BOLIDEN

Public Disclosure Regarding Vassbo Tailings Facility

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Dam Safety Accountable Closed Mines

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I. INTRODUCTION

Boliden has committed to apply the Global Industry Standard on Tailings Management (GISTM), adopted by the International Council for Mining and Metals (ICMM) in 2020, setting a precedent for the safe management of tailings facilities, towards the goal of zero harm (the "Standard" or "GISTM").

The Standard contains 77 specific requirements that need to be fulfilled to be in conformance with the Standard. The Standard also requires that adhering members annually issue a status report on their implementation of and conformance with the requirements to support public accountability. In accordance herewith, Boliden as the operator of its tailings facilities is to publish and regularly update information on its commitment to safe tailings facility management, implementation of its tailings governance framework, its organization-wide policies, standards and approaches to the design, construction, monitoring and closure of its tailings facilities

A separate document available via Boliden web, named Public Disclosure Regarding Boliden´s Tailings Management Framework, provides a general description concerning Boliden's tailings and dam safety management for all sites, in which much of the information within requirement 15.1 is met.

This document provides additional information specifically related to the Vassbo tailings facility to fully disclose the required information. In addition, the final chapter of this document presents the status of implementation of GISTM for the Vassbo tailings facility.

1. Description of the tailings facility

The Vassbo mine is located in Sweden close to the Norwegian border, ca 15 km North-West from the town Idre in the northern part of Dalarna county, see Error! Reference source not found..

The coordinates (latitude, longitude) of the site are 61°56'22.4"N 12°30'3.9"E.

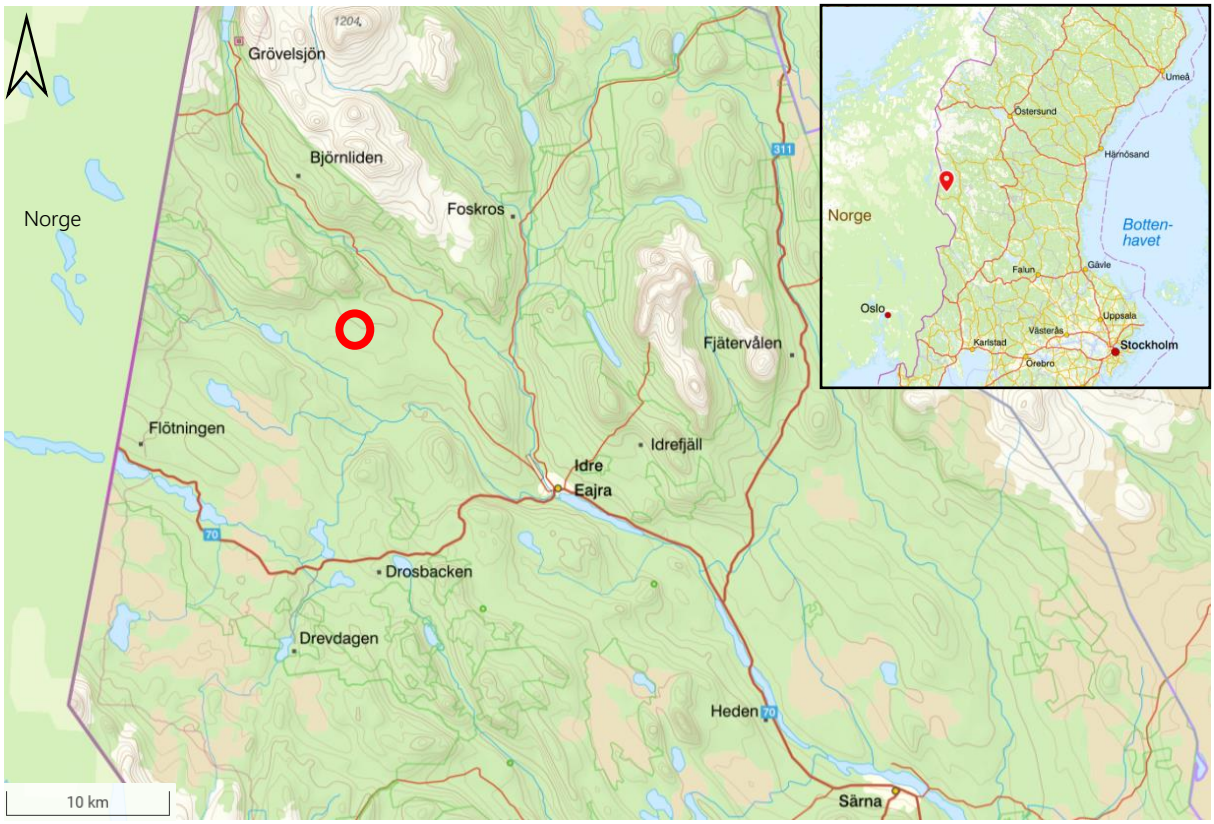

Figure 1 Geographic location of the Vassbo mine site, marked with red (© Lantmäteriet)

The Vassbo mine was in operation 1960-1982. Lead, zinc, and some silver was concentrated at the mill, resulting in lead containing tailings with the potential of producing circum-neutral metal lechate. Ca 300 kton tailings was deposited per year in the tailings pond (0,8 km^2) and by the end of operation as well as today ca 2,5 Mm^3 of tailings was stored in the facility. The perimeter dams were raised in stages using the upstream construction method and are at its highest sections approximately 11 m. Excess water from the tailings pond was discharged to the clarification pond (0,4 km^2). The underground mine is located under the northern part of the tailings pond, and the open pit located nearby to the west of the tailings pond. An overview of the tailings facility is shown on the cover page of this document, and in Figure 2.

In the years since operations ceased the site has been partially rehabilitated. Some efforts have been made over the years to cover the tailings pond with sewage sludge to encourage vegetation growth, but the tailings pond lacks a plan for safe closure. The tailings that have been left exposed have resulted in environmental issues including elevated lead levels in seepage water and the spread of tailings to the surrounding areas through erosion and dusting.

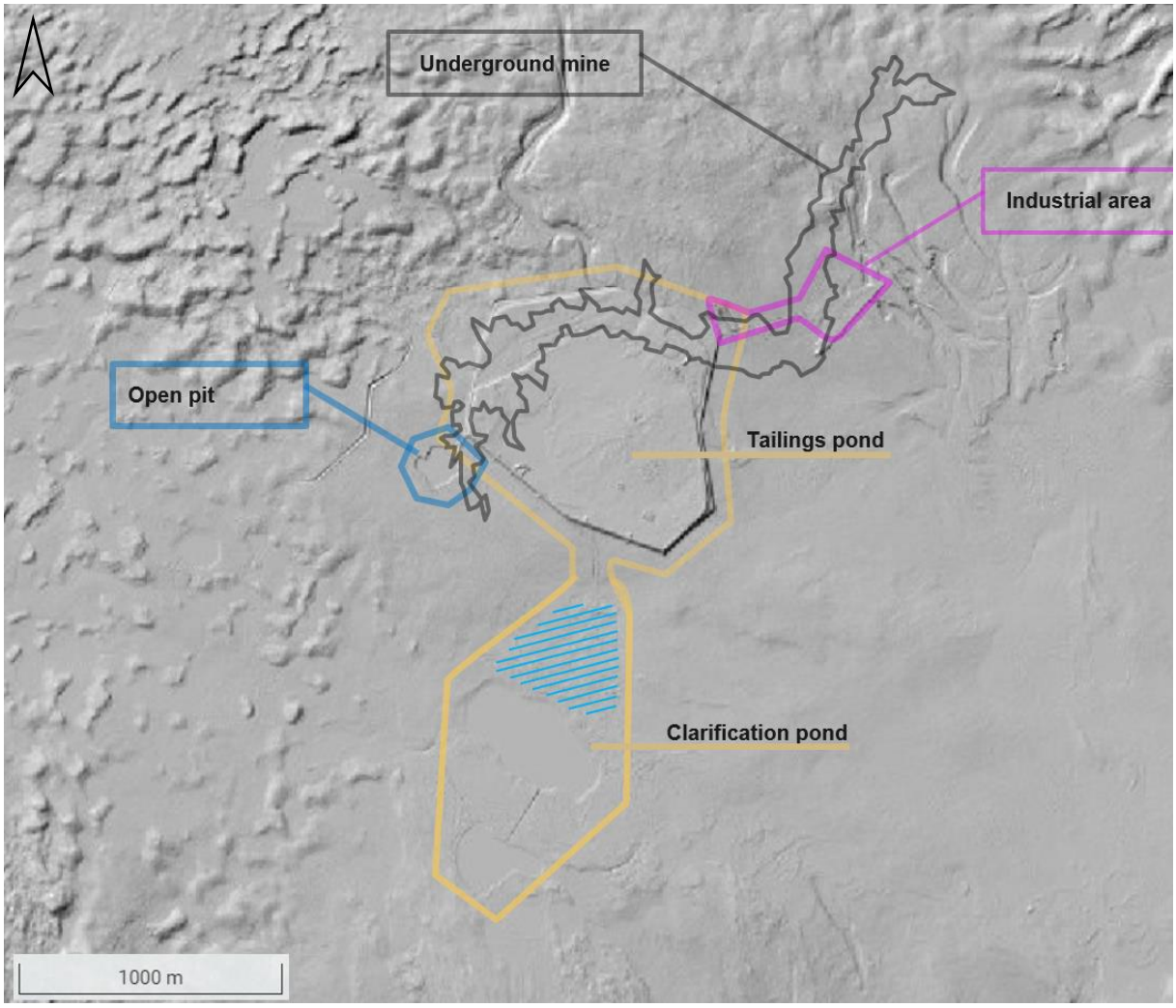

Figure 2 An overview of the Vassbo tailings facility, which includes the tailings pond and the clarification pond, marked with orange (© Lantmäteriet)

2. Consequence classification

Boliden have assigned external experts to evaluate potential site-specific consequences in the event of a dam breach. Aligned with the results of this assessment, Boliden has classified the Vassbo tailings pond as *´Significant´* according to GISTM.

In Chapter 4, Table 1, the rationale for classification is presented.

3. Risk assessment

The risks related to the Vassbo tailings facility have been assessed by a team of multidisciplinary specialists, in a manner consistent with Boliden's risk management instruction. The risks related to a potential dam breach have been evaluated regarding potential consequences related to a range of aspects, including health and safety, environment, infrastructure, social aspects and local communities.

The risk assessment has been based on the current understanding of the facility and its surroundings and has identified some uncertainties related to the characteristics of the dams and outlet. This has triggered additional studies and investigations to ensure better understanding to be carried forward in the work to develop a safe closure design.

Since the work on compiling the knowledge base for the facility is ongoing, the risk assessment will be continuously updated going forward to reflect the increased understanding of the tailings facility.

The identified events which can potentially lead to dam breach, are used as input for the Trigger Action Response Plan (TARP) and the Emergency Preparedness Response Plan (EPRP).

4. Impact assessment

Potential impacts in the event of a dam breach have been assessed for the Vassbo tailings pond in 2021. The evaluated impacts are summarized in Table 1, based on the criteria provided in GISTM dam failure Consequence Classification Matrix.

The impact assessment is reviewed in the event of any major changes to the facility or local surrounding, or as part of the upcoming Dam Safety Review at the latest.

Table 1 Summary of the Vassbo tailings pond impact assessment related to the GISTM dam failure Consequence Classification Matrix

Consequence Criteria	Classification	Impact assessment
Potential Population at risk	Low	No risk for personal harm
Potential Loss of Life	Low	No expected loss of life
Environment	Significant	Most of the tailings is deemed to stay in the terrain close to the facility. Tailings might reach downstream habitats and effect water quality. Reclamation of the affected area is estimated to be possible within 1-5 years.
Health, Social and Cultural	Low	Minimal effects and disturbance
Infrastructure and Economics	Low	No infrastructure or services affected in case of failure

5. Description of the design of the tailings facility

In Chapter 1 an overview description of the tailings facility is presented. This section provides more detailed information of the design for all phases of the lifecycle. An overview of the tailings pond is provided in Figure 3 to support the provided information.

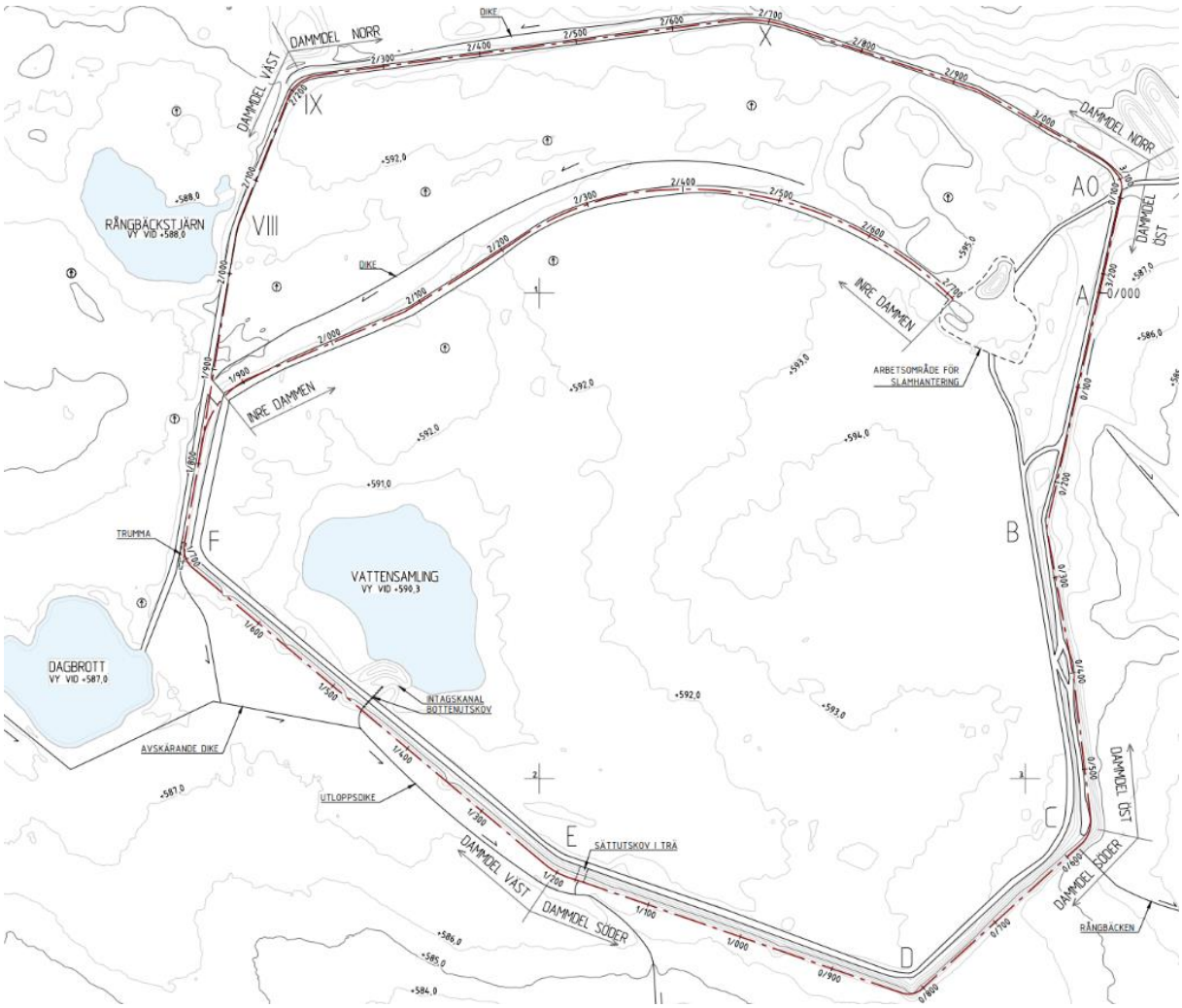

Figure 3 An overview of the Vassbo tailings pond (AFRY, 2024)

The design intent of the tailings pond was to safely contain the deposited tailings and manage the water to ensure settlement of tailings sediments within the decant pond in normal as well as during high flood scenarios. The tailings pond starter dams were constructed 1959, using moraine to achieve low hydraulic permeability and erosion protection of rockfill on the exposed surfaces. The embankments were first raised in 1969 as an upstream construction using moraine and rockfill, being partially founded on tailings. As the underground mine developed in areas underlying the northern part of the tailings pond, the risk of potentially flooding the ventilation shafts was mitigated in 1974 by constructing an internal wall sealing off the northern area from further tailings deposition. To increase the storage capacity of the reduced area, all perimeter embankments were raised at this time (1974). Along the eastern perimeter the lift was placed with an offset, slightly further upstream, founded only on tailings. The perimeter embankments were finally raised in 1979 allowing capacity to store deposition of tailings until the operation seized in 1982.

The height of the perimeter embankments varies around the tailings pond, with a maximum height of approximately 11 m.

During 1959-1974 the water from the tailings pond was discharged via one[1] outlet construction located in the southwestern part of the tailings pond. In 1974 the bottom outlet still used today was constructed further north along the western perimeter dam, thereby requiring the water pond to be relocated. Given continuous structural integrity and no blockage of the outlet the current discharge capacity is estimated to exceed the required design flood according to GISTM[2] without overtopping the perimeter dams.

Water discharged from the tailings pond is diverted southward via a marshland area and two clarification ponds (see Figure 2) before being discharged to the recipient.

A closure plan was originally developed during the last years of operation and agreed upon with the authorities prior to closure. The closure plan for the tailings facility consisted of dewatering the tailings pond and seeding the dry surface with grass for dust mitigation as well as to "round off" the upper part of the dam crest placing the excavated material along the toe and upstream beach. The closure design allowed for two types of construction, one keeping the dam crest and freeboard intact and the other removing the freeboard by lowering the crest to the level of the deposited tailings upstream. For the clarification ponds no closure action was deemed necessary. A combination of the two design alternatives were implemented over different parts of the tailings pond. The dewatering and seeding proved difficult as some ponding water remained after closure and no grass established, to mitigate lack of vegetation sewage sludge has been placed on the tailings pond surface.

The closure implementation did not fulfill the design intent at the time and is not in line with the standards of today. Development of a safe closure design for the Vassbo mine site is ongoing.

6. Annual Performance Review

In conformance with GISTM and Boliden´s framework for tailings management an annual performance review has been conducted for the Vassbo tailings facility.

The following key activities to inform the annual performance review were performed in 2024:

- Updated Operation, Maintenance and Surveillance (OMS) manual implemented.
- Monthly dam safety rounds and bi-annual dam safety inspections conducted as planned.
- Monthly environmental monitoring activities, and annual site inspection, and environmental performance reporting to authorities, all conducted as planned.
- Further development of site characterization; seismic hazard, hydrology, geology, climate.
- Further development of the tailings facility characterization; environmental sampling and analysis, geotechnical field investigations and analysis, geochemical analysis of tailings, and development of as-constructed documentation.
- Initiated succession of DoR/Design team late 2024.
- Safe closure design process initiated.
- Risk analysis and risk register in place, to be updated continuously as the knowledgebase develops (see Chapter 3).

[1] The original outlet constructed in 1959 was located in section 1/163 and as part of the first lift in 1969 a new outlet was constructed in section 1/172. This construction was later adapted to the following final 2 dam raises, primarily to provide a redundant discharge function.

[2] Flood design criteria for tailings facility in consequence class ´Significant´ corresponds to an annual exceedance probability of 1:1000 years

- Emergency Preparedness and Response Plan in place (see Chapter 8).

The outcome of the performance review showed that the knowledge base and governance for the Vassbo tailings facility was not sufficient to demonstrate satisfactory safety in accordance with GISTM and Boliden standards. Boliden has since then engaged a new Designer of Record and design team to help address the gaps in the knowledge base and develop a design for safe closure.

7. Environmental and social monitoring program

An environmental and social impact assessment (ESIA) was carried out in 2025. This ESIA will be updated as the safe closure design is developed.

To allow for meaningful engagement with identified stakeholders, such as local residents, the Sami community and authorities, a stakeholder engagement plan has been developed.

The environmental performance of the Vassbo tailings facility is monitored according to an established environmental monitoring program. The result from the environmental monitoring is submitted in a written report to the supervising authority annually.

The Boliden portal for stakeholder feedback, available online, is used for the site and Boliden uses a specifically developed system to track and save stakeholder communications, including potential grievances.

8. Emergency Preparedness and Response Plan (EPRP)

The Emergency Preparedness and Response Plan (EPRP) is triggered by a failure or a near failure. The triggers of the EPRP are defined in the Trigger Action Response Plan (TARP).

The EPRP is common for all of Boliden's Closed Mines, supported by local appendices specific to each site and its credible flow failure scenarios. The structure of the dam safety emergency group is similar to the dam safety organization in normal operation. Emergency response simulations are held every year for at least one of the Boliden Closed Mine sites. The EPRP is reviewed yearly after every simulation and updated when necessary.

In case of an emergency, the EPRP provides routines for cooperation with local emergency authorities.

9. Independent review

A senior technical Independent Reviewer (IR) was appointed to review the Vassbo tailings facility during 2024. A new IR is being engaged during 2025.

10. Reclamation securities & other financial safeguards

The financing of operation and reclamation work costs at Boliden legacy sites is budgeted according to an annually updated work plan. Based on the updated long-term plan for closed mines, annual provisions

are made to cover future costs. This long-term plan is reviewed with the responsible controller ahead of each budget process.

11. Implementation of the GISTM

Although the tailings facility at the Vassbo legacy mine site was originally closed according to relevant standards and legislation at the time, it is deemed by Boliden the remediated facility does not meet *´safe closure´* as defined by GISTM and Boliden standards. For the Vassbo tailings facility this has initiated comprehensive work to close the gaps in the knowledgebase and to update the closure design.

A self-assessment of the conformance to GISTM, based on the guidance in the ICMM Conformance Protocols, has been conducted. The results show that Vassbo are in partial conformance with the Standard. While significant progress has been made towards conformance, there are still several actions that need to be taken for the tailings facility to be in full conformance with all requirements. These actions have been summarized in a corrective action plan that has been submitted and approved by the mine management team, with the expectation to meet all GISTM requirements during 2026.