GRANITE ENGINEERING, LLC
civil engineering ● land planning ● municipal services

May 9, 2025

City of Keene
Community Development Department – Planning and Zoning
3 Washington Street
Keene, New Hampshire 03431

RE: G2 Holdings, LLC
Tax Map 215 Lots 7 & 8
21 & 57 Route 9, Keene, NH
GE Project No. 2302011

Dear Ms. Fortson,

We are in receipt of a consultant review report, dated February 14, 2025, relative to the review of the Earth Excavation Permit application, PB-2024-20, for the G2 Holdings, LLC project located at 21 & 57 Route 9. In addition to responses to your comments, please find the following material in support of the referenced project:

- Three (3) Copies of the waiver requests for Article 25.3.3 and Article 25.3.6
- Three (3) copies of the Surface Water Resources Setback Plan (22" x 34")
- Three (3) Copies of the Stormwater Management Report
- Three (3) Copies of the Acid Mine Draiange Detection Initial Response Action Plan
- Three (3) Copies of the Stormwater Pollution Prevention Plan (SWPPP) for the current pit operations
- Three (3) Copies of the revised plans (22" x 34")
- One (1) check in the amount of $150.64
- Digital submission of the updated materials

In response to the comments made by Fieldstone Land Consultants, PLLC, we offer the following explanations and/or responses:

<u>Section 25 Earth Excavation Permit:</u>

1. Section 25.2B: This project will require state and federal permits and these permits have not been obtained yet. Fieldstone would recommend that these permits be considered as conditions of approval when and if the project reaches that point.

   No response required.

2. Section 25.2C: The reports prepared and submitted indicate that this project has the

potential to cause adverse impacts associated with the excavation project operations. This section outlines hazards as noise, traffic, dust or fumes, visual impacts, degradation of roadways, erosion and soil instability, sedimentation, adverse impacts to surface and ground waters, loss or fragmentation of important habitat, air quality degradation, pollution of soils or diminution of the value of abutter properties. Based on the materials provided it appears that this project will result in adverse impacts to surface and groundwaters. This is outlined in the Acid Mine Drainage Potential Report and we believe the stormwater management report does not currently adequately address the surface water conditions.

Although the site's bedrock <u>may</u> exhibit <u>potential</u> acid-generating properties, this characteristic alone does not inherently make it so. Professionally engineered plans, a Hydrogeologic Investigation Report, Acid Mine Drainage Potential Report, and an Acid Mine Drainage Detection Initial Response Action Plan prepared by a professional geologist are included in this submission. As demonstrated in the submitted material, excavation activities will not adversely impact surface or ground water quality through the unearthing of toxic or acid-forming elements or compounds resident in the bedrock or soils.

Given that bedrock was encountered and has the potential to contain minerals that could lead to AMD, a waiver is required to proceed with bedrock excavation. This waiver is necessary to excavate the material on-site adequately. While AMD is uncommon in active New England quarries, our proactive approach includes initial testing, early detection protocols, and action plans, which are crucial for managing any potential adverse effects. These supporting documents have been included with this submittal.

All stormwater from bedrock excavation activities will be collected, contained, and infiltrated back into the ground. We anticipate zero runoff associated with the bedrock excavated areas discharging the site, effectively protecting surface waters from potential AMD. The revised Stormwater Management Report includes an analysis of the two proposed infiltration basins and the ability to infiltrate the stormwater up to and including the 50-year 24-hour storm event. In addition to reintroducing surface water to the ground, the proposed lining of the two infiltration ponds with 12 inches of crushed limestone gravel as a precautionary measure will help neutralize any potential for acid mine drainage.

3. Section 25.3D: Surface Water Resources. The excavation perimeter shall be set back at least 250-ft, and the access driveway shall be set back at least 150-ft, from any surface water resource. The proposed excavation is located within 250-ft in a number of locations and the applicant is seeking a waiver from this section

No response required.

4. Section 25.3.3: The ground water table elevations need to be revisited in the reports. There appears to be conflicting data from the test pits and soil borings regarding the location of the estimated seasonal highwater table. Depending on the results of this work other portions of Section 24.3.4 may or may not be applicable. For example, the excavation depths in Period 8 appear to show depths of excavation below the water table. Test pits and record boring logs show seasonal high-water tables that are encountered and proper separation for infiltration does not appear to be provided. Based on our review of the data it appears this project will need an exception from 25.3.3A as excavation appears to be proposed below 6 feet from the seasonal high-water table.

   A groundwater monitoring well (SLR-12), installed by SLR International Corporation, observed a groundwater fracture within 18 inches of the existing ground surface. It is the project's intent to refrain from excavating this area. While there is no evidence that the fracture in which SLR-12 is located extends into the proposed excavation area, we are respectfully requesting this waiver to ensure continued compliance with Article 25.3.3.

   The groundwater monitoring well which encountered high groundwater, is an anomaly. This particular well, drilled by a different company for another firm, unexpectedly encountered a high level of groundwater. The applicant noted during drilling that surface water was present nearby and appeared to be flowing into the well. It's important to note that a nearby well and test pit, located close to SLR-12, did not encounter any groundwater. Furthermore, all overburden and bedrock wells within the planned excavation area have also shown no groundwater.

   While we believe the high groundwater reading in the anomalous well is likely inaccurate due to the observed surface water influence, we have taken care to avoid disturbing the adjacent grade. However, completely avoiding the adjacent area would unfortunately prevent the construction of a critical sedimentation pond. These sedimentation ponds are essential for effective site runoff control. They function by capturing and holding water, allowing sediment to settle out. This process is vital in preventing sediment from entering downstream water bodies and safeguarding water quality during the construction phase. If groundwater is actually encountered in the adjacent area, blasting operations will cease as MSHA, the protective protocols governing blasting, does not allow the blasting within groundwater.

The floor of the basin is at elevation 842.00 and relatively half way between the wells. Based on this information, the water table was interpolated and estimated at 828.95.

5. Section 25.3.4.A.1: We have reviewed the soil logs and their proximity on the property. The number of observations appear to be appropriate at this stage but additional data may be required to support the current design since the current design does not appear to have adequate separation to water. Additional investigation may also be required depending on the consultant's responses surrounding concerns for potential impacts.

   See response to #4.

6. Section 25.3.4.A.2: The surface data table on Sheet 11 of 22 does not accurately represent elevations (existing and proposed) and separation to seasonal. The Hydrogeologic Investigation performed by SLR shows that boring log SLR-10 observed water at 840.1+/-, SLR-11 observed water at 817.8+/- and SLR-12 observed water at 888.5+/-. The finish grades in these areas appear to show interference. The plans do not show all of the record borings locations. For example, SLR-12 appears to be missing and the excavation at this location is approximately 855+/- based on what we understand to be its location. This appears to be 30+ feet below the observed seasonal water table.

   The proposed grade at SLR-10 is 860.00 in period 1, and 855.00 in period 8. This grading is approximately 15 feet above the observed water table found (840.1+/-). The proposed grade at SLR-11 is 880.00 in period 1, and 855.00 in period 8. This grading is approximately 37 feet above the observed water table found (817.8 +/-). SLR-12 is shown on sheets 5 and 10, and the existing grade at SLR-12 is 888+/-. The existing grade is to be maintained in this location. No excavation is occurring in this location.

7. Section 25.3.4.B.2: The data for the wells depicted on the plans (3 wells) should be provided and documented for baseline information. It would seem appropriate that the Hydrogeologic Investigation provide the well data (depth of water and baseline testing of these wells since they are located on the site. The monitoring plan may want to include one or more of these wells too.

   A revised monitoring plan has been developed and includes monitoring SLR 10, 11, and 12 that were previously installed.

8. Section 25.3.4.B.3A: The soil logs and borings in Period 8 do not seem to meet the requirements outlined in this section.

The section requires that wells be dug 50' below the proposed pit – if excavation is within the water table. SLR 10 and SLR 11 were both dug below the proposed pit bottom, and did not encounter the water table within our excavation limits. The proposed design does not propose excavating below the water table. SLR-12 is shown on sheets 11 and 16. It is currently located in the area between period 1 and period 8 in an area where grading is not anticipated. SRL-12 does show a water level greater than the adjacent proposed pit floor depth. All bedrock groundwater flow at the site is controlled by fracture flow and we have no evidence suggesting that the fracture in which SRL-12 is located extends into the excavation area. SLR-12 showed groundwater to be within 18" of the surface, however, both SLR-4 and test pit 6, both of which are within very close proximity to SLR-12, did not find groundwater. Overburden wells MW-1 through MW-8 did not encounter groundwater. Bedrock wells BRW-1 through BRW-6 did not encounter groundwater. Furthermore, due to the blasting means and methods, the excavation is limited to "dry-hole" areas only.

9. Section 25.3.4C: The proposed monitoring plan for this project does not match the frequency outlined in this section. The City shall determine if they are comfortable with the proposed frequency and if relief is required from this section of the regulations.

   A revised monitoring plan has been provided that includes monitoring tables of both AMD and water level monitoring. It also includes both on-site and off-site water quality monitoring notes. See sheet 17.

10. Section 25.3.6: This section states " When the proposed operation includes the excavation of bedrock materials, the applicant shall demonstrate that excavation activities will not adversely impact surface or ground water quality through the unearthing of toxic or acid forming elements or compounds resident in the bedrock or soils. Such demonstration shall be made by obtaining the opinion of a NH licensed engineer or professional geologist. Excavation of bedrock shall not be permitted where bedrock contains toxic or acid forming elements or compounds." Per the Acid Mine Drainage Potential Report prepared by Frontier Geoservices this project has the potential to produce acid mine drainage. The report outlines that borings 1 through 8 have the elements or compounds that could produce acid mine drainage.

    See Response to #2

11. Section 25.3.7: This Section addresses Stormwater Management and states "Excavation activities within the excavation perimeter and the access driveway shall not cause adverse impacts from stormwater runoff and/or groundwater drainage, including erosion, sediment transport, water quality degradation, and/or increases in volume or velocity of water leaving the site".

a. The stormwater management report and design for this project is currently incomplete as it does not evaluate the pre and post conditions. The submitted report does not include preconstruction conditions or properly model the phasing of the project and the phased conditions throughout the project.
A revised Stormwater Management Report has been updated to show the pre and post development flows from the project area to the wetlands and drainage culverts adjacent and under Route 9. There is a net decrease in peak flow during all storm events, up to and including the 100-yr storm event, per the request of the Conservation Commission. The two-year pre- vs. post volumes for channel protection have also been met.

b. This should include monitoring the same observation points and modeling the closest downstream structures that route the runoff from the site.

See response above.

c. The original approvals for this site included the submission of a stormwater management report prepared by TFMoran that properly evaluated the pre and post conditions and storm events. Since this is an expansion of this project we would anticipate a similar submission for the expansion of this project. The submission should also account for the phasing of the project showing that the project meets the standards throughout the phasing periods.

Two pre vs post drainage models have been analyzed, which include an interim phase showing the project meets pre vs post flows during the phasing periods. During this interim phase, the temporary sedimentation pond SF1 is to be expanded. This pond will detain and infiltrate all the stormwater associated with the subsequent phases of work. Upon completion of period 7, and during period 8, as the pit floor in period 8 is lowered, proposed infiltration pond SF8 will be constructed. This will capture and infiltrate all of the stormwater associated with the project.

d. Other details to consider in the stormwater management report:

i. The model should account for ledge and the associated impervious conditions and shallow ledge. The post conditions do not account for the amount of exposed ledge or shallow ledge resulting from the project. All of the subcatchments show 0% impervious cover and low CN's for the actual anticipated conditions. We believe the CN's used are not representative of post-construction conditions.

Ledge and associated impervious conditions, including gravel haul roads, have been reflected in the updated drainage analysis.

ii. Outlet structures seem to have orifice plates bolted to headwalls but do not seem to provide for emergency outlets for larger storms or in the event of clogging.

Outlet structures for the use of emergency overflow devices have been added to SF5, SF6, and SF7. Hydrocad has been updated with these structures as well as the details (pond detail updated, OCS structure details have been provided.

iii. The report should compare peak rates and volumes at the two observation points.

See response to 11a.

iv. Confirm adequate depths to ESHWT are being provided.

Both the temporary sediment basin SF7 and the final proposed infiltration basin SF8 have the required separation to ESHWT. See response to 4.

v. Verify inlet conditions and culvert cover for cross-culverts.

Inlet conditions have been verified, and minimum cover has been provided for all culverts.

vi. Ditch (reach) modeling and capacity analysis should account for stone check dams.

Temporary stone check dams have been removed as ditches are proposed to be stone armored.

vii. The report and plans need to include an inspection and maintenance manual outlining all stormwater practices with recommended inspection and maintenance.

An Operation and Maintenance Manual has been included in the stormwater report.

e. It is unclear what the intentions are for handling stormwater and the transition between Phases or Periods.

See response to 11c.

12. Section 25.3.8: A review of site photographs and the plans provided shows that the project is currently not constructed per the prior approved plans. The drainage at the entrance is not completed and as such dust control and the transportation of dirt/mud off the site onto the adjacent roadway is occurring.
Plans have been revised to show improvements at the entrance. This work will include widening the paved apron, stone outlet protection, and grading a depression at the existing driveway culvert. Phasing notes have been added to sheets 5 and 10 to specify what items need to be completed associated with the access road and during which period. Additional notation has been included on sheets 5 and 10 that specify what items are to be constructed and when, based on the previously approved project.

13. Section 25.3.10: Note #21 of the Operations Notes makes reference to known important Archeological sites. Please clarify if there are any such sites on-site.

Per a review by the NH Division of Historical Resources, there are no known resources to be impacted. This note has been eliminated,

14. Section 25.3.12: Per this section a fence or barricade shall be installed and the plans have a detail addressing this. Please clarify the intent regarding the timing of the installation of this fence for each phase or period of construction.

Operation notes have been revised to include the following:
Earthen Berms Erected Around The Excavation Area Shall Be Placed Along The Outside Edge Of The Active Work Area But Not Within The Buffer Area, So As To Minimize The Visibility Of The Fence From Abutting Properties And Public Rights-Of-Ways. These Shall Be Erected At The Start Of Each Permit Period, And Shall Remain Until Pit Excavation Area Has Been Reclaimed.

15. Section 25.3.13: Per this section the excavation areas shall not exceed 5-acres. The applicant is seeking a waiver from this section.

No response required.

16. Section 25.3.17: The access driveway and associated drainage and construction details does not appear to be completed as designed and approved for the initial approval of this project. This is evident if you compare the existing conditions plans with the details depicted on Sheet 10 of 22. There needs to be some clarification on what the intent is with the front end of this project and how it will be brought into compliance with the approved plans.

See response to 12.

17. Section 25.3.25: The plans should be revised to incorporate notes addressing record keeping per this section.

    General note 27 on sheet 1 now reads: All logs required to be maintained by the applicant/operator shall be retained by the applicant for a period of not less than 5-years and shall be made available to the community development department, or its designated agent, upon request.

18. Section 25.3.26: The applicant shall provide the Community Development Department copies of all local, state and/or federal permits required for this project.

    No response required.

19. Section 25.4.1D: To meet this requirement the Stormwater Management Report should appropriately model the pre and post condition design storms and evaluate observation points to ensure that the project will not have negative impacts to downstream areas. reclamation plan should be revised to incorporate notes from this section to ensure compliance with the City Code. This includes notes pertaining to incremental reclamation, topsoil, vegetation, monitoring and remediation as applicable.

    The stormwater management report has appropriately modeled pre vs post conditions. The reclamation notes have been revised to include the pertinent notes from this section.

20. Section 25.4.6: We would recommend that the reclamation plans be revised to incorporate the remediation note outlined in this section.

    The reclamation notes have been revised to include the following: Excavation operations that cause adverse impacts shall abate and/or remediate those impacts, restoring all affected areas to pre-impact conditions. Reclamation shall not be said to be complete until all adversely impacted areas have been successfully remediated.

<u>Plan Review – General Review Comments:</u>

1. Sheet 1 of 22 – Operations notes #3 should mention the 250-foot wetland setback to excavation setback as applicable too.

   General note #21 has included this information.

2. Sheet 1 of 22 – Operations notes #10 is not correct. The subject site is not self-contained and this note should be revised accordingly. There are areas of the site

that are not self-contained including but not limited to existing access roads, etc.. This note misrepresents current and proposed conditions.

Operations Note 10 has been revised.

3. Sheet 1 of 22 – Operations notes #17 appears to conflict with the updated existing conditions plan as fuel is currently stored on-site. We would recommend the preparation and submission of a Source Control Plan due to the presence of hazardous materials on-site and the nature and size of the proposed project.

   Note 17 has been removed. Refer to fueling notes on sheets 5 and 10. Fueling operations are proposed to be in compliance with Env-WQ 1510.08.
   Spill prevention measures currently on-site are located in the job trailer and consists of 55 gallon drum MS spill prevention barrels.

4. Existing Conditions Sheets should show setbacks and buffers. The limit of disturbance line on the updated existing conditions plan seems to represent a wetland impact on the east portion of the site. Please clarify and correct plan as applicable.

   The excavation, drainage, and erosion control plan show both the current limits and proposed limits of disturbance, as well as all surface water / wetland setbacks. The area in which the existing conditions plan shows disturbance within a wetland is an existing disturbed area that has been restored and confirmed by Ecosystems Land Planning and by the City of Keene. See response to item #13.

5. Sheet 5 of 22 – The temporary sedimentation basin needs additional detail. There appears to be no erosion and sedimentation controls, berm detail, emergency outlet controls and contour labels. Are other access improvements going to be included with this initial work?

   The grading plans and details have been revised to include more information for the ponds.

6. Sheet 6 of 22 – the 30" culvert in Period 1 has two outlets labeled and I would check the cover over this pipe as the grading appears to be too shallow.

   The culvert has one outlet HW#10B labeled. The culvert as proposed has been checked and meets or exceeds manufactures minimum requirements of 12" of cover.

7. Sheet 10 of 22 – What is the plan for transitioning from the temporary basin and into this final design? Reviewing the soils data seems to indicate that the basin design is too low and the excavation in areas will intercept SHWT. It looks like the existing trailer and facilities are in the way and should be moved.

   As the pit floor is lowered, the temporary sedimentation basin will be expanded upon as excavation continues. By the time the pit floor has been excavated to elevation 860.00, the infiltration basin shown in period 8 will have been constructed to the proposed pit floor of 842.00.
   SLR-11 had noted water table at elevation 817.8. SLR 10 had noted water table at 840.1. The floor of the basin is at elevation 842.00 and relatively half way between the wells. Based on this information, the water table was interpolated and estimated at 828.95.
   The existing trailer and facilities are proposed to be relocated from their current location as shown on sheet 10, during the start of period 8.

8. Sheet 12 and 14 of 22 – Additional Basin details are needed. Contour labels, berm detail, emergency outlet and associated details.

   The plans and details sheets have been revised to include additional information for the ponds.

9. Has an EPA Notice of Intent (NOI) been filed for the current site operations? Please provide appropriate materials so we can verify compliance with the initial approved site plan.

   An NOI for the 2022 NPDES Construction General Permit was filed and has been included.

10. A reclamation bond will need to be established for the project prior to work commencing.

    No response required.

11. The exiting conditions plan seems to indicate that the site is not currently in compliance with the previously approved plans. The plan appears to be missing drainage culverts, a stormwater management basin (infiltration basin), an outlet structure, an emergency spillway, slope benching, a reinforced drainage swale, drainage at the entrance, access roadway grading, stop sign at entrance, etcetera. See photo of entrance which depicts current conditions and a deviation from the approved plan.

Plans have been revised to show culvert and stone ditching to be added at the entrance. Phasing notes have been added to sheet 5 and sheet 10 to specify what items need to be completed associated with the access road and during which period. Additional notation has been included on sheets 5 and 10 that specify what items are to be constructed and when based on the previous approved project.

12. Existing conditions plans should show setback and wetland buffer areas to ensure there are no impacts to those areas

    An updated Surface Water Resources Setback Plan has been included and addresses this comment and that shows the following:
    - ***Limits of disturbance***
    - ***Previously approved encroachments on surface water setbacks***
    - ***Proposed encroachments on surface water setbacks***
    - ***Previously restored areas of impacts on surface water setbacks***

13. We have highlighted two areas on the aerial photography below. Further information should be provided for these areas as they appear to be new impact areas. The arrow on the image also represents an area that appears to be seeing more drainage as there is significant erosion and soil loss which is visible from NH Route 9. We recommend that this area be investigated further.

    The area circled to the west, located adjacent to the existing pit, was an area of restoration associated with the previously permitted gravel pit. Per A joint inspection conducted on September 28, 2023 between the applicant, City Staff, and certified wetland scientist, it was determined that area had been successfully replanted. The second area circled is an existing cleared area that is evident on google imagery as far back as 2008, most likely a logging lay down area. The erosion along the perennial stream as noted on lot 8, the old Seafield Pines Facility, has been a known issue prior to the applicant owning the property.

14. The phasing plans need to meet the detail and note requirements outlined in this section. It is difficult to decipher what improvements are required for each phase and how phases transition.

    Phasing notes have been revised, as well as call out notes on the plans to address construction sequencing.

In response to Bryan Ruoff's (City Engineer) comment *"The existing paved access road radii need to be increased in order to support the traffic loading and associated turning*

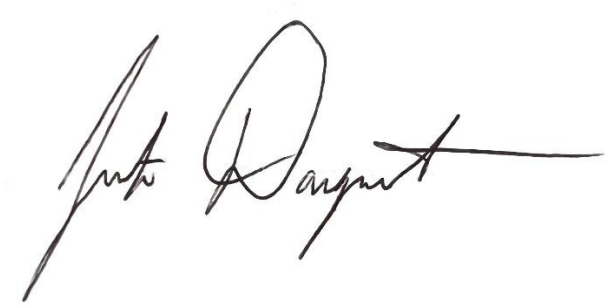
movements into and out of the site. The existing turning movements extend outside of the pavement and will exacerbate the deterioration of the road", we offer the following:

We understand this is an area of concern, as the applicant has placed crushed stone in these areas to accommodate truck movements. The pavement radii at the entrance has been revised for a permanent solution. Our phasing notes indicate this work to be done at the start of this project.

During the March 24th Planning Board meeting, a suggestion was raised by the Mayor for increased awareness of the construction vehicles entering NH Route 9 at the existing site entrance. Our plans have been revised to address this concern, by adding signage indicating vehicles will be entering and exiting in this location.

We trust the noted plan revisions and/or explanations will adequately address the conditions listed above. Should you have any further questions or comments, please do not hesitate to contact this office.

Best Regards,



Justin Daigneault
Project Manager