



26 September 2018

Assol Kubeisinova  
Technical Advisor, NWB  
P.O. Box 119  
Gjoa Haven, NU X0B 1J0

**RE: Response to Comments**  
**Modification Request No. 10 – Upgrades at the Mary River Mine Site**  
**Mary River Project, Type 'A' Water Licence - 2AM-MRY1325 - Amend. No. 1**

Baffinland Iron Mines Corporation (Baffinland) provides the attached responses to comments received from the Qikiqtani Inuit Association (QIA)<sup>1</sup> and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)<sup>2</sup> regarding Water Licence Modification Request No. 10.

We trust that the attached responses provide additional clarification on the proposed work and infrastructure changes at the Project. Please do not hesitate to contact the undersigned should you have any remaining questions or comments.

Regards,

A handwritten signature in black ink, appearing to read "Chris Murray", with a large, stylized loop at the end.

Christopher Murray  
Environmental & Regulatory Compliance Manager

Attachments:

Attachment 1: Baffinland Response to Comments  
Attachment 2: Site Wide Standard Drawing, Earthworks & Drainage Details  
(H353004-00000-221-294-0004-0001, Rev. 0)

Cc: Karén Kharatyan (NWB)  
Fai Ndofor, Sean Joseph (QIA)  
Sarah Forte, Bridget Campbell, Ian Parsons (CIRNAC)  
Grant Goddard, Megan Lord-Hoyle, Tim Sewell (Baffinland)

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<sup>1</sup> QIA (2018) Re: Mary River Project – Upgrades at Mary River Mine Site, Modification Request No. 10. Water Licence 2AM-MRY1325. Letter dated 20 September 2018.

<sup>2</sup> CIRNAC (2018) Re: Crown-Indigenous Relations and Northern Affairs Canada's comments on Baffinland Iron Mines Corporation's Modification Request No. 10 – Landfill Expansion and Effluent Discharge Line, Water Licence 2AM-MRY1325 - Amendment No. 1. Letter dated 20 September 2018.

**Attachment 1**

**Baffinland Response to Comments**

**Table 1 - Baffinland Response to Comments**  
**Modification No. 10 - Upgrades to the Mary River Mine Site**

ID	Comment / Recommendation	Baffinland Response
QIA		
1	Baffinland to provide detailed for construction drawings of the four culvert crossings required along the footprint of the new treated effluent pipeline and have QIA approved security for the culverts in place prior to construction.	<p>To facilitate passage under roadways, the effluent discharge line will be installed within 300 mm diameter steel pipe sleeves, approximately 15m in length. A site wide typical for road crossings of utility corridors is provided in Attachment No. 2, Drawing No. H353004-00000-221-294-0004-0001. All materials will be sourced from approved quarry and borrows.</p> <p>While adequate reclamation security is in place for the installation of the pipeline infrastructure, Baffinland notes that the culverts were omitted from this assessment consistent with the findings of QIA. Given the timing of the work and that the preparation of the 2019 Work Plan and associated reclamation security estimate is forthcoming on 1 November 2018, Baffinland proposes that the reclamation costs associated with these culverts be reconciled in the 2019 ASR and that this work be allowed to proceed in the interim given the relatively small sum associated with the culverts (estimated by Baffinland to be approximately \$4,400 utilizing existing unit rates for culverts).</p>
2	Baffinland to follow the As Built Operations Guide, further detailing expectations of Article 6.4 Item c) of the Lease when preparing the As Built Report/Construction Summary Reports for the expanded Mine Site Landfill and new Effluent Discharge Line. The As Built Report for the landfill expansion should summarize all considerations in Sections 3 and 4 of the Design Brief prepared by Knight Piésold Ltd. This does not limit Baffinland's requirements to Part D, Item 17 of the Water Licence.	Noted.
3	Baffinland to provide details of the periodic environmental inspections their Environmental Personnel will be carrying out during construction and associated inspection forms for review prior to construction. Results of all environmental inspections should be included in the as-built construction report.	Construction monitoring and inspections will be performed with photographic records before, during and after construction of each landfill cell berm structure. Environmental inspection forms are included in the Environmental Protection Plan.
4	Baffinland to provide the exact source of construction, operational and closure cover materials for the landfill expansion.	The Landfill will be constructed from aggregate and borrow material from Quarry QMR2 at the Mine Site and the KM97 Borrow. Cover materials will be sourced from KM97 Borrow, and future approved borrow source locations as required.
5	Baffinland to provide details of sedimentation and erosion mitigation measures prior to the landfill expansion.	Sedimentation and erosion mitigation measures will be implemented as is outlined in the Surface Water Aquatic Ecosystem Management Plan (SWAEMP) and the Environmental Protection Plan (EPP). In the event that construction of landfill berms occurs during periods of frozen conditions, sedimentation mitigation measures may not be required. If construction of landfill berms occurs in spring or summer conditions, silt fencing will be implemented to mitigate potential down gradient sedimentation.

## Table 1 - Baffinland Response to Comments

### Modification No. 10 - Upgrades to the Mary River Mine Site

ID	Comment / Recommendation	Baffinland Response
<b>CIRNAC</b>		
1	<p><u>Comment:</u> CIRNAC notes that in Drawings No. 100 and No. 200, provided in Attachment 2 of Modification Request No. 10, the extents of Cell 5 appear to be within 31m of a water body. According to Type A Water Licence 2AM-MRY1325 MRY1325 - Amendment No. 1, Part D, Item 25, "The Licensee shall prevent the deposition of debris or sediment from entering into or onto any Water body, with respect to the construction of access roads, site /laydown pads and areas or other earthworks. These materials shall be disposed of at a distance of at least thirty-one (31) metres from the ordinary High Water Mark in such a manner that they do not enter the Water." CIRNAC is concerned that the earthworks for the berm construction on the southwest side of Cell 5 will increase the risk of sedimentation and elevated suspended sediments in the adjacent water body, which contravenes the water licence.</p> <p><u>Recommendation:</u> CIRNAC recommends constructing the berm on the southwest side of Cell 5 at least 31m from the ordinary high water mark of the adjacent waterbodies.</p>	<p>Baffinland will ensure that Cell 5 does not encroach within 31m of the two ponds to the west. Cell 5 is not planned to be constructed in the immediate future and may be repurposed for a Landfarm. Final for-construction drawings will be submitted 60 days prior to construction.</p> <p>If the construction of Cell 5 occurs during spring and summer conditions Baffinland will ensure that sedimentation mitigation measures are implemented between the west perimeter of Cell 5 and the two small ponds.</p>
2	<p><u>Comment:</u> CIRNAC notes that the access road from the Mine Site to the landfill ends at Cell 1, allowing access to Cells 1, 2, and 3. However, the road does not reach the southeast side of Cell 2, where work is scheduled to begin. Moreover, if Cells 4 and 5 are to be used after the progressive reclamation of the landfill and addition of operational cover, vehicles will require access to these sites. CIRNAC is concerned about the lack of access road to Cells 2 - 5. Driving vehicles over berms which are inadequate for the intended traffic can harm the structural integrity of these structures and driving over the overburden could have a harmful effect on the engineered grading of the operational cover and increase the risk of sedimentation of the overburden. This is especially true if large, heavy dump trucks will be required, as they require a more rigorous road design. Baffinland provided no plans for access roads with the submission of Modification Request No. 10.</p> <p><u>Recommendation:</u> CIRNAC recommends that Baffinland provide the NWB with plans for how machinery and vehicles will attain site access. If roads will be required, CIRNAC recommends Baffinland provide construction drawings and specifications of the road, and that an engineer field checks the designs as they are implemented. CIRNAC also recommends that Baffinland update the water management plans to accommodate any new earthworks that may be required.</p>	<p>Landfill Cells 2 and 3 are adjacent to an existing access road that will allow efficient access to the cells for berm construction. Cell 2 is planned for initial construction off the current access road; Cell 3 would then be constructed off of the current access road. Heavy machinery would access the berms through the permitted landfill pad of Cells 2 and 3, filling in from the berms/pad as the landfill cell is expanded to completion.</p> <p>An access road will be required to construct Cells 4 and 5. The access road is proposed to be located on the east limit of Cell 2 to gain access, but final design will be confirmed at the time of construction drawing submission for Cell 4 and 5. Landfill Cell 4 and 5 are not planned for construction in 2018 or 2019, and plan and profile Issued for Construction drawings of these cells will be supplied for review 60 days in advance of construction, which will include the details of the road construction.</p>
3	<p><u>Comment:</u> The modification request presented by Baffinland proposes the installation of an effluent discharge line. On the drawing presented in Attachment 3, changes are also presented for the raw water line, which are not outlined in the submission for Modification Request No.10.</p> <p><u>Recommendation:</u> CIRNAC recommends that Baffinland provide drawings, placement instructions and specifications for the new raw water pipeline, and that an engineer field checks the designs as they are implemented.</p>	<p>Realignment of the raw water intake to accommodate the installation of the 800 person camp was included in the design specifications for the 800 person camp, which was previously approved in Modification Request No. 4 under motion number 2017-10-03 on 20 September 2017.</p> <p>The inclusion of this realignment on the drawings submitted with Modification No. 10 was not intended to create confusion, Baffinland will endeavor to provide clarity on drawing submissions in the future.</p>

## Table 1 - Baffinland Response to Comments

### Modification No. 10 - Upgrades to the Mary River Mine Site

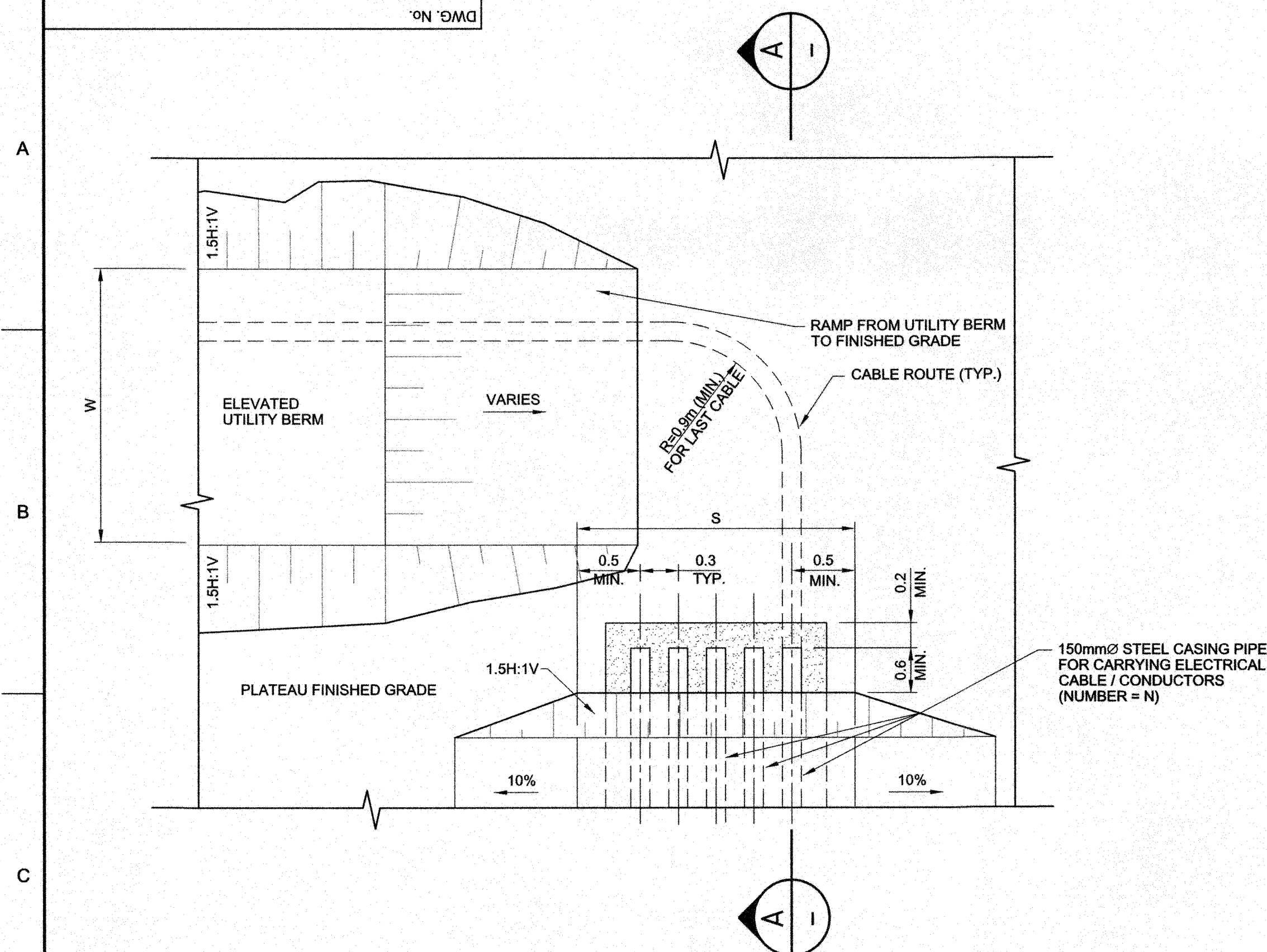
ID	Comment / Recommendation	Baffinland Response
4	<p>Comment:</p> <p>Baffinland proposes to build four (4) culverts to accommodate the crossing of the effluent pipeline across roads. However, specifications and installation details for the culverts are not provided in the submission for Modification Request No. 10.</p> <p><u>Recommendation:</u></p> <p>CIRNAC recommends that Baffinland provide drawings, including specifications showing details (type, material, dimensions, and extensions), for all four culverts, and that an engineer field checks the designs as they are implemented.</p>	<p>To facilitate passage under roadways, the effluent discharge line will be installed within 300 mm diameter steel pipe sleeves, approximately 15m in length. A site wide typical for road crossings of utility corridors is provided in Attachment No. 2, Drawing No. H353004-00000-221-294-0004-0001. All materials will be sourced from approved quarry and borrows.</p>
5	<p><u>Comment:</u></p> <p>CIRNAC notes that pipelines introduce a risk of breakage and spills, and that Baffinland has plans to implement additional mitigation measures, which are to be incorporated into the Freshwater Supply, Sewage and Wastewater Management Plan. Mitigation measures should be understood prior to construction.</p> <p>CIRNAC also notes that the pipeline is to be installed in close proximity with existing roads, where snow clearing will be performed, which may increase the risk of pipe breaks.</p> <p><u>Recommendation:</u></p> <p>CIRNAC recommends reviewing the planned mitigation measures for the pipeline prior to implementation and construction of the pipeline, including plans for pipe protection during snow clearing, such as road signage.</p>	<p>Baffinland notes CIRNAC concerns regarding pipelines, however the installation of this pipeline will significantly reduce the potential for spills compared to the current practice of trucking effluent to the final discharge point.</p> <p>Baffinland will look to improve signage and demarcation of the effluent pipeline, and notes proximity to the existing roads allows for regular inspection and, if necessary, repair and maintenance of the pipeline where needed.</p>

**Attachment 2**

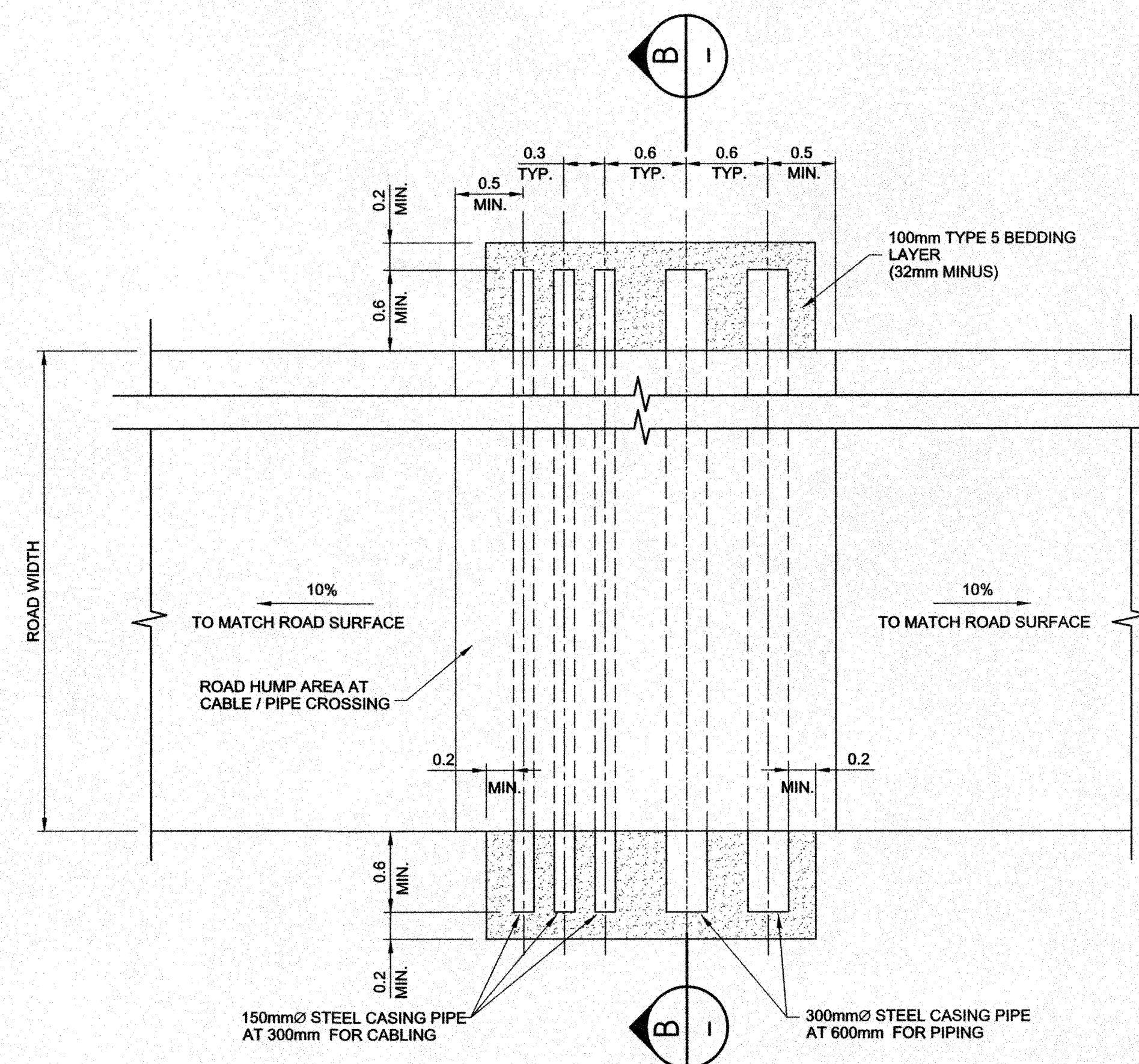
**Site Wide Standard Drawing, Earthworks & Drainage Details**

**(H353004-00000-221-294-0004-0001, Rev. 0)**





DETAIL 1 - UTILITY BERM TO STEEL CASING ON TOP OF DRIVABLE SURFACE



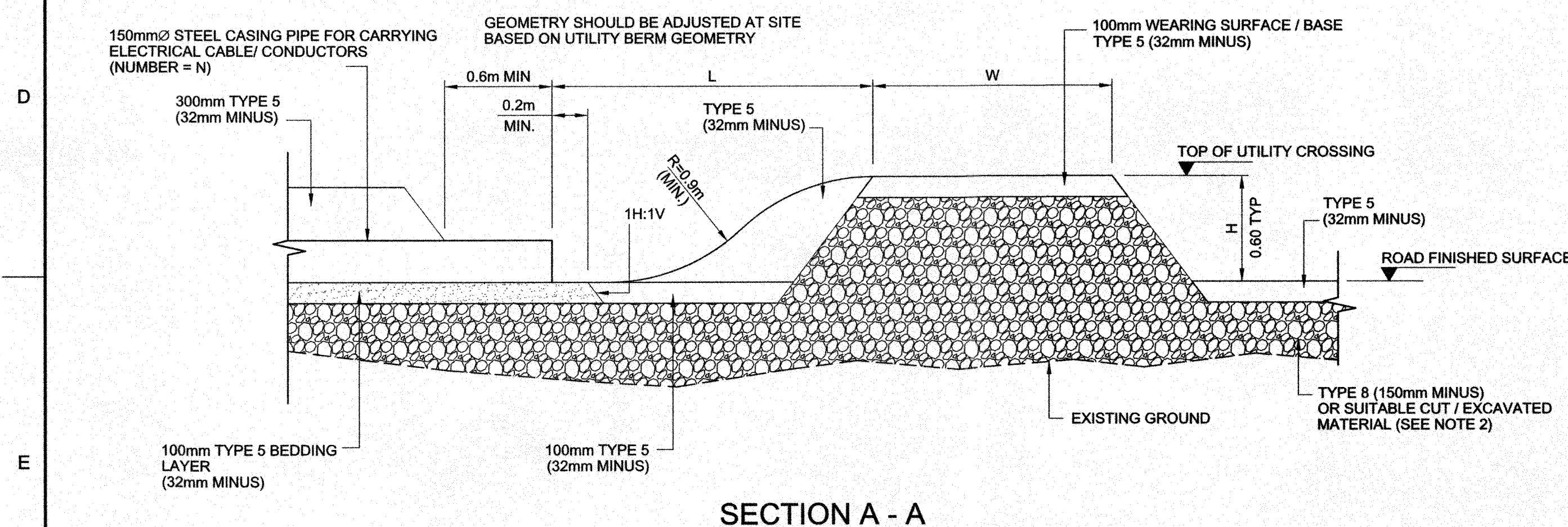
### DETAIL 2 - ROAD UTILITY BERM CROSSING

- NOTES:

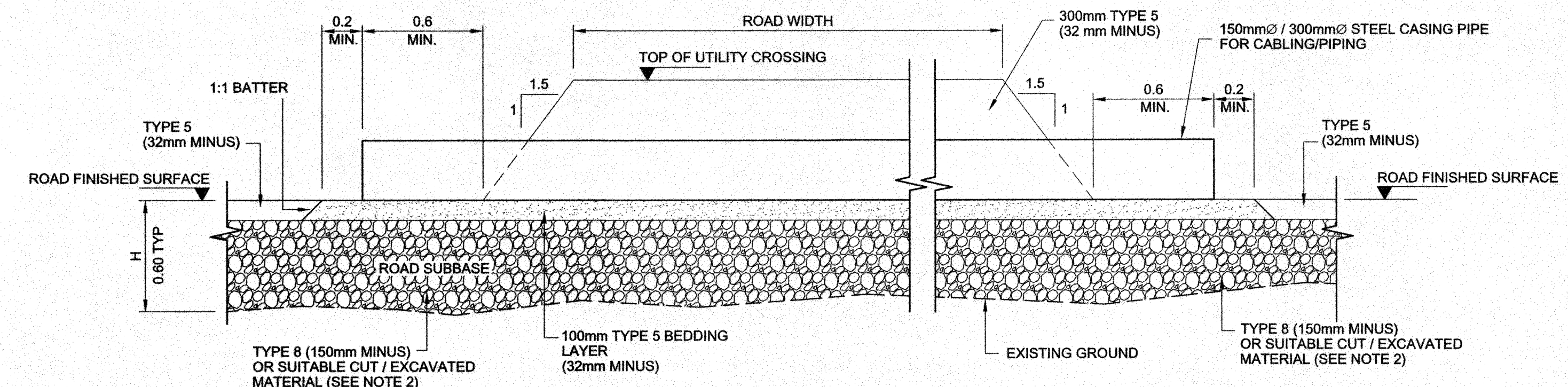
1. ALL DIMENSIONS AND ELEVATIONS SHOWN ARE IN METERS UNLESS NOTED OTHERWISE.
2. FOR FILL DEPTH >600mm AND DEPENDING ON FILL EXTENT, USE TYPE 12, I.E. RUN OF QUARRY (600mm MINUS)
3. THIS DRAWING ONLY COVERS THE UTILITY BERM EARTHWORKS AND ALL OF DIMENSIONS AND DETAILS ARE PARAMETRIC AND SHOULD BE READ IN CONJUNCTION WITH ELECTRICAL / MECHANICAL REQUIREMENTS.
4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH PROJECT UTILITY SERVICES DRAWINGS FOR CABLEING AND PIPING. ALL CABLEING AND PIPING UTILITIES ARE TO BE LAID DIRECTLY ON THE BERM, NO PIPE SUPPORTS ETC ARE REQUIRED.
5. NUMBERS AND DIAMETERS OF STEEL CASING PIPES, WHERE APPLICABLE, SHALL BE PLACED ACCORDING TO ELECTRICAL / MECHANICAL REQUIREMENTS AS DEFINED ON THE PROJECT UTILITY SERVICES DRAWINGS.

**LEGEND:**

- |   |                              |
|---|------------------------------|
| W | UTILITY BERM TOP WIDTH       |
| H | UTILITY BERM HEIGHT          |
| S | UTILITY CROSSING TOP WIDTH   |
| L | UTILITY BERM RAMP LENGTH     |
| N | NUMBER OF STEEL CASING PIPES |



SECTION A - A



## SECTION B - B

**PERMIT TO PRACTICE**  
**HATCH LTD.**

Signature \_\_\_\_\_  
Date \_\_\_\_\_ 2017-12-08

**PERMIT NUMBER: P 512**

The Association of Professional Engineers,  
Geologists and Geophysicists of NWT/NU

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