were located at the trade square of the time, today partly under Rosenkrantzgate and Nikolaikirkeallmenningen. Two hypotheses have been put forward about how the wine cellar and the town hall were built in relation to each other. One is that there were two houses, where the town hall stood above the wine cellar. That is to say, the two buildings stood one after the other. The second hypothesis is that the wine cellar was the first and the town hall the second floor of a brick building.

(Mission team translation utilizing Google Translate)





## **Annex VII: List of key statutory documents which have informed the Mission**

### Nomination document:

1979 [Nomination file 59 \(1 MB\)](#)

### Advisory Bodies Evaluations:

2019 [Advisory Body Evaluation \(ICOMOS\)](#)

1979 [Advisory Body Evaluation \(ICOMOS\) / Évaluation de l'organisation consultative \(ICOMOS\)](#)

### Maps:

2006 [Bryggen - map of the inscribed property](#)

### World Heritage Committee Decisions:

2019 [43COM 8B.47 - Bryggen \(Norway\)](#)

2013 [37COM 8E - Adoption of retrospective Statements of Outstanding Universal Value](#)

2006 [30COM 11A.2 - Clarification of Boundaries of Properties by States Parties in Response to the Retrospective Inventory](#)

1979 [Report of the 3rd Session of the Committee](#)

1979 [03COM XII.46 - Consideration of Nominations to the World Heritage List](#)

### Periodic Reporting:

2013 [Periodic Reporting Cycle 2, Section II](#)

2006 [Periodic Reporting Cycle 1, Section II \(Summary\)](#)

### State of Conservation Reports by the State Party:

1998 [Evaluation of Bryggen in Bergen, Norway. World Heritage Convention. Nordic World Heritage Report 1998, 15/09/1998 \(12 pp\)](#)

### State of Conservation reports prepared by the World Heritage Centre and the Advisory Bodies:

1994 [State of conservation reports](#)

## **Annex VIII: Information received from the State Party and other institutions and individuals**

- List of people met during Advisory Mission
- City of Bergen, Leaflet, Fact about Bergen 2022

### **Documents regarding the Bybanen project and HIA**

- Heritage Impact Assessment for Bryggen, Bergen, Scope of Services, 15.10.2019, Marianne Knusten
- Heritage Impact Assessment, announcement, Scope of Services, Attachment A1
- Preliminary Report 2020, Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen in Bergen, 16 October 2020, Michael Kloos, Planning and Heritage Consultancy
- Preliminary Report 2021, Heritage Impact Assessment of the planned Bybanen Light-Rail Extension on the World Heritage Property Bryggen in Bergen, 30 September 2021, Michael Kloos, Planning and Heritage Consultancy
- Final Report: Heritage Impact Assessment (HIA) of the "Planforslaget Bybanen DS/1 Kaigaten-Sandbrogaten" on the World Heritage property Bryggen in Bergen, 18 October 2022, Micheal Kloos Planning and Heritage Consultancy
- Planning Update Dayoption, Bergen Kommune, Department of Urban Development, Spatial Plan for Bybanen from Bergen to Åsane, day option, DS1 status on recommendations from HIA, regarding the Bybanen day option, addressed to Michael Kloos, 30 June 2021
- Follow-up on Recommendations concerning Integrated Management of The World Heritage Given in Preliminary HIA reports 1 & 2, Byantikvaren, City of Bergen
- Bybanen project, map, 3 alternatives, 4 February 2013
- Bybanen project, map, alternatives considered, 2013
- Bybanen project, map, recommended alternative, February 2014
- Bybanen project, map, reconsidered lines for tunnel, 2020
- Bybanen project, 1 pager clarification post mission on planning process and alternative around the Castle and Bontelabo
- Report, Assessment of vibrations from light rail tracks to cultural layers at Bryggen, Finnegaarden and Sandbrogaten, 10 June 2021 (Norwegian)
- Risk Assessment, Regulation Plan and Technical Preliminary Project, the Municipal Railway and main Cycle Route from Center To Åsane, with extension of the Flyfjell Tunnel, risk of damage to cultural heritage along Bryggen, 15 September 2022 (Norwegian)
- Presentation, Urban Space Design Bryggen – Torget, Bergen Kommune, 7 April 2022 (Norwegian)
- Presentation, BT5 DS1 - KUVA recommendations Sandbrogaten – follow-up actions, asplan viak, Norconsult, 25 March 2022, received from the Planning and Building Office
- Presentation, BT5 DS1 - KUVA recommendations: Construction phase Bryggen – follow-up actions, asplan viak, Norconsult, 29 April 2022, received from the Planning and Building Office
- Presentation, Bybanen BT5, HIA Status on recommendations DS1, 04.06.2021, Miljøløftet, received from the Planning and Building Office, Bergen kommune

- Presentation, The light rail from the city center to Åsan. Presentation at the World Heritage Council, presentation, 18 March 2022, Miljøløftet, received from the Planning and Building Office, Bergen kommune (Norwegian)
- Pre-project Bryggen and Torget, technical details of materials, 17 June 2022, MOT VÅGEN / Asplan Viak - Rodeo Architects - Sanden+Hodnekvam - Zenisk - Studio Holmedal, received from the Planning and Building Office, Bergen kommune (Norwegian/English)
- Final Report, Heritage Impact Assessment (HIA) of the “Planforslaget Bybanen Ds/1 Kaigatensandbrogaten” on the World Heritage property Bryggen in Bergen, Michael Kloos, Planning and Heritage Consultancy, 14 October 2022.

### **Management and buffer zone**

- Management Plan 2021-2015, World Heritage property 'Bryggen' (Norwegian)
- Monitoring. Mitigation. Management. The Groundwater Project – Safeguarding the World Heritage Site of Bryggen in Bergen. Riksantikvaren 2015
- White Paper. Norwegian Ministry for Climate and Environment. New goals for Norway's cultural environment policy, Meld. St. 16 (2019–2020) Report to the Storting
- Pre-Project, Buffer Zone for the Bryggen World Heritage site, Agency for Cultural Heritage Management, Department for Urban Development, City of Bergen, June 2022 (Norwegian)
- Pre-Project, Buffer Zone for the Bryggen World Heritage site, Agency for Cultural Heritage Management, Department for Urban Development, City of Bergen, English summary and partly translated in September 2022
- Report, Control measurement of ground settlement and movements in buildings carried out in the period 17.06.-23.06.2021, Report date 11.11.2021, Geoform (Norwegian)
- Joakim Haukedal, Master's thesis in Natural Geography, Development in Bergen center: Urban hydrogeology, InSAR, subsidence and cultural layer (study aiming to determine how InSAR remote sensing can be used to measure and map subsidence in the medieval areas of Bergen), University of Bergen, Department of Geography, 15/05/2017 (Norwegian/Abstract in English)

### **Presentations during Mission from State Party**

- Presentation, “Bybanen – Bergen light rail project”, 20.09.2022, Tarje I. Wanvik and Solveig Mathiesen, Agency for Planning and Building Services, City of Bergen
- Presentation, “A very brief introduction to historic Bergen - and the lightrail”, Advisory Mission, 19-21 September 2022, Johanne Gillow, Director, Agency for Cultural Heritage Management, City of Bergen
- Presentation, “The Heritage Impact Assessment and the Bufferzone for the World Heritage site Bryggen”, Johanne Gillow, Director, Agency for Cultural Heritage Management, City of Bergen
- Presentation, “New ground investigations and archaeological results. Bryggen and Sandbrogaten, Bergen”, 21 September 2022, Rory Dunlop, Norwegian Institute for Cultural Heritage Research
- Presentation, “Bybanen to Åsane”, 21 September 2022, Håkon Rasmussen, Director of the Department for Mobility and Public Transport, Vestland county

- Presentation, "Assessment of technical solutions for the light rail project linked to hydrogeological issues in the area around Bryggen", 21 September 2022, Hans de Beer, Geological Survey of Norway

#### **Presentations/information from third parties**

- Bryggen Foundation, 2-page information sheet 'Safe Bryggen'
- Arne Skivenes, "The Extension of the Quay of the German Wharf - 100 Years After. Version 1.1. E A distilled audiovisual presentation of an archival study by Arne Skivenes", 19 September 2022
- Bernt-Håvard Øyen, "Why does the Bryggen Foundation recognize that the light-rail on the front area will have an overall negative impact on WHS Bryggen?", presentation by Bernt-Håvard Øyen PhD, Managing director, Bryggen Foundation, The Advisory Mission Inspection Tour, Bryggen, 20 September 2022
- Geir Atle Erslund, "Bryggen – world heritage in an urban landscape", presentation by Geir Atle Erslund, Professor of Mediaeval and Urban history UNESCO Chair 2016 - 2017 University of Bergen Department of Archaeology, History, Culture and Religion, images. 20 September 2022
- Geir Atle Erslund, "Bryggen – world heritage in an urban landscape", presentation by Geir Atle Erslund, Professor of Mediaeval and Urban history UNESCO Chair 2016 - 2017 University of Bergen Department of Archaeology, History, Culture and Religion, text, 20 September 2022
- Kim F. Lingjærde, "A short presentation. Bryggen Foundation and Friends of Bryggen", presented by Kim F. Lingjærde, Leader of board, Bryggen Foundation
- Hanseatic Museum, letter dated 28 September 2022 addressed to Ole Søre Eriksen on potential impacts on light rail projects
- Hanseatic Museum, Map (Norwegian)