GSS ENGINEERING CONSULTANTS LTD

25-028

November 17, 2025

Municipality of West Grey
402813 Grey Road 4
Durham, Ontario
N0G 1R0

Attention: David Smith
Manager of Planning

Re: **GEI Consultants October 31, 2025 Response to Peer Review Comments on Maximum Predicted Water Table and Hydrogeological Assessment Report Proposed Class 'A' Pit Above Water (Watson Pit), Teeswater Concrete Ltd. Municipality of West Grey, Grey County**

Dear Sir,

As requested, this letter provides our comments on the October 31, 2025 response from GEI Consultants Canada Ltd. (GEI) to peer review comments made by GSS Engineering Consultants Ltd. (GSS) on the 2023 maximum predicted water table and hydrogeological assessment report prepared by GM BluePlan Engineering Limited (GMBP) for Teeswater Concrete Ltd. for a proposed above the water table pit to be located at 311804 Highway 6, Mount Forest in the Municipality of West Grey. The peer review comments were provided in a May 9, 2025 letter from GSS to the Municipality of West Grey.

COMMENTS

Provided below are the original comments from GSS, the October 31, 2025 response from GEI in bold type, and an additional comment from GSS on the GEI response. A summary of our comments for which an additional response is necessary is provided at the end of this letter.

1. Original Comment: Section 2.2.1 of the report indicated that ten monitoring wells were installed to depths between 7.4 and 18.8 metres at six locations on March 9, 10, and 21, 2023 by London Soil Test Limited. The borehole logs were reportedly provided in Appendix B. In the report provided to GSS, Appendix B contained logs for eight test holes advanced at the site by Choice Sonic Drilling on February 2 and 3, 2023, and logs for twenty-two (22) test holes excavated at the site on February 2 and 3, 2023. No associated monitoring well

installations were shown on those logs. Borehole logs for the monitoring wells utilized for the hydrogeological assessment were not included. Copies of those logs should be provided to GSS for us to properly complete our review.

GEI Response: Borehole logs for the monitoring wells utilized for the hydrogeological assessment have been enclosed as an appendix to this response letter. GEI confirms that 10 monitoring wells were installed on the property as noted in the hydrogeological report.

GSS Comment: No further response is necessary.

2. Original Comment: Groundwater levels at the site were reportedly measured on three occasions: March 22, July 18, and October 23, 2023. The report indicated that the high groundwater table elevation was expected to be consistent with the water levels measured on March 22, 2023, which were made following a period of significant snow melt and precipitation. The report recommended that the monitoring wells continue to be monitored during the pit application process so that direct measurement of the high water level could be made and the pit floor elevation updated accordingly. No additional water level data were provided. The high water table elevations shown on the April 2024 site plans (revised March 2025) were based on the March 2023 groundwater level data. For reference, the MNRF August 2020 Aggregate Resources of Ontario (ARO) standards for a maximum predicted water table report (updated in August 2023) indicated that the maximum predicted water table shall be determined by monitoring the groundwater table at the site for a minimum of one (1) year to account for seasonal variations and influences from precipitation, unless alternative information already exists (e.g., previous studies, existing well data) to support a determination of the maximum predicted water table by a qualified person. As no supporting alternative information was provided, the monitoring data presented were less than what was specified in the ARO standards. For the purpose of our peer review for the Municipality, we would not consider one year of data to be necessary provided that it could be demonstrated that the data obtained reasonably represented the typical high water conditions for the site.

   GEI Response: Groundwater levels have been monitored since 2023 and continue to be monitored at the pit property, with dataloggers being installed in the fall of 2025. The most recent water level data that has been obtained is enclosed with this letter. The results of the groundwater level monitoring noted that the highest water levels were observed in June of 2024 for all wells with the exception of MW2, MW3 and MW6s. These monitoring wells experienced their highest water levels in March of 2023.

   Continued discussion regarding the maximum groundwater elevations and bottom contours are provided in the following responses.

   GSS Comment: Water level data were provided for three additional monitoring events at the site on June 21, August 30, and December 10, 2024. Comments on the utility of the data for identifying the seasonal high water table are provided in Comments 4 and 5.

3. Original Comment: Table 2 in the report indicated that the groundwater elevations measured on March 22, 2023 were considered to be the annual maximum groundwater table elevation for the site. However, the water level data presented in Table 2 indicated that the groundwater levels measured in MW-1S, MW-4S, and MW-5S on July 18, 2023 were approximately 0.5 m higher than the recorded water levels on March 22. Conversely, the recorded water level in MW-2 declined by 2.7 m over the same period. The recorded October 2023 water levels for MW-1S, MW-4S, and MW-5S were also higher than the March 2023 levels. The data indicated that the annual high water table elevation identified in the report and shown on the site plans was not consistent with the conditions at the site. Additional data should be provided as necessary to adequately demonstrate that the typical seasonal high water table for the site has been identified.

   GEI Response: To provide more certainty regarding maximum groundwater elevations, groundwater levels continue to be monitored at the pit property, with dataloggers being installed in the fall of 2025.

   GSS Comment: Comments on the utility of the current data with respect to identifying the seasonal high water table at the site are provided in Comments 4 and 5.

4. Original Comment: Available water level data for the Environment Canada gauge on the Beatty-Saugeen River at Holstein, approximately 3 km east-northeast of the site, suggested that the shallow groundwater levels on the Site on March 22, 2023 were less than average for that month and that the seasonal high levels for shallow groundwater likely occurred in the first week of April in 2023. Additional information should be provided to support the finding that the seasonal high water table identified for the site is reasonably representative of typical site conditions. That information is commonly obtained from placement of data loggers in selected monitors to continuously record the water level and/or reference to relevant provincial or federal data for the vicinity of the site.

   GEI Response: While surface water gauges can provide an indicator of local groundwater levels there is often a delayed response, and direct correlation is site dependent. Our experience for this type of site is that the highest groundwater elevations are most typically associated with the spring freshet.

   Regardless, to provide direct measurement of onsite groundwater elevations, groundwater levels continue to be monitored at the pit property, with dataloggers being installed in the fall of 2025. This groundwater monitoring program is proposed to continue during pit operations. Consequently, spring water levels will be captured every year.

   GSS Comment: We agree that the highest groundwater elevations are most typically associated with the spring freshet. Available surface water level and discharge monitoring data for the Environment Canada gauge on the Beatty-Saugeen River at Holstein, approximately 3 km east-northeast of the site, indicated that in 2023 the spring freshet in the vicinity of the site occurred in the first week of April, and in 2024 the spring freshet occurred in mid-April. No April water level monitoring data were provided for the site.

5. Original Comment: There was no comparison between available precipitation data for the period of monitoring and typical precipitation levels for the area of the site. The August 2020 ARO standards (updated in August 2023) defined the maximum predicted water table as the maximum groundwater elevation predicted by a qualified person who has considered conditions at the site and mean annual precipitation levels. Local Environment Canada precipitation data and available 30-year normals suggested that 2022 and the beginning of 2023 through March 22 were drier than normal. Conditions for the water level monitoring period should be compared to relevant precipitation data to support the finding that the identified seasonal high water table is reasonably representative of typical conditions.

   GEI Response: GEI has reviewed the climate normal data from a nearby weather station which is available through the Environment Canada website. A copy of the Temperature and Precipitation Graph for 1981 to 2010 Canadian Climate Normals for the Hanover weather station is provided below.

   The cumulative effect of melting snow and precipitation in the form of rainfall would result in the seasonal high groundwater level typically in the spring. Through many decades of experience and documentation, it is known that the spring condition yields the "high" groundwater elevation. Therefore, it is expected that the high groundwater elevations that were observed in most monitoring wells in June 2024 would be indicative of seasonal high groundwater.

   As discussed previously, we are proposing to provide groundwater level monitoring over the life of the pit which will provide certainty regarding the maximum groundwater table.

   GSS Comment: We agree with GEI's position that spring conditions typically yield the "high" groundwater elevation. We do not agree that the groundwater levels measured on March 22, 2023 and June 21, 2024 were indicative of the seasonal high water table at the site. Water level data for Provincial Groundwater Monitoring Network (PGMN) Well W0000276-2, available from the MECP, indicated that the groundwater level in that well on June 21, 2024 was 0.4 m lower than the high groundwater levels recorded in mid-April of that year, and 0.5 m lower than the high groundwater levels recorded in April 2025. That PGMN well was reportedly screened in sand and gravel at a depth of 4.0 to 5.2 m in a former gravel pit site, similar to the reported soil conditions at the site, and at a location south of Mount Forest approximately 17 km south-southeast of the site.

   We understand that the objective of the MNR requirement to consider conditions at the site and mean annual precipitation levels when identifying the maximum predicted water table was to confirm that the monitoring was not conducted during a prolonged dry period when measured water levels would not be indicative of typical seasonal high water levels for the site. In our experience, that would typically be done by comparing recorded daily precipitation in the vicinity of the site for the period of monitoring with established normal precipitation values for the same period.

The Environment Canada Mount Forest meteorological station was shown to be located 8 km from the site. Our comparison of the recorded 2023 and 2024 monthly and annual precipitation data for that station to the 30-year normals (1991 – 2020) for the same station indicated that the total precipitation in 2023 was 10% less than normal, and the 2024 precipitation through June 30 was 9% less than normal. The recorded precipitation in June 2024 was approximately 70% less than normal, which indicated to us that the June 21, 2024 water level data were unlikely to be indicative of the seasonal high groundwater levels at the site. GEI indicated that groundwater level monitoring at the site will continue in order to identify the seasonal high groundwater level. In accordance with the ARO standards, the results should be considered relative to local precipitation data to confirm that the conditions when the high water level was identified were typical with respect to normal precipitation.

6. Original Comment: Although it is seemingly subject to change, Drawings 2A and 2B Operations Plan showed an excavation elevation of 393.00 m at the location of MW-6S in the proposed extraction area, where the high water table was shown at elevation 391.69 m, indicating a separation distance of 1.3 m. GMBP should confirm that the design pit floor elevations are consistent with the ARO standard for an above water pit.

   GEI Response: The updated plans, which include an adjustment for the most recent water level information will follow in the days after this submission.

   More importantly, and as noted previously, to maintain the 1.5 m separation, groundwater elevations will continue to be monitored throughout the duration of extraction and overseen by a qualified professional. Groundwater elevations will be compared to proposed bottom contours and bottom contours will be adjusted to maintain a 1.5 separation above to the maximum expected groundwater table, as necessary.

   GSS Comment: Similar to the above response, on page 1 of the October 31 letter, GEI proposed to add the following note to the site plans.

   > **Groundwater elevations will continue to be monitored manually as well as with the installation of dataloggers throughout the duration of extraction and overseen by a qualified professional. Groundwater elevations will be compared to proposed bottom contours and bottom contours will be adjusted to maintain a 1.5 separation above the maximum expected groundwater table as necessary.**

   We consider that this proposal could potentially be suitably protective of water resources, provided that it is appropriately implemented and adhered to, although it is unclear what mitigative measures will be implemented in the event that future groundwater monitoring indicates that extraction has occurred within 1.5 m of the water table. We would also expect that this proposal will require one or more future applications to the MNR to amend the site plans by revising the approved bottom elevations for the pit. While we have reservations about the workability of this approach, we will not take issue with the GEI proposal, provided that the MNR considers that approach to be reasonable and consistent with the ARO standards, and provides their approval. However, as a minimum, the proposed note to be

added to site plans should be revised to identify the monitoring wells and piezometers that will be included in the monitoring program, the minimum frequency of monitoring, and that an annual report on the monitoring data with a comparison of the recorded high water level elevations and the existing pit bottom contours, as well as relevant precipitation data, will be prepared by a qualified professional and submitted to the MNR for review.

7. Original Comment: The report noted that the seasonal ponding areas in the central portion of the site were inferred to be associated with the shallow water table elevation. The report further noted that the estimated high water table on the site was consistent with the topography, water level elevations from the monitoring wells, and surface water elevations measured on the site. The surface water level data obtained for the site should be provided. It would be useful to also show that data with the groundwater elevation data on the figure(s) depicting the estimated water table contours for the site. It was not apparent that surface water levels were monitored in the provincially significant Letterbreen Bog in the south portion of the site, as the report noted that it was inferred that the surface water elevation in the bog was generally consistent with the water table elevation. Surface water and shallow groundwater level monitoring with piezometer(s) in the on-site bog for comparison to nearby groundwater level data would confirm that. If representative surface water level data for the bog were not collected, and can't be obtained within the timeframe of the application process, then a suitable recommendation should be included on the site plans for shallow piezometer(s) to be installed in the bog and monitored for a period of at least one year, with the data reviewed by GMBP for consistency with the conclusions presented in the report.

   GEI Response: The wording of the note to be added to the site plan with respect to surface water monitoring is as follows:

   Surface water and shallow groundwater level will be monitored with a piezometer(s) in the onsite bog for comparison to nearby groundwater level data. A shallow piezometer will be installed (within one year of issuance of the pit license) in the on-site bog water feature to measure surface water and groundwater levels, coincident with groundwater levels in the existing monitoring wells. Water levels will be monitored on at least three occasions, at least 2 weeks apart during the period of seasonal high-water levels. The data will be reviewed by a qualified consultant for consistency with the conclusions presented in the hydrogeological report.

   GSS Comment: Our May 9 comment indicated that a note should be added to the site plan in the event that representative surface water level data for the bog were not collected and could not be obtained within the timeframe of the application process. The October 31 GEI letter indicated that groundwater level monitoring at the site with data loggers is currently ongoing and will continue over the duration of extraction in order to identify the expected high water table at the site. GEI also indicated in their letter that revisions to the hydrogeological assessment will be completed after the peer review process is concluded satisfactorily. Under those circumstances, the shallow piezometer(s) should be installed at a suitable location(s) in the bog now and water levels should be monitored in conjunction with the other monitoring wells. The water level data for the piezometer(s) should be used

in identifying the expected high water table for the site and for evaluating the potential for impacts to the bog from the proposed extraction.

8. Original Comment: MNRF mapping showed an unevaluated wetland in the wooded area in the northwest corner of the proposed extraction area and MNRF and Grey County GIS mapping and imagery showed a small pond in the north-central portion of the extraction area. A comment should be provided on why those were not shown in the report as existing surface water features and were not considered to be indicative of the seasonal water table elevation at those locations. The summary statement indicated that the area of the property proposed for licensing was the elevated portion of the property set back from ponds/seasonally wet areas.

   GEI Response: Air photos taken by GEI on September 1, 2023, included below show that the pond that is noted in the peer review comments now appears to be a small depression that is currently farmed as part of the agricultural operations. This area appears to have been filled as part of agricultural operations and does not appear to be consistent with an unevaluated wetland.

   Dance Environmental Inc, completed an EIS in February 2024 and after reviewing the EIS report, it is noted that neither an unevaluated wetland nor a pond is not identified as a surface water feature in this area. A figure indicating the features found on the pit property has been enclosed as an appendix to this letter.

   Monitoring wells MW4s and MW4d are in close proximity to the area and are at a depth that would intersect the bottom of this wet area. These monitoring wells monitor the actual groundwater elevation at the pit property in this area.

   Based on this information, GEI is of the opinion that the historic depression was likely surface water fed and that the local nested monitoring wells provide a more certain elevation for the water table elevation.

   GSS Comment: The appended ecological land classification (ELC) figure dated February 2024 from the natural environment report identified the area in the northwest portion of the site shown as a wetland on MNR mapping as a "dry-fresh Scotch pine naturalized conifer plantation", and did not indicate the presence of a surface water feature in the cultivated field in the north-central portion of the extraction area. No further response is necessary.

9. Original Comment: The report noted that since there are no proposed interactions with the water table or surface water features, the overall water budget, pre- to post-development, is expected to remain unchanged, and stated that equal infiltration to the subsurface will continue post-development. A water budget for the site was not presented. The main components of a water budget are precipitation, losses from evapotranspiration, runoff, and infiltration. The progressive rehabilitation plan (Drawing 3) indicated that the completed pit floor will slope towards the north and be 9 m below the existing ground at the north limit of extraction. The notes on that plan indicated that surface water drainage will be by percolation or evaporation. Under those conditions, the expected runoff from the completed

area of extraction would be zero. From the information provided in the report and site plans, it was not apparent that there is currently no runoff from that area. A reduction in the existing runoff would change the water budget and result in a corresponding increase in infiltration. GMBP should provide additional information to support the conclusion that the water budget for the site will not be changed by the proposed development. If there is a potential for a change in the water budget, then the associated implications should be evaluated. It is not apparent that increased infiltration would negatively affect the on-site wetland to the south, but there would be a potential for an increase in the elevation of the seasonal high water table on the site.

GEI Response: A technical memo has been prepared (enclosed) outlining the impact to infiltration from the pit property.

GSS Comment: Appendix D to the October 31 GEI response letter contained an October 28 GEI technical memo with detailed water balance calculations that compared the estimated pre- and post-development conditions. The approach was based on a water balance example described in Section 3.2.3 and shown in Table 3.1 of the 2003 MOE Stormwater Management Planning and Design Manual. In our experience, that approach is commonly used for water balance assessments. The memo indicated that GEI used input parameters for the water balance, including annual precipitation and evapotranspiration values, which were taken directly from the Table 3.1 example calculation. In our experience, that practice is not typical. Section 3.2.3 of the MOE manual noted that water balances should be calculated on a site by site basis.

GEI indicated that given that their study focused on comparing pre-development and post-development conditions, specifically runoff volume changes resulting from development of the pit, generic parameters were used instead of site-specific data. GEI further noted that as site-specific data could not feasibly be generated within the limited timeframe of this project, the generic parameters were considered to be appropriate for the purpose of the pre- and post-development comparison.

In our opinion, it would have been more appropriate to identify and use representative, site-specific input parameters for the water balance calculation in accordance with standard practice. Had site-specific parameters been used, we would expect the magnitude of the estimated runoff and infiltration volumes shown in Table 1 of the memo to be different. However, because the assessment was based on a comparison of pre- and post-development conditions, and because the same input parameters were used for both sets of calculations, we would not expect the overall findings of the assessment to materially change with respect to the potential for impacts on local surface water features.

The October 28 GEI technical memo compared the pre- and post-development average surface runoff volume and infiltration for the "environmental feature north of the proposed basin (North Feature)". The North Feature was not specifically identified, and it was not apparent to GSS what was meant by the North Feature. The memo noted that ecology data

for the North Feature was not available at this moment, and it was not feasible to determine the sensitivity of these features.

The memo indicated that creation of the proposed pit would reduce the drainage area draining to the North Feature; however, the south to north shallow groundwater flow direction would not be impacted by the pit. The memo further noted that the proposed basin associated with the pit will promote the annual infiltration significantly, and that the increased infiltration volume to the North Feature will compensate for the decrease of the surface runoff volume. For the post-development condition, the proposed pit was assumed to act as an infiltration pit which would infiltrate all surplus precipitation with no runoff to nearby features. The results of the evaluation were shown in Table 1 of the memo for the pre- and post-development annual surplus volume draining north. A 41% increase in surplus volume to the north was estimated as a result of the enhanced infiltration capacity of the proposed pit. The memo concluded that the proposed pit will not pose a significant adverse impact to the ecology functions of the "North Feature".

The water balance assessment did not discuss potential impacts from the proposed pit on the provincially significant Letterbreen Bog, located in the southern portion of the site and extending off-site to the south. Figures 1 and 2 of the memo indicated that the drainage area to the bog would be substantially reduced by the proposed pit, and the attached calculations indicated to us that there would be an estimated reduction in runoff to the Letterbreen Bog of approximately 103,000 m^3 per year, with no corresponding increased input from infiltration. Watershed mapping prepared by the SVCA and drainage areas generated by GSS using the MNR OWIT indicated that approximately the southern three-quarters of the proposed licensed area is currently located in the drainage area for the South Saugeen River, while the northern portion of the licensed area was located in the Beatty-Saugeen River watershed. The post-development drainage plan shown on Figure 2 of the memo indicated that almost all of the licensed area would be located in the drainage area for the Beatty-Saugeen River. GEI should comment on potential impacts to the Letterbreen Bog indicated by the water balance assessment and identify appropriate mitigative measures as necessary.

The surface drainage conditions shown on the March 2025 Existing Features Plan (Drawing 1) for the site indicated that surface flow in the proposed licensed area was in a northerly direction. That was not consistent with Figure 1 of the October 28 technical memo which showed that pre-development overland flow in most of that area was in a southerly direction. The Existing Features Plan should be revised as appropriate.

10. Original Comment: The report indicated that to maintain surface water flows to the same low-lying locations, the restored grades shall be sloped to maintain similar pre- and post-development catchment areas. The pre-development catchment areas were not identified, and it was not apparent how similar post-development catchment areas would be maintained for the proposed area of extraction. Additional information should be provided to indicate how that recommendation would be implemented.

GEI Response: A technical memo has been prepared (enclosed) outlining the impact to infiltration from the pit property.

GSS Comment: Figures 1 and 2 of the October 28 technical memo indicated that similar pre- and post-development catchment areas will not be maintained. If the above-noted recommended mitigative measure from the hydrogeological report will remain on the site plans, then details should be provided on how that recommendation will be achieved. If the recommendation will be removed from the site plans, then we have no further comment.

SUMMARY OF COMMENTS

The following is a summary of our comments for which an additional response is considered necessary.

- Based on the information provided, we consider it unlikely that the seasonal high water elevation at the site has been adequately identified to date. To address this shortcoming, GEI is proposing to monitor water levels throughout the duration of extraction and to adjust the bottom contours of the proposed pit as necessary to maintain a minimum separation of 1.5 m from the identified high water table. We have reservations about the workability of this approach but will not take issue with the proposal provided that the MNR considers that approach to be reasonable and consistent with the ARO standards, and provides their approval. However, as a minimum, the proposed note to be added to site plans should be revised to identify the monitoring wells and piezometers that will be included in the monitoring program, the minimum frequency of monitoring, and that an annual report on the monitoring data with a comparison of the recorded high water level elevations and the existing pit bottom contours, as well as relevant precipitation data, will be prepared by a qualified professional and submitted to the MNR for review.

- In response to our previous comment that water level monitoring should be carried out in the provincially significant Letterbreen Bog located in the south portion of the site, GEI indicated that a note will be added to the site plans that a shallow piezometer must be installed in the on-site bog within one year of issuance of the pit licence. In light of the current proposal for identifying the expected high water table at the site, one or more piezometers as necessary should be installed in the bog now to adequately identify the water table in that area. The piezometer(s) should be incorporated into the proposed ongoing water level monitoring program for the site and the water level data for the piezometer(s) should be used in identifying the expected high water table and for evaluating the potential for impacts to the bog from the proposed extraction.

- A water balance assessment carried out by GEI in October 2025 to compare pre- and post-development conditions indicated that the proposed pit would increase the overall surplus volume of water draining to the north and will not pose a significant adverse impact on the ecology functions of the "North Feature". The nature of the North Feature was not apparent.

The assessment did not comment on the potential for impacts to features located south of the proposed pit. The calculations provided suggested to us that the proposed pit would result in a reduction in runoff to the Letterbreen Bog of approximately 103,000 m^3 per year, with no corresponding increased input from infiltration. Available information indicated that the Letterbreen Bog was located in a different subwatershed than the north portion of the proposed pit, and that the drainage boundary would be changed by the proposed pit. GEI should comment on potential impacts to the Letterbreen Bog indicated by the water balance assessment and identify appropriate mitigative measures as necessary. The surface drainage conditions shown on the March 2025 Existing Features Plan (Drawing 1) indicated that surface flow in the proposed licensed area was in a northerly direction. That was not consistent with Figure 1 of the October 28 water balance technical memo which showed that pre-development overland flow in most of that area was in a southerly direction, toward the Letterbreen Bog. The Existing Features Plan should be revised as appropriate.

- A recommended mitigative measure from the hydrogeological assessment report indicating that restored grades shall be sloped to maintain similar pre- and post-development catchment areas was inconsistent with the findings of the October 28 water balance assessment. If that recommendation will remain on the site plans, then details should be provided on how that recommendation will be achieved.

We trust that these comments adequately meet the Municipality's current needs.

Yours truly,

GSS Engineering Consultants Ltd.

W. Brad Benson, P.Eng.
Senior Hydrogeologist

WBB/bb