MEMO

To:	Natalie Kotyck
From:	Garry T. Hunter, M.A.Sc., P.Eng.
Date:	December 10, 2024
File:	21-407
Subject	**Strada Peer Review Supplemental Hydrogeological Information Request**

I have completed review of some 1,400 pages of the Strada October 2024 Release 4 Hydrogeologically related Quarry application documents. The following key information is missing to wrap up this Peer Review fourth cycle.

NRSI Wetlands NAT 18 and NAT 14

NRSI did not undertake field surveys in key groundwater discharge Wetland NAT 18 (Horning's Mills Lake – Wallyngton – see enclosed photo) or in the westerly upstream reach extension of NAT 14 from the 3rd to 4th Line OS north of 15th SR. Fish Sampling is also required in these stream reaches. NDACT may have to assist with seeking permission for NRSI access. These surveys are required.

Pine River Headwater Stream Flow Monitoring

The Strada August 15, 2024 dry weather stream flow monitoring omitted for unknown reasons the requested Stations SW26, SW27 and SW 28. Please add SW29 at the Pine River Provincial Fishery outflow at Mulmur First Line WHS (Prince of Wales) on River Road (corresponds to NVCA Pine River Base Flow Site 1). These stations are required (see enclosed Figure).

Please also provide stream flow history for any Strada continuous monitoring stations and any incidental stream flows observed after Aug 15, 2024.

2024 Compliance Report – 12 Month Hydrographs and 2024 Water Quality

The Annual 2024 Compliance Report is required including the full 12-month minimum duration hydrographs for multi-level monitors constructed in 2022 / 2023 and for all active and inactive legacy pit monitors.

Please provide all hydrographs in digital format (.xls) to facilitate independent strategic plotting by Model Layer with consistent vertical scales for analyses.

Please provide analytical water quality for missing monitor well OW30C not sampled during Sept 2024. Please repeat analytical water sampling for confirmation of elevated Nitrate (as N) in Gasport Aquifer Wells OW24C and OW27C near the 4th Line OS.

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WELLness Surveys

Please report results to date.

Model STRs / GWPs

Please complete existing October 2024 Model version virtual baseline STRs for all 29 Stream Flow Base Stations as shown on enclosed Fig ____ above.

Also for the Noble Farm (E½ Lot 9 Con 2 OS) outlet tile drain tributary estimate, water level rises for the various Quarry Model Layer 1 scenarios.

For private well DW2 (Dairy Farm) E½ Lot 12, Con 3 OS, please provide GWP comparison of groundwater levels for model Base Conditions and Layer 4 / Layer 6 potentials for nearby Quarry Lifts 1, 2 and 3 (as in Fig 3.61 Appendix E).

For NAT-01 eastern groundwater outlet (E½ Lot 12, Con 4 OS), please provide GWP comparison of groundwater levels (potentials) for Model Layer 1, Layer 4 and Layer 6 for adjacent Quarry Lifts 1, 2 and 3.

For E½ Lot 13, Con 4 OS private residence (severance) adjacent to 4th Line OS, please provide GWP comparison groundwater levels (potentials) for Base Conditions Model Layer 1, Layer 4 and Layer 6 for adjacent Quarry Lift 2 and Lift 3.

Additional October 2024 version Model Runs

1. A new model run for Quarry Lift 2 Phase 2 C with no (ineffective due to over drilling / blast fracturing) model assumed Goat Island 2m thin aquitard (Oct 2024 Appendix E Fig 3.23, 3.24, 3.25, 3.26, 3.27 and 3.31 equivalents).
2. A new model run for Quarry rehabilitation interim phase two years after quarry closure (Oct 2024 Appendix E Fig 3.56, 3.57, 3.58, 3.59, 3.60 and 3.64 equivalents.
3. Model error statistics specific to groundwater monitor water levels within the Strada Pit / Quarry site (Oct 2024 Appendix D Fig 4.16, Fig 4.17, 4.18 and 4.19 equivalents)
4. Modelled error statistics for groundwater mounding (rises) and drawdowns as estimated.
5. A statement of time (years) required to fill the quarry excavation to the Site Plan specified 487 m asl design water level.

Clarifications

1. Clarification of Oct 2024 Level 1 and 2 Hydrogeological Assessment s3.1.2, s3.6 and Fig 8 contradictions with regard to Gasport Aquifer Water Control Barriers and Open Faces after Quarry closure.

2. Clarification on why bench face heights exceed 25 m on Fig 3 and elsewhere in the Level 1 and 2 HG Assessments.
3. Clarification of 4th Line Interceptor Drain elevation gravity inverts to Melancthon Pit No 1 injection wells and / or to pumping stations to the South Infiltration Pond.
4. Clarification of the locations of the proposed quarry sump pumping pipe network to the various proposed Infiltration Infrastructure sites

AN/FO

To assess residues to be expected during routine blasting procedures, please provide the Strada Air Quality and Blasting Reports or other related documents to review AN/FO quantities and practices proposed.
The Strada Hydrogeological Reports are silent on AN/FO residuals as well as Hydrocarbon contamination.

Site Plans

Please confirm that Site Plans are using the same project vertical datum (CGVD2013) as the Hydrogeological Assessment and Groundwater Modelling Report.