FIELD REVIEW REPORT - #R003

Address:	University of Waterloo 200 University Avenue West Waterloo, ON N2L 3G1	Project No:	2021-0448-12	Date:	December 16, 2025
		Project:	University of Waterloo –Math 4		
		Contractor:	Gillam Group Inc.		
Attn:	Tyler MacIntyre	Owner:	University of Waterloo		
		Weather:	Overcast, -8 deg C		
Review Date(s):	December 16, 2025				
Attendance:	Kyle Pellerin (WF), Kirk Sommers (Gillam)				

This review is for the sole purpose of ascertaining general conformance with the design concept and does not relieve the General Contractor, his Sub-Contractors, or Agents from responsibilities for code, by-law, or design requirements as described in the contract documents or as required by the local building authorities.

This review was carried out in accordance with the performance standards of the Professional Engineers of Ontario. Any noted deficiencies are based on the work that was observed during this review, but it does not preclude the responsibility of the Contractor for correction of all deficiencies whether noted or not in this report.

GENERAL PROGRESS & ITEMS REVIEWED

R003-1 Tunnel extending south from Davis Centre has been backfilled.

R003-2 Tunnels extending west to MC and north to GSC have been excavated. Existing waterproofing removed, concrete repairs in progress. Temporary enclosure for heating installed, see **Photo 1**.

R003-3 Concrete beam over stair at MC installed.

R003-4 The purpose of this visit was to review concrete surface preparation prior to next waterproofing application.

OBSERVATIONS & COMMENTS

R003-5 Tunnel observed with remnants of original waterproofing materials. Continue grinding in areas where remnants remain, see photos for examples of poor versus acceptable waterproofing (R003—5&6).

R003-6 In general, the existing waterproofing is at least 95% removed (or better) for the first 20-30ft abutting the MC building with some additional grinding work required in localized areas. Elsewhere removals were considered poor. See **Photo 2-5** for examples of poor removals.

R003-7 Removals around the removable hatch abutting M4 were considered acceptable (see **Photo 6** for example). The quality of waterproofing removals shown in **Photo 6** is to be used as a mock-up for removals in all other areas of tunnel.

R003-8 Many concrete repair appeared unsound and were cracked. The concrete was crumbling and falling apart in some areas, cracked in others. See **Photo 7-10**. Section 07 14 16 for cold-fluid waterproofing requires that surface patching shall have a bond of at least 1.5 MPa, which will not be achieved by the repairs performed.

R003-9 Cracks and honeycombing were observed in concrete. Ensure cracks are routed and sealed and honeycombs filled with sealant prior to waterproofing. See **Photo 11-12**.

R003-10 Steel connection observed at removable hatch, each side. Contractor to remove corrosion by grinding, apply sealant cants around edges of plate and around bolt heads prior to waterproofing. See **Photo 13**.

R003-11 Sleeve observed through existing foundation wall at MC. Clean off corrosion and detail penetration as per the typical details. See **Photo 14**.

R003-12 Stair foundation at MC prevents 24” waterproofing downturn. See **Photo 15**, provide waterproofing on existing footing and upturn at least 12” onto foundation wall.

FIELD REVIEW REPORT

DISCUSSIONS WITH CONTRACTOR

R003-13 Removals sub indicated that the preparation is the result of float grinder in the area abutting M4. The waterproofing at MC was a different product and came off much easier. Sub indicated that removals went well at the removable hatch because this was done with a hand grinder. WF indicated that if going over the poor areas again with a float grinder doesn't improve removals, hand grinding may be required.

R003-14 WalterFedy indicated to Gillam that many of the concrete repairs performed appeared to be poor quality, were cracked and/or unsound, and are not suitable for waterproofing application.

SCHEDULE & NEXT STEPS

R003-15 Contractor to obtain direction from MTE on how to proceed with concrete patching in order to achieve 1.5 MPa bond to existing substrate. MTE to perform a 100% review of repairs performed in order provide sound concrete repairs for waterproofing.

R003-16 After the concrete surface is ground again and 100% removals achieved, allow for follow-up inspection by WalterFedy to review waterproofing removals and surface preparation again prior to waterproofing.

WALTERFEDY

Kyle Pellerin, P.Eng.
Structural Engineer
kpellerin@walterfedy.com

GENERAL PHOTOS

Photo 1: Enclosure for tunnel between M4 and MC

Photo 2: Example of waterproofing not fully removed (Minor spot, M4 side)

Photo 3: Example of waterproofing not fully removed (Many spots all over this photo, M4 side)

Photo 4: Example of waterproofing not fully removed (Many spots all over this photo, M4 side)

Photo 5: Example of waterproofing not fully removed (Stripe circled adjacent to concrete repair, MC side)

Photo 6: Example of acceptable waterproofing removals (Removable hatch, M4 side)

Photo 7: Unsound concrete repair at removable hatch

Photo 8: Unsound concrete repair at corner, MC side

Photo 9: Cracked concrete in new repair, MC side

Photo 10: Concrete repair skimmed over existing tunnel

Photo 11: Foundation wall crack to be routed sealed, honeycombing to be repaired or filled with sealant

Photo 12: Tunnel wall/roof crack to be routed sealed

Photo 13: Steel plate each side of removable hatch

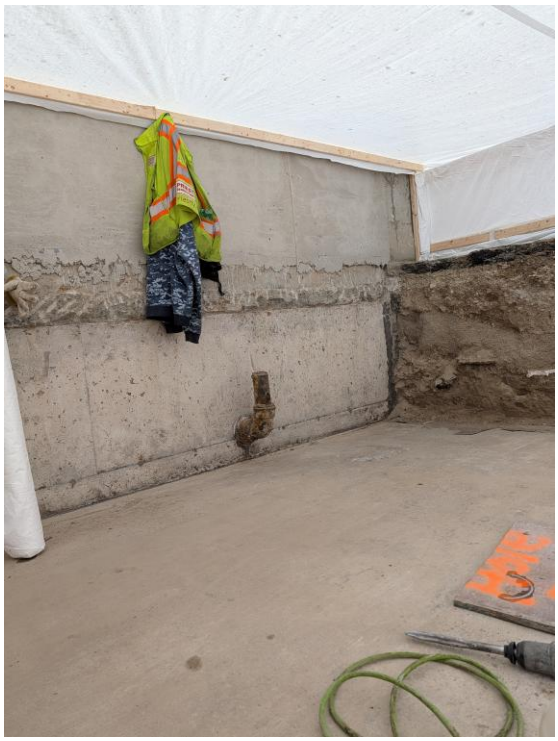

Photo 14: Sleeve through existing foundation wall

Photo 15: Waterproofing detail at stair foundation