

Subject: Strada Groundwater Model Calibration - Pine River Headwaters - Virtual Low Flow Baseline Conditions

From: Garry Hunter <ghunter@hunter-gis.com>

Date: 2024-09-17, 11:57 a.m.

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Alicia and Natalie,

This communication is written in the context of Strada's (Sept 6) proposed submission schedule.

1. This iterative Peer Review iterative process has further connected the 'stream flow dots' in the document stack (Fig H.17.1).

Genivar (2011) Mega Quarry SW9 has a dry weather low flow of about 140 L/s versus the Strada modellers STR7 virtual low flow of 80 L/s or only about 57 % of actual as observed by Genivar. The Genivar real average stream flows are also about 100 L/s higher than virtual flows at station SW9 / STR7.

Therefore Strada's current 'calibrated' model also considering the 0.0 L/s virtual flows at the Newell / Funston Fish Hatchery site is significantly underestimating recharge and stream base flows in the Horning's Mills headwaters and adjacent escarpment uplands (Tavistock Till low recharge assumption?).

By extension, at face value, the virtual Strada groundwater pumped quarry floor flows and infiltration trench / pond quantities are being significantly underestimated. Wetland modelling is also compromised. Further downstream towards Everett (and Earl Rowe?) recharge / flows are being overestimated.

SW9/ STR7 stations are located at the Pine River / River Road crossing east of the Hornings Mills Community Centre and just above the entrance to the Mill Pond. The local stream is supported by the Cabot Head Shale Aquitard, the same as the Strada proposed quarry floor.

2. Also enclosed (Fig H.17.2).

Additional relevant Genivar (2011) Mega Quarry Surface Water Monitoring Hydrographs SW7, SW10 and SW14 are shown.

We request that Strada modellers provide this Peer Reviewer the equivalent

virtual STRs for the current model calibration for further analysis of this model error bias.

3. Why do the modellers reports not disclose this fundamental negative stream flow validation information? Why does the Peer Reviewer have to do this work?

4. Where is Strada's 2024 Horning's Mills headwaters stream flow observations with virtual STRs for comparison?

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Yours truly,

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— Attachments: —

Fig H.17.1 SW9 Fig 3.22 from Strada Impact Assessment Report V12_20240913.pdf	1.7 MB
Fig H.17.2 Flow_SW7_SW10_SW14_20240917.pdf	913 KB