

PUBLIC COMMENT AND RECOMMENDATIONS

**Proposed Amendments to Chapter 12, Article IV - Mining
Control**

Springfield Township, Michigan

Submitted by

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Oko Environmental, LLC

August 24, 2026

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To Springfield Township Board of Trustees,

Thank you for the opportunity to provide comments and suggestions regarding Springfield Township's proposed mining ordinance amendments. The purpose of this document is to offer practical options for strengthening the Township's mining regulations so they are clear, comprehensive, measurable, enforceable, and capable of protecting residents, property, public infrastructure, and natural resources throughout the full life of a mining operation.

These recommendations are not intended to prevent lawful mineral extraction or to suggest that every existing provision should be replaced. Springfield Township already has important mining requirements and environmental protections. In many areas, the recommendations below build on those provisions by clarifying responsibilities, strengthening technical review, establishing measurable permit conditions, and improving long-term administration and enforcement.

This work reflects approximately 15 months of reviewing and following Springfield Township's currently paused Levy/Burroughs Materials mining application and the Township process surrounding that proposal. During that time, I have reviewed application materials, technical studies, Township and consultant documents, meeting discussions, environmental information, and the practical questions that have emerged during review of a large and complex mining proposal.

That work has also included studying mining ordinances adopted by other Michigan townships, relevant mining-related litigation and court decisions, and provisions of the Michigan Zoning Enabling Act. The recommendations are therefore informed by both broader research and the administrative, environmental, and enforcement issues that have become apparent through Springfield Township's current mining review.

I also want to acknowledge the limits of my role and experience. I am not an attorney, municipal-law professional, or professional ordinance drafter, and I appreciate the opportunity to contribute these comments from the perspective of a resident who has spent considerable time studying this particular issue. Given the amount and complexity of the material and the relatively

limited time available to assemble these recommendations, there may be areas of overlap, repetition, or occasional inconsistency. I apologize for those imperfections and hope the Township will consider the substance and intent of the recommendations even where the wording may benefit from further legal or technical refinement.

A mining approval may remain in effect for years or decades and through changes in Township boards, staff, consultants, property owners, and mine operators. For that reason, the ordinance should work as a complete system: the Township should receive sufficient information before approval, establish clear operating limits, independently review technical evidence, monitor actual conditions over time, maintain accessible records, and have defined procedures for complaints, corrective action, and enforcement.

The recommendations that follow are policy suggestions rather than final ordinance language. Any final language, particularly provisions involving Township authority, legal standards, technical thresholds, or enforcement, should be reviewed by Township counsel and the appropriate technical professionals.

My goal is simply to provide the Township with practical options for improving clarity, transparency, consistency, and long-term enforceability while maintaining a fair and predictable process for applicants and the public.

Thank you for your time and consideration, and for allowing residents the opportunity to participate in this process. I am available for questions and would welcome further discussion if helpful.

Sincerely,

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1 | Considerations Supporting These Recommendations

The following considerations provide context for the suggestions and recommendations included in this document. They are intended to help explain why stronger application requirements, technical review standards, monitoring provisions, and long-term compliance measures may be appropriate for mining operations in Springfield Township:

- **Mining is a long-term land use.** Sand, gravel, stone, clay, and other nonmetallic mineral resources provide economic and public benefits, but extraction operations may continue for decades and can result in significant and sometimes permanent changes to topography, soils, drainage, groundwater conditions, habitat, transportation patterns, and future land use.
- **Groundwater deserves particular consideration.** Sand and gravel deposits may also function as aquifers or important groundwater recharge and transmission areas. Because many Township residents rely on private wells, recommendations related to hydrogeologic studies, baseline well testing, monitoring, and contingency planning are intended to ensure that potential groundwater impacts can be identified and addressed.
- **Groundwater pumping and dewatering should be evaluated before impacts occur.** Pumping can alter groundwater levels and flow patterns, create or enlarge cones of depression, affect nearby wells, and change the interaction between groundwater and surface-water resources. These potential effects support requiring site-specific analysis, monitoring, and clearly defined response procedures.
- **Wet mining may create additional considerations.** Excavation below the water table can expose groundwater to atmospheric conditions and may alter groundwater temperature and flow. Because the extent of these effects depends on site-specific conditions, recommendations concerning wet mining are intended to encourage appropriate technical evaluation rather than relying on generalized assumptions.
- **Wetlands and sensitive habitats may depend on groundwater conditions.** Some wetlands, streams, and wildlife habitats rely on relatively stable groundwater levels or seasonal hydrologic conditions. Recommendations for natural-resource review are intended to ensure that potential indirect effects are considered in addition to direct disturbance.
- **Mining-related traffic can affect areas well beyond the mining property.** Heavy truck traffic may affect pavement conditions, intersections, roadway shoulders, turning movements, sight distance, pedestrian and bicycle safety, school transportation, residential areas, and other roadway users. Recommendations concerning haul routes, truck volumes, operating hours, and recordkeeping are intended to provide measurable standards that can be monitored over time.
- **Operational impacts may extend beyond the property boundary.** Noise, vibration, fugitive dust, lighting, processing equipment, stockpiles, berms, and prolonged industrial activity may affect neighboring properties and the surrounding community. Suggested

performance standards are intended to make expectations clear before operations begin and provide objective criteria for addressing future concerns.

- **Slope stability and earthwork warrant specific attention.** Large berms, stockpiles, excavation slopes, and reclaimed landforms can remain in place for many years. Recommendations for geotechnical evaluation, construction standards, drainage, inspection, and corrective action are intended to reduce the risk of erosion, settlement, slumping, or slope failure.
- **Progressive reclamation can reduce long-term risk.** Reclaiming completed portions of a mining site as operations advance can reduce the amount of disturbed land, erosion potential, safety concerns, visual impacts, and the Township's financial exposure if operations cease unexpectedly.
- **Baseline information is most useful when collected before disturbance occurs.** Groundwater, private-well, surface-water, traffic, noise, natural-resource, and other existing conditions may be difficult or impossible to reliably reconstruct after substantial mining activity has begun. Recommendations for baseline monitoring are intended to create an objective record against which future changes can be evaluated.
- **Outside regulatory approvals can materially affect a mining plan.** EGLE and other agencies may have jurisdiction over wetlands, water withdrawals, discharges, stormwater, road access, drainage, and other aspects of a proposed operation. Recommendations concerning agency coordination and outside permits are intended to help ensure that the Township reviews a project that is realistically permitable and that significant agency-required changes are not deferred until after Township approval.
- **Clear requirements benefit both the Township and applicants.** Detailed application requirements, defined review procedures, measurable operating standards, and clear deadlines can reduce uncertainty and help prevent applications from remaining incomplete or unresolved for extended periods.
- **Long-term administration should be considered when regulations are written.** A mining approval may remain in effect through changes in Township boards, staff, consultants, property owners, and mine operators. Recommendations for standardized reporting, inspections, complaint tracking, public records, financial assurances, and enforcement procedures are intended to create a system that does not depend on institutional memory or informal practices.

Ultimately, these recommendations are based on the principle that a mining permit is only as effective as the Township's ability to administer and enforce it. Clear standards, reliable baseline information, independent technical review, measurable monitoring requirements, adequate financial assurances, and defined compliance procedures can help ensure that protections established at the time of approval remain meaningful throughout the life of a mining operation.

2 | Strengthen Existing Special Land Use and Mining Permit Provisions

Springfield Township's current mining ordinance already establishes many important components of the mining review process, including a Mining Permit, annual renewal, application requirements, professional review, operating conditions, exemptions, monitoring, reclamation, bonding, and compliance with other governmental requirements. The proposed amendments also strengthen several of these areas. My recommendations are therefore not intended to replace provisions that are already working, but to clarify, expand, and strengthen them where additional detail may improve administration, transparency, consistency, and long-term enforcement.

2a | Strengthen the Relationship Between the Special Land Use Permit and Mining Permit

The current ordinance already recognizes that mineral mining may involve both a Special Land Use Permit and a Mining Permit. It also establishes an annual Mining Permit process. I recommend strengthening this existing framework by more clearly explaining the purpose of each approval and how they work together.

The Special Land Use Permit should establish whether the proposed mineral-mining use satisfies the applicable standards for approval and define the overall parameters of the approved operation. The mining application and Mining Permit should provide the detailed operational requirements for carrying out that approved use, including mining phases, extraction limits, environmental protections, monitoring, reporting, reclamation, financial assurances, and compliance requirements.

The annual Mining Permit renewal process should then serve as an ongoing compliance review to confirm that the operation continues to comply with the Special Land Use Permit, approved mining plans, permit conditions, monitoring requirements, reclamation obligations, and other applicable requirements. Clarifying this relationship may make it easier for applicants, Township officials, consultants, and residents to understand which requirements apply at each stage of the process.

2b | Strengthen Existing Requirements for Other Governmental Approvals

The current ordinance already states that issuance of a Township Mining Permit does not relieve an applicant of the responsibility to obtain other governmental approvals. I recommend strengthening this provision by requiring applicants and permit holders to demonstrate that applicable outside permits, registrations, and authorizations have been obtained and remain valid when required for the proposed activity.

This could include approvals from EGLE, federal agencies, Oakland County, the Road Commission for Oakland County, health or drainage authorities, and other agencies having jurisdiction over portions of the mining operation.

The Township should also consider requiring the applicant to identify these outside approvals as part of the mining application so that the Township has a clearer understanding of the regulatory requirements affecting the proposed operation.

For example, in 2025, Levy/BMC's application did not include a comprehensive list of potentially required state permits. Oko Environmental brought the omission to EGLE's attention, after which EGLE contacted Giffels/Webster and Levy/BMC and advised them that the state-permit information was incomplete. Giffels/Webster responded that Levy/BMC would comply with applicable permitting requirements when those permits were pursued.

This was not a minor administrative omission. The missing permitting information included requirements associated with the proposed groundwater-connected lake that would be created through below-water-table excavation. That feature is a significant component of the proposed mining operation and is directly related to groundwater, environmental review, and the ultimate design of the project. This example demonstrates why potentially applicable outside permits and agency requirements should be identified early in the Township review process rather than deferred until after local approval.

2c | Strengthen Existing Owner and Operator Responsibility

The current ordinance already identifies the owner, operator, applicant, and permit holder and requires information regarding the individuals or entities conducting mining activities. I recommend strengthening these provisions by clearly identifying responsibility for *compliance* throughout the life of the operation.

The property owner and operator should both remain responsible for compliance with the Special Land Use Permit, Mining Permit, approved plans, conditions of approval, and applicable Township requirements. The permit holder should also remain responsible for mining-related activities conducted on its behalf by employees, agents, contractors, subcontractors, haulers, and other parties associated with the operation. This clarification could help prevent uncertainty when a complaint or violation involves a contractor, truck operator, or other third party rather than the mine operator directly.

2d | Build Upon Existing Application Requirements by Defining the Approved Scope of Operations

Springfield's existing ordinance already requires substantial information about the proposed operation, including the location and size of the mining area, processing plant, materials to be removed, estimated quantities, method of removal, haul route, equipment, duration, and phasing. I recommend building upon these existing requirements by making clear that the information approved through the Special Land Use Permit and Mining Permit establishes the authorized scope of the operation.

Where applicable, the approved documents should clearly identify:

- Extraction and disturbance boundaries;
- Maximum excavation depths;
- Mining phases and sequencing;

- Processing equipment and activities;
- Extraction or production limits;
- Truck volumes;
- Approved haul routes;
- Operating hours;
- Groundwater withdrawals;
- Dewatering activities;
- Wet-mining areas;
- Stockpile and processing locations;
- Berm locations and dimensions;
- Reclamation requirements; and
- Other significant operational limitations.

The ordinance should also clarify when a change to one of these approved parameters requires additional Township review rather than simply being reported during the next annual renewal. This is particularly important because the proposed amendments already require annual reporting of changes to operational components and deviations from approved requirements. I recommend taking the next step and clearly distinguishing minor operational updates from changes that require formal approval.

2e | Strengthen Existing Coordination with Other Agencies

The current ordinance appropriately recognizes that other governmental approvals may be required. I recommend expanding that concept by establishing an ongoing information-sharing requirement. Applicants and permit holders could be required to provide the Township with copies of material documents related to the mining operation, including:

- Permit applications;
- Issued permits and approvals;
- Permit modifications;
- Significant agency correspondence;
- Requests for additional information;
- Monitoring or compliance reports;
- Notices of violation;
- Enforcement actions;
- Permit suspensions or revocations; and
- Other material regulatory actions affecting the approved operation.

I also recommend establishing a defined notification period, such as two business days, for significant agency enforcement actions, permit suspensions, or notices of violation. This would strengthen the Township's existing requirement to comply with outside laws and permits by also ensuring that the Township receives timely information necessary to administer its own Mining Permit.

2f | Strengthen Existing Application Review by Limiting Deferred Technical Information

The current ordinance already provides for review by the Township Engineer and other experts and allows the Township to request information necessary to evaluate mining operations, reclamation, safety, drainage, and environmental considerations. I recommend strengthening this existing professional review process by clarifying that significant studies or technical information necessary to determine whether a proposal satisfies the standards for approval should be completed before the Special Land Use Permit or mining application is approved.

This should include at a minimum:

- Hydrogeologic studies;
- Groundwater modeling;
- Pumping-test results;
- Private-well evaluations;
- Wetland and natural-resource assessments;
- Traffic-impact studies;
- Traffic & Pedestrian Safety studies
- Noise & Vibration studies;
- Geotechnical and slope-stability analyses;
- Drainage studies;
- Engineering designs;
- Environmental assessments;
- Reclamation plans; and
- Other technical information necessary to understand potential impacts.

Conditions of approval can still be used for implementation details. However, I recommend that conditions not substitute for information that the Township and its consultants need in order to determine whether the proposal satisfies the applicable standards in the first place.

I also recommend reconsidering the existing provision that allows an application to be processed with less than all otherwise-required information when “minimum impact is apparent.” A more clearly defined waiver process, supported by written findings regarding why specific information is unnecessary, would provide greater consistency and transparency.

2g | Retain Existing Exemptions but Clarify Their Limits

The current ordinance already contains reasonable exemptions for activities such as building excavation, residential grading, land balancing, septic work, approved development activities, and limited soil removal or fill of 1,000 cubic yards or less. I recommend retaining appropriate exemptions while reviewing them for clarity and consistency.

The Township could clarify that these exemptions are intended for activities that are incidental to another lawful use and are not intended to authorize commercial mineral extraction.

If the 1,000-cubic-yard threshold is retained, I recommend also clarifying how the threshold is calculated and whether related activities occurring on the same or commonly controlled property must be considered together.

2h | Add Protection Against Avoiding Existing Permit Requirements

This recommendation would supplement the Township’s existing exemptions rather than replace them. I recommend adding language stating that an extraction activity may not be divided, phased, transferred among related entities, or spread across adjoining or commonly controlled parcels for the purpose of remaining below an exemption threshold or otherwise avoiding Mining Permit requirements. This would help preserve the intent of the Township’s existing exemptions while preventing them from being used in a manner that effectively allows a larger commercial extraction operation without appropriate review.

2i | Clarify the Existing Approval of Processing and Related Activities

The current mining application already requires identification of the processing plant, the type of plant proposed, equipment, stockpiles, internal routes, and other operational components. The proposed amendments also require changes in these operational components to be shown during annual review. I recommend strengthening these existing requirements by clarifying that approval of a mineral-mining operation authorizes **only** the processing and related activities specifically evaluated and approved as part of the Special Land Use Permit and Mining Permit.

The Township should consider specifically addressing whether separate review or approval is required before a mining property is used for activities such as:

- Importing aggregate extracted from another property for commercial processing;
- Concrete crushing;
- Asphalt crushing;
- Asphalt production;
- Concrete batch operations;
- Waste processing; or
- Other industrial or material-processing activities that were not part of the approved mining operation.

The purpose would not be to prohibit every additional activity, but to ensure that approval to extract resources from a particular property **does not automatically authorize** a substantially different or expanded type of operation without Township review.

I suggest that the Township prohibit the routine importation of sand, gravel, stone, or other aggregate from off-site mines unless that activity was specifically included in the approved application and evaluated as part of the Special Land Use Permit and Mining Permit. Any later proposal to import off-site aggregate should require separate Township review before the activity begins, including evaluation of additional truck traffic, processing, stockpiling, dust, noise, water use, and other operational impacts. Approval to mine one property should not automatically authorize that site to function as a processing or distribution facility for material extracted elsewhere.

3 | Outside Agency Permits, Approvals, and Regulatory Coordination

Springfield Township already requires mining applicants to obtain other governmental approvals where applicable. I suggest strengthening that requirement by creating a clearer relationship between outside permitting and the Township's own completeness review, technical review, and final approval process.

A mining application should identify all reasonably foreseeable federal, state, county, road, drainage, health, and other governmental permits, authorizations, registrations, approvals, certifications, or jurisdictional determinations that may apply to the proposed operation. The applicant should identify the responsible agency, the activity requiring approval, the status of the approval, any application or reference number, and how the outside approval relates to the mining plan under Township review.

Where significant environmental or infrastructure approvals may be required, I suggest requiring reasonable coordination with the appropriate agencies early in the process. This may include consultation with EGLE regarding wetlands, inland lakes and streams, groundwater or surface-water discharges, significant water withdrawals, stormwater, floodplains, groundwater-connected mining lakes, or other regulated environmental activities.

The importance of this became apparent during review of the current Levy/BMC proposal. In 2025, Levy/BMC did not provide a comprehensive list of potentially required state permits with its application. Oko Environmental brought the omission to EGLE's attention, after which EGLE contacted Giffels/Webster and Levy/BMC regarding the incomplete permit information. This was particularly important because the proposal includes below-water-table excavation and creation of a groundwater-connected lake. The example demonstrates why significant outside permitting requirements should be identified early enough to inform the Township's review rather than being left until after local approval.

The applicant should provide the Township with material agency documents relevant to the proposed operation, including jurisdictional determinations, permit applications, plans, supplemental information requests, agency responses, and other substantive correspondence that could affect the project.

3a | Outside Permit Applications and Application Completeness

I suggest that a mining application not be considered complete where a reasonably identifiable outside permit or approval has not been applied for and that approval could materially affect the project being reviewed by the Township.

This could include approvals affecting:

- Mining or disturbance boundaries;
- Excavation depth;
- Wetland impacts;

- Surface-water impacts;
- Groundwater withdrawal;
- Dewatering;
- Process-water or wastewater discharge;
- Mining-created lakes or ponds;
- Stormwater or drainage;
- Road access;
- Haul-route improvements;
- Environmental mitigation; or
- Reclamation.

Where an outside governmental agency will not accept or act upon an application until Township approval has first been obtained, the applicant should provide written documentation from that agency explaining the sequencing requirement. This would accommodate legitimate agency procedures while preventing significant permits from being deferred simply because an applicant prefers to address them later.

3b | Material Outside Approvals Before Final Township Action

More importantly, I suggest that final Township approval not be granted where an outstanding outside permit, authorization, or agency determination could reasonably require a material change to the project being considered.

If EGLE, the Road Commission for Oakland County, Oakland County, a federal agency, or another governmental authority could still require significant changes to the mining plan, hydrogeologic analysis, wetland impacts, water use, drainage, road access, mitigation, reclamation, or another material component, those issues should be resolved before final Township action whenever reasonably possible.

The Township should evaluate the project that can actually be permitted and constructed rather than approve one version of a proposal while waiting to learn whether another governmental agency will allow that version to proceed.

3c | Consistency Between Agency Approvals and Township Plans

Outside approvals should also be consistent with the plans and representations before the Township. If another agency requires a material change in extraction acreage, excavation depth, wetland impacts, groundwater pumping, water discharge, mining-created water bodies, processing operations, road access, mitigation, reclamation, or another significant component of the project, the Township application should be revised accordingly.

A material change resulting from an outside agency decision should be subject to the Township's applicable amendment and completeness-review requirements and, where appropriate, additional technical or public review.

3d | Permits Required Before Work Begins

Township approval should not authorize work for which another required governmental permit has not yet been issued. Clearing, grading, berm construction, excavation, wetland disturbance, dewatering, mining, processing, construction, commercial hauling, or another regulated mining-related activity should not begin until the permits and approvals required for that particular activity have been issued and are in effect.

Outside approvals may include, where applicable, EGLE requirements involving wetlands, inland lakes and streams, groundwater, surface water, stormwater, soil erosion, water withdrawals, and discharges; federal authorizations such as those administered by the U.S. Army Corps of Engineers; Oakland County requirements; Road Commission for Oakland County approvals; and other governmental requirements applicable to the operation.

Any final ordinance language identifying specific statutes or permit programs should be reviewed by Township counsel and written so that future amendments or successor regulatory programs are also covered.

3e | Ongoing Agency Communications

The permit holder should have an ongoing obligation to provide the Township with substantive regulatory information throughout the life of the mine. I suggest requiring material permit modifications, supplemental information requests, significant monitoring or inspection reports, notices of violation, enforcement actions, consent agreements, permit suspensions, and similar agency communications to be provided to the Township within a defined period, such as five business days after receipt or submission.

Failure to disclose a significant agency enforcement action, permit modification, suspension, or notice of violation should itself be considered a Mining Permit compliance issue.

3f | Relationship to the Township Completeness Process

These requirements should work directly with the application-completeness process recommended elsewhere in this document. If a significant outside permit application or agency determination is reasonably necessary to evaluate the proposed operation and the applicant fails to provide it after receiving a written deficiency notice, the missing information should be treated in the same manner as other incomplete application materials, including administrative closure where the applicable deadline is not met.

Likewise, if an outside agency later requires substantial changes to the project, the applicant should not simply substitute revised plans into the existing record without review. The Township should determine whether the changes constitute a material amendment requiring renewed completeness review, technical review, Planning Commission consideration, or additional public review.

Overall, I suggest that Springfield coordinate its mining approval process with outside regulatory agencies closely enough that the Township is reviewing the project that is actually capable of being permitted and built. Major agency requirements should be identified early,

significant outside approvals should be resolved before final Township action where they could materially change the project, agency-required revisions should return to the Township for appropriate review, and no mining-related activity should begin until the approvals required for that activity are in effect.

4 | Strengthen and Limit the Pre-Application Conference Process

The Township's use of pre-application meetings can be helpful for identifying application requirements, technical studies, outside agency coordination, and procedural expectations before a formal mining application is submitted. However, I recommend establishing clearer limits and documentation requirements so that pre-application discussions do not develop into an extended informal review process outside of the public application record.

For a new mining operation or substantial expansion, I recommend allowing one initial pre-application conference and, if necessary, one follow-up conference. Additional pre-application meetings should occur only when a specific need has been identified and should require written authorization from the Township or the body responsible for administering the mining review process.

The purpose of these meetings should be limited to procedural and technical coordination, including:

- Identifying application requirements;
- Identifying studies and technical reports likely to be required;
- Identifying applicable Township review procedures;
- Identifying outside governmental permits or approvals that may be necessary;
- Identifying Township consultants who may participate in the review;
- Discussing the anticipated sequence of review; and
- Identifying known technical or site-specific issues that should be addressed in the application.

****Pre-application meetings should not be used to negotiate approval conditions, resolve the merits of the proposed Special Land Use Permit, make commitments regarding approval, waive ordinance requirements, or provide assurances regarding how the Township will ultimately act on the application.**

I also recommend that no substantive pre-application meeting with a mining applicant be conducted solely by the Township Supervisor or any other individual Township official. I recommend at a minimum two Township representatives (one elected, one full-time staff member) participate in substantive pre-application meetings. Depending on the subject matter, participants could include the Township Supervisor or another designated Township official, the Township planner, engineer, attorney, hydrogeologist, administrator, or other appropriate professional. This would provide greater continuity, reduce reliance on one individual's recollection or interpretation, and ensure that important discussions are not dependent upon a single Township representative. These meetings should be recorded and the recordings retained for a minimum of 10 years.

Written documentation should be required for every pre-application meeting. The written record should include, at minimum:

- The date, time, and location or format of the meeting;
- The names and affiliations of all participants;
- The purpose of the meeting;
- The subjects discussed;
- Documents, plans, studies, or other materials presented or discussed;
- Questions raised by the applicant or Township representatives;
- Guidance or information provided by Township representatives;
- Any items identified as requiring additional investigation or information; and
- Any anticipated next steps.

The written meeting summary, along with materials provided by the applicant, should be placed in the Township's official project file and made available as part of the public application record. Where practical, I recommend that the written summary be prepared or approved by a Township representative rather than relying solely on a summary prepared by the applicant.

If there is disagreement regarding what occurred during a meeting, the applicant should be permitted to submit a written response or clarification for inclusion in the record rather than altering or replacing the Township's original meeting documentation.

Pre-application communications involving possible substantive project issues should also be preserved. Significant emails, written questions, technical correspondence, and materials exchanged between the applicant and Township representatives should become part of the project record rather than remaining solely in individual email accounts.

Finally, the ordinance or accompanying procedures should clearly state that a pre-application meeting is informational and preliminary. No statement, discussion, email, meeting summary, prior practice, or other informal communication should constitute approval of the proposed operation, waiver of an ordinance requirement, determination of application completeness, vesting of rights, or commitment by the Township regarding a future Special Land Use Permit or Mining Permit decision.

Overall, I recommend retaining pre-application coordination but placing reasonable boundaries around it. The goal should be to provide the applicant with a clear opportunity to understand Township requirements without creating an extended parallel review process that occurs before the formal application is submitted.

Limiting the number of meetings, requiring more than one Township representative, and placing written documentation of substantive discussions into the project record would improve transparency, continuity, and accountability for both the applicant and the public.

5 | Recommendations to Strengthen Application Completeness and Administrative Closure

Springfield Township already requires mining applicants to submit application materials and supporting documentation, provides for professional review, and uses written correspondence to identify missing or deficient information. My recommendation is not to replace that existing process, but to strengthen it by establishing a clear point at which an application is considered complete and, equally important, a firm administrative endpoint when an applicant does not provide the information required to complete its application.

An incomplete mining application should not be allowed to remain active indefinitely. While an application remains pending, Township officials, consultants, and residents continue devoting time and resources to following the proposal. Residents may attend meetings, review changing documents, follow consultant reports, submit comments, seek technical assistance, and attempt to understand a project that still does not contain the information necessary for meaningful review.

For that reason, I recommend a sixty (60)-calendar-day period to complete an application after the Township issues written notice identifying missing or deficient information. If the application is not completed within that period, it should be administratively closed and rejected as incomplete. The applicant may return after six months with a new and complete application.

This would not constitute a denial of the proposed mining use on its merits. It would simply establish that an applicant who is not prepared to provide a complete application within a reasonable period should not be permitted to keep an incomplete application continuously pending before the Township.

5a | Recommended Application Completeness and Administrative Closure Language

I recommend that the Township consider adding a specific provision substantially similar to the following:

(a) Complete Application Required.

Any application for a mining, mineral extraction, sand and gravel extraction, or similar use requiring Township approval shall be submitted as a complete application. A complete application shall include all forms, plans, studies, reports, supporting documentation, fees, and other information required by this Ordinance or reasonably required by the Township to conduct a complete review of the proposed operation.

(b) Notice of Incomplete Application.

If the Township determines that an application is incomplete, the Township shall provide the applicant with written notice identifying the missing, deficient, or additional information required to complete the application.

(c) Sixty-Day Completion Period.

The applicant shall have sixty (60) calendar days from the date of the Township's written notice of incompleteness to submit all required materials and provide a complete application. Failure to provide a complete application within the sixty (60)-day period shall result in the application being administratively closed and rejected as incomplete without further consideration by the Township. No extension of the sixty (60)-day completion period shall be permitted. An administrative closure or rejection under this section shall not constitute a denial of the proposed use on its merits.

(d) Resubmittal Following Administrative Closure.

An applicant whose mining application has been administratively closed or rejected as incomplete pursuant to this section shall not submit the same or substantially similar application for a period of six (6) months from the date of administrative closure or rejection.

Following expiration of the six-month period, the applicant may submit a new application. Any new application shall be treated as a new filing and shall be subject to all application requirements, fees, ordinances, standards, and review procedures in effect at the time of resubmittal.

(e) No Continuing Application During Waiting Period.

During the six-month waiting period, the administratively closed application shall have no pending or active status before the Township and shall not continue through the Township's formal application review process.

Purpose: The purpose of this section is to establish a clear and predictable process for incomplete mining applications; to encourage applicants to timely provide the information necessary for meaningful Township review; and to prevent incomplete applications from remaining pending for an indefinite period.

5b | Clarify What a Determination of Completeness Means

If the Township establishes a formal completeness process, I recommend clearly distinguishing administrative completeness from substantive approval.

A determination that an application is complete should mean only that the applicant has submitted the forms, studies, plans, reports, fees, supporting documentation, and other information required for the Township and its consultants to conduct a meaningful substantive review.

A completeness determination should not mean that:

- The Township agrees with the applicant's conclusions;
- The Township accepts the applicant's technical analysis as correct;
- The submitted evidence is sufficient or persuasive;
- The standards for approval of the Special Land Use Permit have been satisfied;
- Professional review has been completed;

- Additional information can never be requested; or
- The application will ultimately be approved.

This distinction is important because a complete application may still contain technical conclusions that the Township's consultants disagree with or information that requires additional investigation.

5c | Strengthen the Existing Waiver Provisions

The current ordinance allows an application, under certain circumstances, to proceed with less than all information otherwise required. I recommend retaining reasonable flexibility where a particular requirement is genuinely inapplicable while strengthening how those decisions are made.

Any waiver of required application information should:

- Identify the specific requirement being waived;
- Explain why the information is not necessary for the particular application;
- Be supported by written findings;
- Be approved by the appropriate Township body or formally delegated authority; and
- Become part of the official public project record.

I recommend that an individual Township official not have unilateral authority to determine informally that significant application information does not need to be provided.

For a substantial mining proposal, information necessary to evaluate groundwater, private wells, wetlands, traffic, environmental impacts, slope stability, reclamation, financial assurance, or other significant impacts should not be waived simply because an impact is initially assumed to be minimal.

A written waiver process would preserve reasonable flexibility while providing a clear record of what was waived, who authorized the waiver, and why.

5d | Preserve the Township's Ability to Request Additional Information During Substantive Review

A determination that an application is complete should not prevent the Township or its professional consultants from requesting additional information when substantive review identifies a legitimate need for it.

Springfield Township already has authority to request additional information during professional review, and I recommend preserving that authority.

Additional information may become necessary because of:

- Findings by Township consultants;
- New groundwater, environmental, or geotechnical data;
- Pumping-test or monitoring results;
- Changes to the applicant's plans;
- Public testimony or evidence;
- Comments or decisions from EGLE or another governmental agency;

- Conflicting technical information;
- Discovery of previously unidentified site conditions; or
- Other information that could not reasonably have been identified during the initial completeness review.

The initial completeness determination should therefore mean that the application contains the information reasonably identifiable as necessary to begin substantive review. It should not prevent the Township from requiring additional reasonable information when the review itself identifies a new or unresolved issue.

5e | Define “Substantially Similar Application”

Because the recommended six-month waiting period would apply to the same or a substantially similar application, I recommend defining that term clearly. The definition should prevent the waiting period from being avoided through minor changes that do not materially alter the proposed mining operation. A substantially similar application could include an application involving substantially the same property and proposed mining use submitted by:

- The same applicant;
- The property owner;
- The proposed operator;
- A parent or subsidiary company;
- An affiliated company;
- A successor or assignee; or
- Another entity under common ownership or control.

Minor changes to plans, acreage, company structure, project name, or other details should not automatically create a new application for purposes of avoiding the six-month waiting period if the underlying proposed mining operation remains substantially the same.

5f | Clarify the Status of the Application Following Administrative Closure

I recommend making the effect of administrative closure unmistakable. Once an incomplete application has been administratively closed, it should no longer continue through the Township’s formal review process during the six-month waiting period.

That should include no continued:

- Technical merits review;
- Special Land Use Permit merits review;
- Public hearings on the merits of the closed application;
- Negotiation of approval conditions;
- Review of proposed project revisions intended to continue the closed application; or
- Other formal processing of that application.

The Township should, of course, retain the application, correspondence, consultant reviews, meeting records, and other materials as part of the permanent public project record. This distinction is important. An application should not be considered administratively closed while simultaneously continuing through essentially the same review process under another name.

5g | Consider a Limited Administrative Appeal

For procedural fairness, the Township could consider providing a narrowly limited administrative appeal of a determination that an application has been closed as incomplete. Such an appeal should be limited to questions such as:

- Whether the information identified by the Township was actually required;
- Whether written notice of incompleteness was properly provided;
- Whether the sixty-day deadline expired; or
- Whether the applicant submitted the required materials within the sixty-day period.

The appeal should not reopen the merits of the mining proposal, restart the sixty-day period, create an extension, or allow substantive application review to continue while the administrative-closure decision is being challenged. The purpose of an appeal would be to provide review of whether the administrative procedure was correctly applied, not to provide an alternative method of keeping an incomplete application active.

Overall Recommendation: Springfield Township already has an application process, professional review, and a practice of notifying applicants when required information remains outstanding. The principal improvement I am recommending is the addition of a firm endpoint.

The process would be straightforward:

Application submitted → Township determines whether required information is present → Written notice identifies missing or deficient information → Applicant has 60 calendar days to complete the application → Complete application proceeds through substantive review OR incomplete application is administratively closed → Six-month waiting period before the same or substantially similar application may be filed again.

There would be no extensions to the sixty-day period. This process would provide the applicant with a reasonable and clearly defined opportunity to complete its submission while protecting the Township and residents from an application remaining unresolved for months or years.

The responsibility for completing a mining application should remain with the applicant. Residents should not be expected to remain indefinitely engaged in a formal mining review process while the information necessary to actually evaluate that proposal remains incomplete.

6 | Annual Mining Permit Renewal Process

Springfield Township already uses an annual Mining Permit system, and I suggest strengthening that process by establishing clear filing deadlines, expiration dates, and expectations for Township action.

Each Mining Permit should remain annual in nature and expire on May 15 unless formally renewed by the Township. A complete renewal application should be submitted sufficiently in advance to allow meaningful review before expiration. I suggest requiring a complete renewal application no later than November 30 preceding the May 15 expiration date.

The renewal application should include all required reports, monitoring data, reclamation information, operational records, updated plans, compliance information, financial assurance documentation, and other materials necessary for the Township and its consultants to determine whether the operation remains in compliance and whether renewal is appropriate.

Submission of a renewal application should not, by itself, automatically extend the existing Mining Permit beyond May 15. The permit holder should therefore remain responsible for submitting a complete application early enough to allow professional review and Township consideration before the existing permit expires.

The Township Board should endeavor to act on a complete renewal application before May 15. Where additional information is required, the applicant should remain responsible for providing that information promptly so that the review can be completed within the annual permit cycle.

This approach would create a predictable renewal schedule for the operator, Township, consultants, and public while avoiding a situation in which an expiring permit continues indefinitely simply because a renewal application was filed.

7 | Violations, Stop-Work Orders, Suspension, and Revocation

I suggest that Springfield Township establish a clear enforcement framework identifying what constitutes a mining violation, when immediate action may be necessary, and how repeated or serious noncompliance can lead to suspension or revocation of a Mining Permit.

A mining ordinance can contain strong technical and environmental protections, but those protections are only meaningful if the Township has a practical process for enforcing them. The ordinance should therefore distinguish between minor violations that can reasonably be corrected through written notice and more serious conditions that require immediate action.

Violations could include, but should not be limited to:

- Mining without required Township approval;
- Operating outside approved hours;
- Exceeding approved extraction boundaries or depths;
- Exceeding approved truck limits;
- Using an unauthorized haul route;
- Conducting processing or other activities that were not approved;
- Conducting unauthorized dewatering or groundwater withdrawal;
- Importing unauthorized fill, aggregate, or other material;
- Violating monitoring requirements;
- Failing to submit required reports or monitoring data;
- Refusing lawful Township inspection;
- Failing to maintain required escrow;
- Allowing required financial assurance or insurance to lapse;
- Failing to complete required reclamation;
- Materially misrepresenting application, monitoring, or compliance information;
- Violating a Special Land Use Permit condition;
- Violating a Mining Permit condition; or
- Otherwise failing to comply with the mining ordinance.

For a minor violation that does not present an immediate threat to public safety, natural resources, neighboring properties, or regulatory compliance, the Township could provide written notice and a reasonable correction period. A maximum period such as 15 calendar days could be considered, although a shorter period should be permitted where the nature of the violation can reasonably be corrected more quickly.

More serious violations should be handled differently. Where a material violation exists, the Township should be able to require immediate cessation of the affected activity, submission of a corrective-action plan within a defined period such as five business days, and completion of

corrective work within the timeframe established by the Township and its appropriate professional consultants.

I also suggest authorizing immediate temporary stop-work action where there are reasonable grounds to believe continued activity presents an imminent or substantial threat. Examples could include loss of a private water supply, significant groundwater impact, unauthorized dewatering, a spill or contamination event, serious erosion or discharge, unstable excavation or slope conditions, expired financial assurance or required insurance, refusal of a lawful emergency inspection, or another condition requiring prompt action to prevent additional harm.

A temporary administrative stop-work order should be limited to the activity or portion of the operation necessary to address the immediate concern unless broader cessation is reasonably necessary. The matter should then be promptly presented to the Township Board or other legally authorized body for further action, appropriate notice, and due process.

The Township Board should also have clear authority to suspend a Mining Permit where a material violation remains unresolved, required corrective action has not been completed, repeated violations demonstrate inadequate compliance, required monitoring is not being performed, financial assurance or insurance is deficient, a material adverse impact remains unaddressed, or continued operation would materially interfere with enforcement of the ordinance.

For repeated, persistent, or particularly serious noncompliance, revocation should remain available after appropriate notice and an opportunity for hearing. Grounds for revocation could include repeated material violations, material misrepresentation of information, substantial departure from approved plans, failure to maintain required financial assurance, refusal of lawful monitoring or inspection, failure to adequately address a serious environmental or public-safety impact, or other circumstances demonstrating that the operation can no longer reasonably be administered in compliance with its approvals.

Monitoring requirements should be treated as enforceable permit conditions rather than optional administrative obligations. Deliberately disabling monitoring equipment, repeatedly failing to collect required data, withholding or falsifying monitoring information, or continuing an affected activity after an established shutdown threshold has been reached should be treated as serious violations.

The ordinance should also preserve the Township's ability to seek judicial relief where necessary. Nothing in the administrative enforcement process should prevent the Township from seeking temporary restraining orders, injunctions, nuisance abatement, or other remedies authorized by law when immediate or continuing conditions warrant court involvement.

Violations could also remain subject to the Township's municipal civil-infracton provisions and other penalties authorized by Michigan law. To the extent legally permissible, each day that a violation continues after required correction could constitute a separate offense. The Township should also consider identifying mining conducted in violation of the ordinance as a nuisance per se where authorized by law.

Where legally permissible, the responsible party should also bear reasonable Township costs associated with investigating, documenting, enforcing, correcting, or abating a violation. This could include engineering, hydrogeologic, environmental, inspection, monitoring, legal, and other professional costs reasonably incurred because of the noncompliance rather than placing those costs on Township taxpayers.

Most importantly, enforcement action should not eliminate reclamation or environmental responsibilities. Suspension, expiration, administrative closure, denial, revocation, abandonment, bankruptcy, sale of the property, or cessation of mining should not relieve the owner or operator of obligations to secure the site, maintain required environmental protections, continue monitoring where necessary, address existing impacts, and complete required reclamation.

Overall, I suggest that Springfield establish an enforcement system that is proportional but meaningful. Minor problems should have a clear path to correction, while significant environmental, public-safety, or compliance failures should allow immediate intervention. Repeated or serious noncompliance should carry progressively stronger consequences, including stop-work orders, suspension, and ultimately revocation where continued operation cannot reasonably be brought into compliance.

8 | Strengthen Minimum Application Requirements and Prioritize Field-Verified Site Data

Springfield Township's existing mining ordinance already requires many of the basic materials that would normally be included in a mining application, including ownership information, site plans, proposed mining areas, equipment, quantities, haul routes, phasing, aerial photography, reclamation information, and other materials necessary for review.

Rather than significantly expanding the administrative checklist, I recommend strengthening the existing requirements by placing greater emphasis on current, site-specific, field-verified information. For a project that may alter hundreds of acres and operate for decades, desktop information, GIS mapping, databases, assumptions, and computer modeling can be useful tools, but they should not substitute for appropriate field investigation. The Township should have reliable information about what actually exists on and around the property before relying on predictions about what may happen after mining begins.

8a | Prioritize Site-Specific Field Data

I recommend adding a general standard that, where site conditions can reasonably be measured, observed, sampled, surveyed, or tested in the field, the application should rely upon current site-specific data collected by appropriately qualified professionals. Desktop studies, published databases, GIS information, remote sensing, and computer models may supplement field investigation but should not be used as the sole basis for evaluating a site condition when reasonable field verification is available. In simple terms: important decisions about the site should include boots-on-the-ground investigation of the site.

8b | Require Models to Be Supported by Field Data

Computer modeling is valuable for predicting future conditions, particularly for groundwater, traffic, noise, drainage, and other impacts. However, the reliability of a model depends heavily on the quality of the information used to build it. I recommend requiring predictive models to identify:

- The field data used to develop the model;
- The source of model inputs;
- Assumptions used where site-specific information is unavailable;
- How the model was calibrated or checked against observed conditions;
- Important limitations or uncertainties; and
- How predicted results compare with actual field measurements where comparison is possible.

When additional field investigation could reasonably reduce an important uncertainty, the Township and its consultants should be able to require that investigation before relying upon the model.

8c | *Strengthen Existing-Conditions Mapping Through Field Verification*

Existing mapping requirements should be strengthened by requiring significant site features to be field-verified where appropriate rather than relying exclusively upon available GIS layers or online databases.

Examples may include:

- Property and extraction boundaries;
- Topography;
- Wetland boundaries;
- Streams, lakes, drains, springs, and seeps;
- Existing drainage patterns;
- Public and private wells;
- Monitoring wells;
- Roads, driveways, and site-access conditions;
- Significant natural features;
- Existing berms, slopes, excavations, or disturbed areas; and
- Other features material to review of the proposed mining operation.

Where a database does not identify a feature, that absence should not automatically be treated as evidence that the feature does not exist.

8d | *Strengthen Hydrogeologic Data Collection*

For groundwater analysis, I recommend emphasizing direct site investigation and measurement, including, where appropriate:

- Site-specific soil and geologic borings;
- Monitoring wells;
- Groundwater-level measurements;
- Groundwater-quality sampling;
- Hydraulic testing;
- Pumping and recovery testing;
- Measurements of groundwater temperature;
- Evaluation of groundwater flow direction and gradients; and
- Field investigation of groundwater connections to nearby wetlands, streams, lakes, springs, or other natural resources.

Regional maps and existing well records are valuable supporting information, but they should not substitute for site-specific investigation when groundwater impacts are a significant component of the proposed operation. Numerical groundwater models should be based upon and calibrated to appropriate field data rather than relying primarily upon generalized assumptions.

8e | Strengthen Wetland and Natural-Resource Field Review

Where wetlands, sensitive habitat, protected species, or groundwater-dependent natural features may be affected, I recommend requiring appropriate field investigation by qualified professionals. Existing databases and mapping should be used as screening tools, but field investigation should be used where necessary to confirm actual site conditions. Depending upon the resource involved, this may include:

- Field wetland delineations;
- Vegetation and habitat surveys;
- Wildlife surveys conducted during appropriate seasons;
- Identification of springs, seeps, or groundwater-dependent features; and
- Documentation of hydrologic conditions that may not be apparent from aerial photography or GIS mapping.

8f | Strengthen Geotechnical and Slope-Stability Information

Where substantial berms, embankments, stockpiles, excavation slopes, or reclaimed slopes are proposed, I recommend requiring actual field and laboratory data sufficient to evaluate the materials and conditions involved. This may include:

- Soil borings;
- Field classification;
- Laboratory soil testing;
- Moisture conditions;
- Shear-strength information;
- Groundwater or seepage observations;
- Foundation-soil conditions; and
- Other information necessary to evaluate slope stability.

A proposed slope shown on a drawing should not, by itself, be considered evidence that the slope will remain stable under actual site conditions.

8g | Strengthen Traffic Analysis With Actual Field Observations

Traffic models should be supported by current field observations and traffic data. Where applicable, I recommend requiring:

- Current traffic counts;
- Turning-movement counts;
- Truck classifications;

- Field measurements of roadway and shoulder widths;
- Actual sight-distance evaluation;
- Turning-radius observations;
- Pavement and shoulder-condition documentation;
- School transportation and pedestrian observations where relevant; and
- On-site review of proposed haul routes by the professionals preparing or reviewing the study.

Traffic modeling should help interpret field conditions rather than replace direct evaluation of the roads that trucks would actually use.

8h | Require Site-Specific Baseline Noise Measurements

Where noise impacts are being evaluated, I recommend requiring representative baseline measurements collected in the field before mining operations begin. Baseline measurements should be taken at appropriate locations and times that reflect conditions experienced by nearby properties and sensitive receptors. Computer-generated noise predictions may then be used to estimate future conditions, but those predictions should be anchored to actual measured baseline conditions whenever practicable.

8i | Require Raw and Usable Data for Independent Review

I recommend strengthening the Township's ability to independently evaluate technical information by requiring applicants to provide underlying data in usable electronic formats when available. This may include:

- | | |
|-----------------------------------|-------------------------------------|
| • Laboratory results; | • Survey data; |
| • Monitoring-well data; | • GIS files; |
| • Groundwater-level measurements; | • Model input and output files; and |
| • Pumping-test data; | • Other underlying technical data |
| • Traffic counts; | relied upon in an application. |
| • Noise-monitoring results; | |

Important data should not be available only through charts, screenshots, flattened PDF tables, or summaries when the underlying numerical information exists. Providing the underlying data would allow Township consultants to independently evaluate calculations, trends, assumptions, and conclusions rather than relying solely upon the applicant's interpretation.

8j | Document Who Collected the Data and How

Field-generated information should identify:

- Who collected the information;
- Their qualifications;
- The date and time of collection;

- The location of measurements or samples;
- Methods and equipment used;
- Applicable quality-control procedures; and
- Any limitations or unusual field conditions.

This would improve transparency and help future reviewers understand exactly how baseline conditions were established.

Overall, Springfield Township already requires a significant amount of application information. My recommendation is to improve the quality and reliability of that information rather than simply create a longer list of documents. Where an important site condition can reasonably be observed, measured, sampled, surveyed, or tested, I recommend that the Township prioritize current site-specific field data. Desktop research and computer modeling have an important role, particularly when predicting future impacts, but those tools are strongest when they are grounded in actual conditions observed at the site.

For a mining operation that may continue for decades, the Township should begin with the best possible understanding of what is actually present before substantial disturbance occurs. Baseline conditions established through field investigation will also provide a much stronger record if questions arise years later about whether conditions have changed.

9 | Strengthen Special Land Use Review Under MCL 125.3205

Springfield Township already requires mineral mining to proceed through the Special Land Use Permit process and applies the standards established under MCL 125.3205. My recommendations are intended to strengthen how that existing review is documented, supported by evidence, and coordinated with the mining application process.

Because the Special Land Use Permit decision may involve complex questions concerning natural resources, need, potential impacts, and “very serious consequences,” I recommend that the Township establish a clear and consistent record showing how the statutory factors were evaluated and what evidence supported the final decision.

9a | Coordinate the Special Land Use Permit and Mining Application Reviews

I recommend that the Township coordinate the Special Land Use Permit review and mining application review to the greatest practical extent. Information developed for the mining application (including groundwater studies, traffic analysis, environmental review, noise information, reclamation plans, field investigations, and other technical studies) should be available during the Special Land Use Permit review when that information is relevant to the standards being considered.

The two processes should remain distinct where required, but they should not operate as separate information systems. The Township should be able to rely on the same complete technical record when evaluating the proposed mining operation.

9b | Clearly Apply the Requirements of MCL 125.3205

I recommend that the Township continue to expressly recognize MCL 125.3205 and clearly identify how the statutory requirements apply during review of a mineral-mining Special Land Use Permit.

The applicant should remain responsible for providing the evidence required of it under applicable state law. The Township’s review should then evaluate the quality, reliability, and sufficiency of that evidence rather than simply accepting an applicant’s conclusions.

9c | Strengthen Review of Valuable Natural Resources and Need

When evaluating whether valuable natural resources exist and whether a need exists for those resources, I recommend that the Township consider the evidence supporting those conclusions, including:

- The type, quantity, and quality of the mineral resource;
- Whether the resource can reasonably be extracted and sold at a profit;
- The applicant’s proposed market area;
- The anticipated uses of the material;

- Evidence of market demand;
- Existing sources of similar material serving the relevant market;
- Proposed annual extraction;
- Expected duration of the operation; and
- The assumptions, methodology, data sources, and limitations used to support conclusions regarding need.

The purpose of this recommendation is not to create a separate standard from MCL 125.3205, but to ensure that conclusions regarding value and need are supported by a clear evidentiary record.

9d | Strengthen Evaluation of Potential Very Serious Consequences

Springfield Township already considers the statutory factors associated with potential very serious consequences. I recommend strengthening that review by clearly identifying the evidence considered for each applicable factor. Relevant considerations may include:

- The relationship between extraction and surrounding land uses;
- Impacts on nearby homes and properties;
- Property-value impacts in the vicinity and along the proposed haul route;
- Pedestrian and traffic safety;
- School transportation and roadway safety;
- Groundwater quantity and quality;
- Private and public water supplies;
- Groundwater and surface-water interaction;
- Wetlands, lakes, streams, springs, and groundwater-dependent natural resources;
- Sensitive habitat and listed species;
- Flooding and drainage;
- Erosion, sedimentation, and slope stability;
- Noise and vibration;
- Fugitive dust;
- Truck volumes and truck characteristics;
- Road conditions and public infrastructure;
- Duration and scale of the proposed operation;
- Reclamation;
- Reasonably foreseeable cumulative impacts; and
- Proposed mitigation measures supported by competent evidence.

These considerations should be used to assist the Township in applying MCL 125.3205 and should not be interpreted as replacing or changing the statutory standard.

9e | Give Greater Weight to Site-Specific Evidence

Consistent with the recommendations elsewhere in this document, I recommend that the Township place particular emphasis on current, site-specific evidence when evaluating potential impacts. Computer models, regional databases, published information, and predictive analyses can be useful, but important conclusions should be supported by field observations, measurements, testing, surveys, and other site-specific information whenever reasonably available.

For example, conclusions regarding groundwater, wetlands, traffic, noise, drainage, natural resources, and slope stability should be based upon actual site conditions to the extent practicable rather than relying solely upon generalized assumptions or computer-generated predictions.

This is particularly important when the information will be used to determine whether potential impacts rise to the level considered under MCL 125.3205.

9f | Require Clear Written Findings

I recommend strengthening the existing decision-making process by requiring the final Township decision to clearly identify the basis for approval or denial. Written findings should identify, as applicable:

- The material facts considered;
- The significant evidence relied upon;
- Conflicting evidence and how it was evaluated;
- The applicable Special Land Use Permit standards;
- The relevant MCL 125.3205 factors;
- The Township's conclusions;
- Required mitigation measures; and
- Conditions attached to an approval.

This would create a clearer record for the applicant, residents, future Township officials, and any reviewing court. It would also reduce the risk of a decision being based primarily on general statements or conclusions that are difficult to trace back to specific evidence.

9g | Require Necessary Evidence Before the Special Land Use Permit Decision

I recommend that important evidence necessary to determine whether the statutory and Township standards have been satisfied be provided before the Township makes its final Special Land Use Permit decision. Conditions of approval can appropriately address implementation details, but they should not be used to defer major studies or technical information necessary to understand the potential impacts of the proposal. The Township should make its decision based on the project and evidence actually before it rather than relying on significant unanswered questions to be resolved after approval.

Overall, Springfield Township already has the basic framework necessary to evaluate mineral mining under the Special Land Use Permit process and MCL 125.3205. My recommendation is to strengthen the evidentiary and administrative record supporting the process.

The Township should be able to clearly demonstrate:

What evidence was submitted → how reliable that evidence was → what site-specific conditions were identified → how each applicable statutory factor was evaluated → what potential impacts were identified → whether proposed mitigation adequately addressed those impacts → and how the evidence ultimately supported the Township's decision.

A thorough written record is particularly important for a mining proposal because the consequences of the decision may extend for decades. Clear findings supported by complete, site-specific evidence would strengthen the Township's decision-making process regardless of whether the final result is approval or denial.

10 | Recommendations to Strengthen Hydrogeologic Investigation and Water-Resource Protection

Springfield Township's existing ordinance and proposed amendments already recognize the importance of groundwater monitoring and protection. I recommend strengthening those provisions by establishing clearer expectations for site-specific hydrogeologic investigation, baseline monitoring, aquifer testing, and long-term groundwater oversight.

The primary goal of these recommendations is to ensure that groundwater conclusions are based on actual conditions measured at the site. Existing well records, regional maps, databases, and computer models are valuable tools, but they should support, ***not replace***, field investigation. Where groundwater conditions can reasonably be measured, sampled, observed, or tested, I recommend that those field data form the foundation of the Township's hydrogeologic review.

10a | Require a Site-Specific Hydrogeologic Evaluation

I recommend requiring a site-specific hydrogeologic study for new mining operations and substantial expansions, particularly where the proposal involves:

- Wet mining or excavation below the water table;
- Dewatering;
- Significant groundwater withdrawal;
- Creation or enlargement of a groundwater-connected lake or pond;
- Private wells in the surrounding area;
- Wetlands, streams, lakes, springs, seeps, or other groundwater-dependent natural resources; or
- Other conditions identified by the Township's hydrogeologic consultant as requiring additional investigation.

Wet mining, significant dewatering, or significant groundwater withdrawal should not be evaluated solely through generalized regional information or desktop analysis.

10b | Require Qualified Hydrogeologic Professionals

I recommend that hydrogeologic studies be prepared under the direction of an appropriately qualified professional with demonstrated experience evaluating groundwater systems and mining-related impacts. The Township should also retain its own hydrogeologic professional to independently review the applicant's work. The applicant may fund that review through escrow, but the Township should select and direct its own consultant.

10c | Establish a Township-Reviewed Field Investigation Plan

Before significant hydrogeologic field work begins, I recommend requiring the applicant to submit a proposed investigation work plan for review by the Township's hydrogeologic consultant. The work plan could address:

- Existing available information;
- Identified data gaps;
- Soil and geologic boring locations;
- Monitoring-well locations and construction;
- Aquifers and confining units to be evaluated;
- Groundwater-level monitoring;
- Water-quality sampling;
- Pumping or aquifer testing;
- Surface-water monitoring;
- Private-well baseline work;
- Groundwater modeling, where appropriate;
- Thermal monitoring, where appropriate; and
- Quality-assurance and quality-control procedures.

Early review of the investigation design may prevent a situation in which substantial testing is completed only for the Township's consultant to later determine that the monitoring locations, duration, methods, or data collected were insufficient.

10d | Use a Study Area Based on Actual Groundwater Conditions

I would suggest that the hydrogeologic study extend beyond the property boundary far enough to evaluate potential off-site effects. A reasonable starting point could include detailed investigation extending at least 2,000 feet beyond the property boundary, supported by broader regional hydrogeologic review.

However, a fixed distance should not become an artificial limit. If groundwater flow direction, pumping influence, private-well locations, wetlands, streams, or other site-specific evidence indicates that effects could extend farther, the Township's hydrogeologic consultant should be able to require a larger study area.

10e | Require Field Characterization of the Groundwater System

The hydrogeologic evaluation should identify and document the groundwater system using appropriate field investigation. Depending on site conditions, I recommend evaluating:

- Aquifers and confining layers;we
- Soil and geologic stratigraphy;
- Water-table and potentiometric elevations;
- Seasonal groundwater fluctuations;

- Horizontal and vertical groundwater gradients;
- Groundwater flow direction;
- Hydraulic conductivity and transmissivity;
- Recharge and discharge areas;
- Groundwater interaction with wetlands, streams, lakes, drains, springs, and seeps;
- Existing high-capacity groundwater withdrawals;
- Private and public water-supply wells; and
- Known contamination that could reasonably affect groundwater entering or leaving the property.

Where field measurements can be obtained, they should be used rather than relying solely on mapped or assumed conditions.

10f | Strengthen Test-Boring Requirements

I suggest requiring enough site-specific borings to reasonably characterize the geology beneath and surrounding the proposed extraction area. Rather than relying only on a fixed minimum number, the Township's hydrogeologic consultant should be able to require additional borings where the site is large, geology is variable, multiple aquifers exist, or extraction will extend to substantial depths.

At least one boring should generally be located within or near the central portion of the proposed extraction area. Borings should extend deep enough to characterize the materials and groundwater conditions that could reasonably be affected by the proposed maximum mining depth.

10g | Strengthen the Monitoring-Well Network

I recommend establishing a minimum groundwater-monitoring network that provides both background and downgradient information. A reasonable minimum for a significant mining operation could include:

- At least one upgradient monitoring location;
- At least three downgradient monitoring locations; and
- Additional nested or clustered wells where multiple aquifers, vertical groundwater movement, or below-water-table mining must be evaluated.

Additional wells should be required where necessary to monitor:

- Multiple aquifers (confined and/or unconfined);
- Vertical groundwater gradients;
- Nearby private wells;
- Wetlands or streams;
- Groundwater movement toward sensitive receptors; or
- Areas where the initial monitoring network does not provide adequate coverage.

Monitoring wells should generally remain outside future excavation areas and should not be removed or abandoned as mining advances without Township approval and appropriate replacement monitoring.

10h | Establish Meaningful Baseline Monitoring Before Disturbance

It is important to establish groundwater baseline conditions before mining activities capable of changing those conditions begin. At minimum, monitoring should capture both relatively high and relatively low seasonal groundwater conditions.

For wet mining, substantial dewatering, or significant groundwater withdrawal, I suggest that the Township consult its hydrogeologic professional to determine an appropriate baseline monitoring period before the activity begins. The monitoring period should be long enough to capture meaningful seasonal variation in groundwater levels and temperature and to establish a reliable baseline for future comparison.

Continuous electronic measurements can provide information that occasional manual readings may miss, including short-term responses to rainfall, drought, pumping, seasonal changes, and other groundwater fluctuations. Baseline water-quality sampling should also occur before substantial disturbance or pumping. Importantly, private-well baseline information should be collected before a major pumping test or other activity capable of materially changing groundwater conditions. The Township should establish the baseline before it creates the condition it is later trying to measure.

10i | Establish Groundwater Monitoring Action Triggers

I also suggest that the groundwater-monitoring program include clearly defined action triggers established before mining begins. Monitoring should not simply generate data for annual reports; it should initiate a defined response when groundwater levels, water quality, temperature, well performance, or other monitored conditions change beyond an acceptable range established by the Township's hydrogeologic consultant.

The response could be tiered depending on the severity and duration of the change. An initial trigger might require additional monitoring and investigation, while a larger, sustained, or repeated change could require corrective measures, reduced pumping or dewatering, modification of mining activities, temporary suspension of the affected activity, or other action necessary to prevent further impact. The permit should identify in advance who evaluates the data, how quickly the operator must respond, and what conditions must be met before normal operations may resume.

The goal is to make groundwater monitoring an active protection system rather than simply a record of changes after they have already occurred.

10j | Strengthen Baseline Water-Quality Testing

It is recommended that groundwater baseline testing include parameters sufficient to establish a meaningful record of existing water quality. Depending on site conditions, this may include, but not limited to: Groundwater elevation; Temperature; Turbidity; Specific conductance; pH; Dissolved oxygen; Oxidation-reduction potential; Alkalinity; Total dissolved solids; Major ions; Iron and manganese; Nitrate/nitrite; Arsenic; Lead; Cadmium; and other parameters identified by site history, existing conditions, proposed operations, or the Township's hydrogeologic consultant.

Additional testing for VOCs, petroleum compounds, PFAS, pesticides, or other contaminants may be appropriate where site history or proposed activities create a reasonable basis for concern. Testing should be performed by appropriately qualified or certified laboratories, and the underlying laboratory data should be provided to the Township.

10k | Require Meaningful Aquifer and Pumping Tests Where Appropriate

Where significant groundwater pumping, dewatering, or withdrawal is proposed, I recommend requiring a Township-reviewed aquifer-testing protocol. For a substantial groundwater withdrawal, a constant-rate pumping test of at least 72 hours should be considered unless the Township's hydrogeologic consultant recommends a technically superior alternative based on site conditions. Testing should include, where applicable:

- Background groundwater monitoring before pumping;
- Continuous monitoring during pumping;
- Verified pumping rates;
- Observation wells;
- Monitoring of nearby private wells where appropriate and authorized;
- Evaluation of vertical groundwater gradients;
- Evaluation of interference between wells;
- Evaluation of potential effects on wetlands and surface waters; and
- Recovery monitoring after pumping stops.

Recovery is particularly important because it provides information about how the aquifer responds after the stress is removed.

10l | Require Computer Models to Be Grounded in Field Data

Where numerical groundwater modeling is necessary, I recommend requiring that the model be built and calibrated using actual site-specific data to the greatest practical extent. The applicant should provide sufficient information for independent review, including:

- Model assumptions;
- Input data;
- Boundary conditions;
- Calibration results;
- Sensitivity analysis;

- Water budgets;
- Model limitations;
- Input and output files; and
- Documentation necessary for the Township's consultant to reproduce or independently evaluate the results.

Computer modeling can be an extremely useful predictive tool, but a model should not become a substitute for collecting the field information necessary to understand the groundwater system being modeled.

10m | Evaluate Mining-Created Lakes as Part of the Groundwater System

Where below-water-table mining will create or enlarge a groundwater-connected lake, I recommend requiring a specific water-budget analysis. The evaluation should consider:

- Pre-mining groundwater conditions;
- Post-mining recharge;
- Groundwater inflow and outflow;
- Precipitation;
- Evaporation;
- Seasonal lake-level fluctuations;
- Effects on surrounding groundwater elevations;
- Potential effects on groundwater discharge to wetlands or surface waters;
- Water-quality changes;
- Groundwater-temperature changes; and
- Long-term stability of the resulting water body.

A mining-created lake should not be treated simply as a reclamation feature. If it is connected to the aquifer, it becomes part of the groundwater system.

10n | Consider Site-Specific Thermal Impacts of Wet Mining

Where below-water-table mining may affect groundwater that discharges to a stream, wetland, spring, or other temperature-sensitive natural resource, I recommend allowing the Township's hydrogeologic or environmental consultant to require a site-specific thermal analysis. Potential analysis could consider:

- Existing groundwater temperature;
- Existing surface-water temperature;
- Seasonal temperature changes;
- Groundwater flow direction and velocity;
- Expected temperature variation within the mining-created water body;
- Groundwater travel time;
- Thermal attenuation; and

- Potential temperature changes at downgradient natural resources.

A single universal setback may not adequately address this issue because groundwater conditions and travel distances vary from site to site.

10o | Evaluate Drought and Cumulative Conditions

I recommend that hydrogeologic analysis consider more than average conditions. Where appropriate, the applicant should evaluate:

- Seasonal low groundwater levels;
- Reasonably foreseeable drought conditions;
- Maximum proposed pumping;
- Other significant groundwater withdrawals in the surrounding area;
- All phases of the proposed mining operation; and
- Long-term conditions following reclamation.

This is particularly important when nearby homes rely on private wells and no municipal system is available. A system that appears adequate under average groundwater conditions may behave differently during prolonged dry conditions combined with mining-related withdrawal.

10p | Require Periodic Reevaluation During Long-Term Mining

Mining operations may continue for decades, while groundwater conditions, nearby development, other withdrawals, mining depths, and available scientific information may change over time. I recommend allowing the Township to require periodic reevaluation of the hydrogeologic conclusions for long-term mining operations.

A five-year review period could be considered, with earlier reevaluation where monitoring indicates that actual conditions differ materially from the assumptions used during initial approval. The purpose should not be to repeat the entire original investigation without reason, but to compare predictions against actual monitoring data and determine whether the groundwater-protection measures remain appropriate.

Overall, Springfield Township already recognizes groundwater as an important component of mining review. My recommendation is to strengthen that existing approach by placing greater emphasis on site-specific investigation, meaningful baseline data, long-term monitoring, and independent professional review. When groundwater conditions can reasonably be measured in the field, the Township should have those measurements before relying heavily on predictions. Regional databases, existing well records, GIS information, and computer models are valuable supporting tools. However, for wet mining, substantial groundwater withdrawal, dewatering, or mining near private wells and groundwater-dependent natural resources, the Township should have boots-on-the-ground data describing the actual groundwater system it is being asked to regulate. That field-verified baseline would not only improve the initial review; it

would give the Township, applicant, and residents a credible point of comparison if groundwater conditions change years later.

11 | Water Management and Wet Mining

I suggest that Springfield Township establish clear operating standards governing groundwater withdrawal, dewatering, process water, wet mining, and other mine-related water use. These requirements should work together with the hydrogeologic investigation and groundwater-monitoring provisions recommended elsewhere in this document.

A substantial sand and gravel operation may use water for several different purposes, including aggregate processing and washing, truck and wheel washing, dust suppression, road watering, equipment cleaning, sanitary use, and other operational needs. Wet mining may also involve excavation directly into groundwater, while dewatering can involve substantially greater movement of groundwater than ordinary operational use. These activities should not be grouped together under a single general water-use estimate if they have different effects on the groundwater system.

For example, Levy/BMC has identified approximately 22,000 gallons per day in connection with the proposed Ormond Road operation. However, the Township record has also raised an important question about what that number actually represents: whether it is water circulated through the processing system, water withdrawn from groundwater, water returned to the system, or the net amount ultimately lost through the operation. The submitted site plan separately identifies a freshwater well, processing plant, truck wheel wash, potential wet-mining area, and water use for road and dust control. The Township should require those individual water demands to be clearly identified rather than relying on one overall number.

I recommend that future mining applications provide a complete water-use budget identifying, at minimum:

- Gallons of groundwater withdrawn per day;
- Maximum pumping rate where relevant;
- Projected annual groundwater withdrawal;
- Water used for aggregate washing and processing;
- Water used for truck and wheel washing;
- Water used for haul-road and dust suppression;
- Water used for equipment washing or maintenance;
- Potable, sanitary, or office water use;
- Water obtained from a mining-created lake or pond;
- Water recirculated through a closed-loop system;
- Water returned to the groundwater or surface-water system;
- Water discharged or transported off site; and
- Net consumptive groundwater use.

The water budget should also specifically identify water that is lost from the system and therefore must be replaced. This should include evaporation from groundwater-connected mining lakes, settling or process-water ponds, and dust-control activities, as well as water retained in

sand, gravel, and other material transported off site. Moisture carried away in mined product should not be treated as insignificant simply because it represents a relatively small percentage of the material. When large quantities of aggregate are removed over months or years, those losses can contribute to additional make-up water demand.

For wet-mining operations, evaporation from the mining-created lake should be specifically evaluated. Once groundwater is exposed as a large open-water surface, evaporation becomes a continuing component of the site water budget. The applicant should estimate evaporation under representative seasonal conditions and evaluate how those losses may affect lake levels, groundwater inflow, surrounding groundwater elevations, and the amount of make-up water required over time. These estimates should be reviewed by the Township's hydrogeologic consultant.

The applicant should also provide projected annual water-loss estimates for the full operation. This should include anticipated losses from evaporation, product moisture, dust suppression, washing, and other consumptive uses. Those projections should be used to estimate both ordinary and higher-demand groundwater needs over the operating season and over the life of the mine.

Once operations begin, the operator should report actual annual groundwater withdrawals, water use, production volumes, and estimated consumptive losses so that the Township can compare actual conditions with the projections relied upon during approval. Significant differences between projected and actual water loss, groundwater withdrawal, or make-up water demand should trigger review by the Township's hydrogeologic consultant and, where appropriate, additional monitoring or modification of approved water-management practices.

I also suggest that the Township consider prohibiting routine dewatering for mineral extraction except where independent hydrogeologic review demonstrates that it is necessary, limited in duration and volume, and will not create unacceptable impacts to private wells, wetlands, streams, groundwater-dependent habitat, or the surrounding aquifer. Approval of wet mining should not automatically constitute approval to continuously lower the groundwater table to facilitate excavation.

Similarly, groundwater should not automatically be treated as an unlimited source of process water simply because it is available beneath the mining property. Where aggregate washing, wheel washing, dust suppression, or another operation can reasonably use recycled or recirculated water, I suggest requiring water-conservation and reuse measures to minimize new groundwater withdrawal.

Any approved groundwater withdrawal should become a measurable permit limit. Flow meters or other appropriate measuring devices should document withdrawals from production wells, dewatering systems, processing-water supplies, and other significant groundwater sources. Records should distinguish gross water circulation from actual groundwater withdrawal, recycled water, and net consumptive use so that the Township can determine how much groundwater is actually being removed from the aquifer system.

The operator should report monthly and annual totals to the Township, including the amount used for each major purpose. Significant increases above the quantities evaluated during approval should require additional hydrogeologic review before the increased withdrawal occurs rather than simply being disclosed during the next annual permit renewal.

Wet mining itself should also remain subject to groundwater monitoring. Excavating below the water table can create a groundwater-connected water body and may alter groundwater flow, temperature, evaporation, recharge, and groundwater interaction with nearby wetlands and surface waters. A mining-created lake should therefore be treated as part of the groundwater system throughout mining and reclamation rather than solely as a final site feature.

Where monitoring indicates that groundwater levels, water quality, temperature, private-well performance, wetland hydrology, or another protected condition has changed beyond an established action threshold, the water-management plan should trigger investigation and corrective action. Depending on the severity of the change, that response could include increased monitoring, reduction of groundwater withdrawal, modification of water use, suspension of dewatering, or temporary cessation of the activity causing the impact.

Overall, I suggest that Springfield require a complete accounting of water entering, moving through, and leaving a mining operation. The Township should know not simply how much water a processing system is capable of circulating, but how much groundwater is actually withdrawn, where that water is used, how much is recycled or returned, how much is lost through evaporation or product moisture, and how those quantities accumulate over months and years. For a mining operation that may continue for decades in an area dependent on private wells and groundwater-supported natural resources, water use should be treated as a measurable and enforceable operating condition rather than an incidental detail.

12 | Private Water-Supply Well Protection and Contingency Program

I appreciate that the proposed ordinance already requires a contingency plan for the correction or replacement of local wells that “cease to fully function” during mining and refers to “poor functioning” of a well. I suggest that the Township build on this existing protection by clearly defining what those terms mean and establishing a process for documenting well conditions before mining-related groundwater impacts could occur.

A well does not necessarily have to stop producing water to be significantly affected. A substantial or measurable reduction in well yield, water pressure, groundwater level, or water quality, as well as increased sediment or another condition that materially affects normal use of the well, could represent poor functioning even though the well continues to provide some water. Defining these conditions would make it clearer when the contingency and investigation process is triggered and would reduce uncertainty for residents, the Township, and the operator.

I also suggest that the Township require the mining applicant or operator to identify the private water-supply wells that actually exist within an established well protection area. EGLE Wellogic is an important resource, but not every existing residential well is identified in Wellogic or other governmental databases. For that reason, a database search alone should not be considered a complete well inventory, and the absence of a well from Wellogic should not be treated as evidence that a well does not exist.

The Township could consider establishing an initial distance, such as 2,000 feet from the mining property, while allowing the Township’s hydrogeologist to expand that area where groundwater flow, geology, pumping influence, aquifer connections, or other site-specific conditions indicate that a larger area should be evaluated. Within that area, the applicant could be responsible, at its expense, for specifically identifying private water supplies through available EGLE and Oakland County records, historical information, direct outreach to property owners, and field verification where access is authorized. If a developed property appears likely to rely on a private water supply but no well appears in a database, a reasonable effort should be made to determine and document the source of that property’s water rather than assuming no well exists.

Once the wells are identified, the Township could consider requiring the applicant to fund voluntary baseline testing before significant pumping, dewatering, wet mining, or other activity capable of affecting groundwater conditions begins. Testing could be performed by an independent qualified contractor or laboratory approved by the Township, with the applicant responsible for the cost but not control of the results.

The Township’s hydrogeologist could determine what baseline information is appropriate based on the site and local groundwater conditions. This could include existing groundwater levels, well depth and construction where known, well performance or yield, available historical information, and water quality. The hydrogeologist could also determine the appropriate water-quality parameters needed to distinguish existing conditions from potential future changes.

The Township could then establish a clear process for reporting and investigating potential water-supply problems. That process should apply when a well “ceases to fully function” or demonstrates “poor functioning,” as those terms are defined, rather than waiting for complete

loss of water. Where a previously functioning water supply becomes unusable and a relationship to the mining operation cannot reasonably be ruled out without investigation, the Township could consider requiring temporary potable water while the cause is evaluated. Providing temporary water during an investigation would not need to constitute an admission of responsibility.

Any investigation could be conducted by a qualified professional approved by the Township and funded by the operator. Baseline information, groundwater monitoring, pumping records, hydrogeologic conditions, timing of the reported change, groundwater-flow direction, well condition, and other reasonable potential causes could then be considered together.

If competent professional evidence indicates that the mining operation caused or materially contributed to the poor functioning of a private water supply, the operator could be required to provide an appropriate remedy at no expense to the property owner. The remedy should address the actual impact, whether that involves restoring well performance, repairing, deepening or replacing the well, or providing another adequate long-term water supply.

Participation in baseline testing should remain voluntary, and declining testing should not waive a property owner's legal rights. Resident privacy could also be protected by limiting public disclosure of individual well locations and results while ensuring that the Township and its consultants retain the information necessary for technical review.

The goal would be to strengthen the well contingency language that is already proposed by defining what “cease to fully function” and “poor functioning” actually mean, identifying the wells that truly exist rather than relying only on databases, and establishing the baseline and response process before a problem occurs.

13 | Blasting Prohibition

I suggest that Springfield Township prohibit blasting and the use of explosives as part of mineral mining, excavation, processing, or reclamation activities.

This would provide a clear Township-wide standard rather than leaving blasting to be evaluated on a case-by-case basis. The prohibition should apply throughout the life of the mining operation, including site preparation, extraction, expansion, and reclamation.

The current Levy/BMC Ormond Road site plan already states that no explosives will be used during the proposed operation, so this recommendation would not conflict with the operation currently proposed.

14 | Natural Features and Environmental Review

Springfield Township's existing mining ordinance and proposed amendments already include important environmental protections, including identification of topography, natural features and watercourses, professional review of environmental and drainage issues, monitoring of changes over time, and requirements related to groundwater, reclamation, and environmental performance. I suggest building on those existing provisions by establishing a more clearly defined, site-specific natural features and environmental review for new mining operations and major expansions.

The intent would not be to duplicate studies already required by the Township, EGLE, or another agency. Rather, the review could provide a consistent framework for identifying the natural resources present at a particular site, understanding how those resources are connected, and evaluating how the proposed mining operation could affect them over its full life. I suggest that the review specifically identify natural features and sensitive ecological areas within the proposed mining site and the surrounding area that could reasonably be affected.

Depending on the site, this could include areas identified through the Township's Resource Protection Overlay or other natural-resource mapping, groundwater and surface water, wetlands, lakes, streams, springs and seeps, groundwater recharge and discharge areas, groundwater-dependent ecosystems, prairie fens and other high-quality natural communities, significant woodlands, soils, floodplains, wildlife corridors, and known or potential habitat for federal- or state-protected species.

The review should not necessarily stop at the excavation limits or property boundary. Groundwater movement, surface drainage, wetlands, habitat connections, and other environmental pathways can extend well beyond a mining site, potentially reaching areas miles away. Some effects may not be immediately apparent when mining begins but may develop gradually or become evident only after years of altered groundwater flow, drainage, habitat conditions, or landscape stability. The investigation should therefore extend generously enough to capture reasonably foreseeable direct, indirect, delayed, and cumulative effects, with the scope supported by current scientific evidence and site-specific data rather than limited by the applicant's proposed boundaries or the minimum area required for regulatory review. The Township should be able to require independent review and verification by qualified environmental, ecological, engineering, hydrogeologic, or other subject-matter experts who do not have a financial interest in the project. Where uncertainty remains, the Township's responsibility to protect public health, safety, natural resources, and the long-term interests of the community should take precedence over the applicant's anticipated profits. The Township could rely on its consultants and independent experts to determine how far the investigation should extend, including areas that could be affected over time, and whether additional monitoring, buffers, avoidance measures, or other protections are appropriate.

Wildlife and habitat review could also be based on the conditions actually present at the site. Where suitable habitat for a threatened, endangered, or otherwise sensitive species exists, the Township could consider requiring an appropriate biological assessment, seasonally timed surveys, agency consultation, or other investigation recommended by a qualified professional. A

database showing no documented occurrence should not necessarily end the inquiry when suitable habitat is present. This may be particularly important where breeding, nesting, migration, hibernation, or other critical habitat functions depend on groundwater or surface-water conditions.

I also suggest that the Township distinguish between regulatory jurisdiction and ecological importance. Whether EGLE or another agency regulates a particular wetland or natural feature is important, but it does not necessarily determine whether that resource is relevant to Township land-use review. A non-regulated wetland, habitat area, or natural community may still provide flood storage, groundwater interaction, drainage, wildlife habitat, or ecological connectivity. The Township should be able to consider those actual functions when evaluating a mining proposal.

The environmental review could also consider how excavation, grading, stockpiling, drainage changes, and reclamation may alter the physical landscape, including slopes, runoff patterns, erosion, sediment movement, wetland hydrology, surface-water connections, and the stability and function of the eventual post-mining landscape. These effects should be evaluated where relevant both on and off the mining property.

Finally, I suggest that the review consider the reasonably foreseeable mining operation as a whole. Annual environmental reporting is valuable for tracking conditions over time, but it should supplement rather than replace an upfront evaluation of potential long-term and cumulative effects. For a mine expected to operate in multiple phases over many years or decades, evaluating only one phase at a time could overlook impacts that become apparent only when groundwater changes, habitat alteration, excavation, and reclamation are considered together.

Where significant impacts are identified, the Township could generally favor avoiding reasonably avoidable effects first, then minimizing, restoring, monitoring, or mitigating impacts that cannot reasonably be avoided.

Overall, I am not suggesting that Springfield replace the environmental protections it already has. My suggestion is to connect and strengthen those protections through a comprehensive, site-specific review that considers the natural features actually present, their ecological and hydrologic relationships, the surrounding area that could reasonably be affected, and the cumulative effects of the entire mining operation.

15 |Traffic, Haul Routes, and Road Safety

Springfield Township's existing mining ordinance already addresses several important road and hauling issues. It requires a mining operation to have direct access to a paved road with appropriate load-bearing and traffic-volume capacity, allows the Township and Road Commission to designate a haul route, requires the permit holder and its contractors to use that route, and includes road-maintenance and tire-washing requirements. The proposed amendments would also provide for Township-funded monitoring of the site and haul route through applicant escrow and engineering review.

I suggest building on those provisions by establishing a more clearly defined traffic, haul-route, and road-safety review for commercial mining operations. The purpose would be to determine not only whether surrounding roads can accommodate additional traffic in a general sense, but whether the particular trucks, volumes, routes, intersections, and road conditions associated with a proposed mining operation can operate safely and reasonably over the life of the project.

A traffic study prepared by a qualified professional could evaluate both traffic operations and the physical characteristics of the proposed haul route. Depending on the site, this could include existing and proposed truck volumes, expected hourly, daily and seasonal activity, truck size and weight, pavement and shoulder conditions, road width, curves, grades, sight distance, intersection geometry, turning radii, bridges and culverts, crash history, and alternative routes. The review should also consider nearby homes, schools and school transportation, pedestrians and bicyclists, and emergency-service access where those conditions are relevant.

I think it is particularly important that the review not rely only on traffic delay, capacity, or Level of Service. A road may have sufficient numerical capacity for additional vehicles while still having physical characteristics that make frequent gravel-train traffic problematic. Pavement condition, narrow shoulders, curves, turning movements, sight distance, intersection design, and surrounding land uses may be equally or more important when determining whether a route is appropriate.

Where improvements are necessary to safely accommodate the proposed operation, the Township could require those issues to be resolved before commercial hauling begins, in coordination with the Road Commission for Oakland County, MDOT, or another agency with jurisdiction. This could include improvements such as turn lanes, entrance modifications, drainage work, signage, or sight-distance improvements. I am not suggesting that the Township assume authority belonging to a road agency, but rather that its mining approval and permit process clearly account for the requirements and findings of those agencies.

I also suggest that the approved mining permit clearly state the truck activity that was actually reviewed and approved. Maximum loaded truck departures per hour and per day, and where appropriate an annual or seasonal limit, could become measurable permit conditions rather than relying on estimates contained only within an applicant's traffic study. The approved haul route should likewise be clearly identified. If substantially greater truck activity is later proposed,

the Township would then have a clear basis for determining whether additional traffic review is necessary.

The current ordinance already requires the permit holder, its agents, and contractors to use the designated haul route. I suggest strengthening that provision by making the permit holder responsible for communicating route requirements to contracted carriers and taking reasonable operational and contractual steps to ensure compliance. A limited process could also be established for temporary route changes caused by road closures, emergencies, or other circumstances approved by the appropriate road authority and Township.

The Township could also strengthen its existing tire-washing and road-maintenance provisions by addressing trackout more directly. The entrance and internal truck route should be designed and maintained so that mud, sand, gravel, and other material are not routinely carried onto public roads. Where trackout does occur, the operator should be responsible for promptly removing it rather than allowing material to accumulate. Adequate space should also be provided within the property so mine-related trucks do not need to queue, stage, or wait along public roads or shoulders.

Finally, I suggest considering a simple recordkeeping requirement that allows the Township to verify whether approved hauling limits are actually being followed. Scale, ticket, or other operational records could document truck departures, dates, times, quantities or weights, and enough vehicle or carrier information to allow meaningful review. The proposed amendments already contemplate monitoring of the haul route; access to reliable operational records would make that monitoring considerably more useful.

Overall, I am not suggesting that Springfield replace the road and hauling protections it already has. My suggestion is to make those protections more measurable and easier to administer by connecting the traffic study, approved truck volumes, haul route, physical road conditions, necessary improvements, trackout controls, carrier responsibility, and ongoing monitoring into one clear system. That would provide the Township, the operator, road agencies, and residents with a better understanding of exactly what level of truck activity has been evaluated and approved.

16 | Mining and Phasing Plan

Springfield Township's existing mining ordinance already requires applicants to provide information regarding the duration, location, timing, phasing, and progression of mining, along with a mining and reclamation plan. The proposed amendments would add useful annual documentation showing where mining occurred, changes in operational components, and deviations from approved requirements. I suggest building on those provisions by making the approved mining and phasing plan more specific, measurable, and enforceable over the life of the operation.

For a major mining operation, the plan could clearly establish the approved extraction boundaries, maximum extraction depth or elevation, direction and sequence of mining, individual phases and anticipated timeframes, processing and stockpile areas, internal roads, water-management and monitoring features, storage areas, screening, and reclamation sequence. Technical portions of the plan could be prepared or certified by the appropriately qualified engineers, geologists, surveyors, hydrogeologists, or other professionals.

I think it is particularly important for the Township to distinguish between estimates used by an applicant for planning purposes and the actual limits approved by the Township. Mining operations will inevitably experience some uncertainty because of geology, market conditions, weather, and other factors. However, repeatedly describing major components of an operation as "estimated" or "subject to change" can make it extremely difficult to determine later what was actually approved and whether the operation remains in compliance.

The Township could therefore establish firm maximums or approved ranges for the aspects of the operation that are important to its review. Depending on the project, this could include maximum extraction depth or elevation, disturbed acreage, annual production, phase boundaries, processing and stockpile areas, truck activity, wet-mining areas, and other significant operational limits. The operator would not have to produce the maximum amount or follow an exact annual production forecast, but it should remain within the limits that were evaluated and approved.

*****In simple terms, the application can contain estimates, but the permit should contain limits.**

If changing conditions later require the operator to exceed an approved maximum or materially alter the mining plan, I suggest that the ordinance establish a clear amendment process before that change occurs. Minor adjustments could be handled administratively where appropriate, while substantial changes to extraction boundaries, depth, production limits, phase configuration, processing locations, wet-mining areas, disturbed acreage, or other significant conditions could require additional technical review or Township approval. Annual renewal should document what has occurred and what is planned next, but it should not become a process through which substantial changes are simply reported after the fact.

This is also important because many other Township decisions may depend on the numbers presented in the mining plan. Groundwater analysis, traffic studies, noise evaluations,

reclamation schedules, financial assurances, and environmental reviews may all be based on the scale and intensity of the operation described by the applicant. If those underlying assumptions can change substantially without further review, the studies used to support the original approval may no longer represent the operation actually occurring.

I also suggest strengthening the relationship between mining progression and reclamation. The existing requirement to reclaim completed areas without unnecessary delay could be made easier to administer by establishing measurable reclamation and stabilization milestones for each phase. Progression into a later phase could be tied to satisfactory reclamation of earlier disturbed areas so that unnecessarily large portions of the property do not remain disturbed throughout a decades-long operation.

The Township could consider limiting the total disturbed and unreclaimed area to the lesser of 50 acres or 25 percent of the approved mining area. Levy's current site plan states that the disturbed and unreclaimed area would not exceed the lesser of 75 acres or 40 percent of the parcel approved as a special use. A smaller ordinance-wide limit could encourage mining and reclamation to progress in more manageable sections and reduce the amount of land left disturbed at one time.

Approved extraction limits should also be verifiable in the field. Phase boundaries, mining setbacks, sensitive-resource boundaries, and maximum extraction depths or elevations could be professionally surveyed and physically marked before excavation approaches them. This would provide both the operator and Township inspectors with an objective reference for determining compliance.

Annual updates could then provide a straightforward comparison between the approved plan and actual conditions, including current excavation limits, disturbed and reclaimed acreage, stockpiles, water bodies, operating facilities, and the work anticipated for the following year. Any differences from the approved plan could be clearly identified rather than becoming incorporated into the operation simply because they appeared in an annual update.

Overall, Springfield already has the foundation for mining and reclamation planning. My suggestion is to make that system more enforceable by defining what is actually approved, establishing firm operating limits where they matter, clearly separating minor adjustments from material changes, tying expansion to reclamation progress, physically identifying critical boundaries, and using annual reporting to verify compliance rather than redefine the project from year to year.

17 | Progressive and Final Reclamation

Springfield Township's existing mining regulations already require reclamation, and the recommendations elsewhere in this document encourage reclamation to progress as mining advances. I suggest strengthening those requirements by establishing clearer expectations for when reclamation must occur, how reclaimed land must be stabilized, what condition the property must ultimately be left in, and when the Township considers reclamation complete.

Reclamation should occur progressively rather than being postponed until extraction across the entire property has ended. Portions of the site that are no longer reasonably necessary for active mining, processing, access, storage, or another approved purpose should be reclaimed as mining advances. Completed areas should not remain unnecessarily stripped, excavated, unvegetated, or otherwise disturbed simply because mining continues elsewhere on the property.

The Township could also establish a specific stabilization requirement for temporarily inactive areas. For example, a disturbed area that will not be actively used for 90 consecutive days could be required to receive temporary stabilization unless the approved mining plan demonstrates why continued disturbance is necessary. Temporary stabilization could include vegetation, erosion controls, soil stabilization, drainage measures, or another method appropriate to the site.

Final slopes should be designed for long-term stability, safety, drainage, maintenance, and the intended future use of the property rather than simply meeting the steepest slope that can technically be constructed. I suggest that the Township consider a general maximum upland slope of 1 vertical foot for every 4 horizontal feet (1V:4H), while allowing the Township Engineer to require a flatter slope or approve an appropriate alternative where site conditions, natural topography, environmental protection, or future land use warrant it.

Where wet mining creates a permanent lake or other water body, additional shoreline protections should apply. The Township could consider requiring submerged slopes no steeper than 1 vertical foot for every 10 horizontal feet (1V:10H) extending from the shoreline to an appropriate depth established by the Township's engineer or other qualified professional. Shoreline design should also address shallow safety shelves, erosion, unstable banks, vegetation, drainage, changing water levels, access, and other long-term public-safety concerns.

Reclamation should restore more than the appearance of the property. Reclaimed uplands should contain sufficient suitable soil to support stable vegetation and the lawful future use identified in the approved reclamation plan. Topsoil and other productive soil horizons should be preserved and reused where practicable, and native vegetation should be favored where appropriate for stabilization and long-term ecological function.

This is particularly important where the property is expected to return to residential, agricultural, recreational, conservation, or another non-mining use. A site should not technically be considered reclaimed if extensive soil removal, inappropriate backfilling, severe compaction, poor drainage, or unsuitable material leaves the land incapable of reasonably supporting the future use represented to the Township during approval. Where residential development is

contemplated, reclamation should consider future building conditions, drainage, soil stability, and safe access. Where agricultural use is contemplated, the reclamation plan should consider productive soil depth, soil structure, drainage, nutrients, compaction, and the ability to establish vegetation or crops.

Reclamation should also protect groundwater and surface-water resources. Final grading, filling, creation of water bodies, drainage alterations, and other reclamation work should not result in a material permanent lowering of groundwater attributable to the mining operation, unreasonable degradation of groundwater quality, unreasonable reduction of groundwater available to surrounding users, material degradation of interconnected surface waters or wetlands, or unstable drainage conditions.

Imported material used for reclamation should be specifically addressed. A mining property should not become a disposal site simply because excavation has created available space. Any imported soil, aggregate, or other material used for grading or reclamation should be clean, suitable for its intended purpose, documented as to source where appropriate, and consistent with the approved reclamation plan. Landfills, dumping areas, waste-disposal operations, or placement of contaminated or unsuitable material should not qualify as reclamation.

Mining structures and facilities should also be removed when they are no longer part of an approved lawful use. Processing equipment, temporary buildings, commercial stockpiles, temporary roads, conveyors, scales, and other mining-related facilities should be removed within a defined period following cessation of mining unless the Township has specifically approved their continued use. A period such as 12 months could provide a clear outside limit while allowing reasonable time for orderly closure.

The Township should establish a clear deadline for completing final reclamation after extraction ends. A general requirement of final reclamation within 365 days after cessation of extraction could be considered, with additional time allowed only where the approved reclamation plan establishes a technically necessary longer schedule or the Township approves an extension for documented good cause.

Long periods of inactivity should also be addressed so that an unfinished mine cannot remain indefinitely in a partially disturbed condition. The Township could consider establishing a presumption of abandonment where no meaningful extraction activity has occurred for 12 consecutive months unless the Mining Permit specifically authorizes the inactivity, the operation remains in compliance with all requirements, and the Township determines that continued inactive status is justified.

Closure of the mine should not automatically end environmental monitoring. For wet-mining operations, dewatered mines, mining-created groundwater-connected lakes, or sites where long-term groundwater or surface-water effects are reasonably possible, I suggest requiring post-reclamation water monitoring for at least five years. The Township's hydrogeologic consultant should be able to recommend a longer period where groundwater

levels, water quality, temperature, lake levels, wetland conditions, or other monitored trends have not stabilized or unresolved impacts remain.

Final reclamation should require affirmative Township acceptance rather than occurring automatically when the operator declares the work complete. Before releasing remaining financial assurance or formally closing the Mining Permit, the Township should conduct a final inspection and confirm that required grading and corrective work have been completed, slopes and shorelines are stable, vegetation has become adequately established, drainage is functioning as designed, required structures and equipment have been removed, final surveys and other required records have been submitted, and remaining monitoring obligations are either satisfied or appropriately secured.

Where vegetation, groundwater, drainage, slope stability, or another component requires additional time to demonstrate successful performance, the Township should retain sufficient financial assurance until those obligations have been satisfied.

Overall, I suggest that reclamation be treated as an ongoing part of the mining operation rather than a final promise to be addressed decades later. Progressive reclamation, temporary stabilization, protective slope and shoreline design, restoration of usable soils, protection of groundwater and surface water, clear closure deadlines, post-closure monitoring, and written Township acceptance would provide a much stronger assurance that land disturbed by mining is ultimately returned to a safe, stable, functional, and genuinely usable condition.

18 | Hours of Operation

Springfield Township already regulates when mining activity may occur, and the current Ormond Road site plan proposes operating hours of 6:00 a.m. to 7:00 p.m., extended to 8:00 p.m. during daylight saving time, with operations prohibited on Sundays and legal holidays. The plan defines “operation” broadly to include mining machinery, the processing plant, and related trucking activities.

I suggest that the Township consider whether those hours are appropriate as a general standard for future mining operations, particularly where a mine is located near residences or where commercial truck traffic must travel through residential areas. A mining operation may continue for decades, and operating hours determine how much of each day surrounding residents may experience truck traffic, equipment operation, processing, loading, backup alarms, and other mining-related activity.

For new mining operations, I recommend limiting routine mining, processing, loading, and commercial hauling to 9:00 a.m. to 5:00 p.m. Monday through Friday, with no routine mining-related activity on weekends or designated legal holidays. This schedule would help reduce conflicts between gravel-train traffic and residents’ morning and evening commutes. I also suggest requiring the traffic study to identify periods of significant school-bus activity along the approved haul route and establishing appropriate restrictions on gravel-train traffic during those periods.

The definition of operating activity should also be clear. Restrictions should apply not only to excavation, but also to processing, loading, commercial hauling, truck staging, engine warming, and other activities that create off-site operational impacts. A mine should not technically begin operating at 9:00 a.m. while trucks are already staging, loaders are operating, or other significant mine-related activity is occurring beforehand.

Any exception to the approved operating hours should be narrowly defined. Routine market demand, production delays, delivery schedules, or ordinary business convenience should not qualify as an emergency or otherwise justify additional operating time. If an operator requests additional production or hauling hours because of an unusual circumstance, I suggest requiring written Township authorization and, where appropriate, approval by the Township Board at a properly noticed meeting rather than allowing operating hours to be changed informally.

This should be distinguished from genuine emergency protective work. If immediate activity is necessary to address a spill, flooding, slope failure, public-safety hazard, environmental emergency, or similar condition, the operator should be permitted to take the minimum action reasonably necessary to address the emergency while promptly notifying the Township and documenting the circumstances. An emergency should not be used as a basis for extending ordinary mining production, processing, or hauling.

Overall, I suggest establishing operating hours that are specific, predictable, and enforceable so residents, the operator, and Township officials know exactly when mining-related

activity may begin and must end. For an operation that may continue for decades, clear limits on operating hours are a relatively straightforward way to reduce long-term impacts on the surrounding community while still providing a defined operating period for the mine.

19 | Lighting and Dark-Sky Protection

I suggest that Springfield Township establish specific lighting standards for mining operations to protect neighboring residents, preserve the rural and natural character of the Township, and reduce unnecessary impacts on wildlife and nighttime habitat.

Lighting should be limited to the minimum amount reasonably necessary for safe operation and security. Routine site lighting should be turned off outside approved operating hours, except for narrowly limited security or emergency lighting that is demonstrated to be necessary. Any lighting that remains on after hours should be low-intensity, fully shielded, downward-directed, and designed to minimize light trespass, glare, and sky glow.

High-intensity security lighting, floodlighting, and upward-directed lighting should be avoided unless specifically necessary for an identified safety or security purpose. Where lighting is not continuously necessary, timers, motion sensors, dimming, or other controls should be used so that large portions of the site are not illuminated throughout the night when no activity is occurring.

Residential impacts should also be considered. Security or operational lighting should not create persistent glare, illuminate bedroom windows, or substantially alter normal nighttime conditions on neighboring properties. The Township could establish measurable limits for light trespass at property lines and require field verification after installation.

Particular consideration should be given to nearby wetlands, woodlands, wildlife corridors, and other natural areas used by nocturnal or migratory species. Where lighting is located near sensitive habitat, the Township should be able to require additional shielding, reduced intensity, warmer-spectrum lighting, greater separation, or seasonal limitations where appropriate to reduce impacts on wildlife movement, feeding, breeding, and migration.

Any approved lighting plan should identify fixture locations, mounting heights, orientation, light output, shielding, operating schedule, and controls. Changes that materially increase brightness, coverage, mounting height, or off-site visibility should require Township review before installation.

Overall, the goal should be to provide only the lighting genuinely needed for safety and security while preserving darkness as the normal condition outside approved operating hours. For a long-term industrial operation in a rural setting, protection of dark nighttime conditions should be considered part of protecting resident quality of life, the surrounding natural environment, and nocturnal and migratory wildlife.

20 | Setbacks

I suggest that Springfield Township establish clear minimum setbacks for the major components of a mining operation rather than relying primarily on setbacks negotiated during review of an individual application. Predictable minimum distances would give applicants, residents, Township officials, and consultants a common starting point and would make permit conditions easier to understand and enforce over the life of an operation.

Not every mining activity creates the same potential impact, so I do not think one setback should necessarily apply to every component of the operation. Excavation, crushing and screening equipment, stockpiles, internal haul roads, fueling and maintenance areas, and wet-mining areas can create different concerns involving noise, dust, vibration, safety, groundwater, drainage, and visual impacts. The ordinance could therefore establish different minimum setbacks based on the activity involved. I recommend that the Township consider the following minimum starting points:

- Extraction should generally remain at least 500 feet from an exterior property line or public road right-of-way.
- Excavation, loading, stockpiling, and processing should remain at least 750 feet from an existing off-site dwelling.
- Crushers, wash plants, screens, stationary processing equipment, principal equipment-maintenance areas
- Major fuel-storage areas should remain at least 1500 feet from a residential property line and at least 500 feet from an existing off-site dwelling.
- Internal haul roads should generally remain at least 500 feet from an exterior property line except where necessary to reach the approved site entrance.
- Stockpiles should generally remain at least 1,000 feet from an exterior property line, recognizing that dust and PM2.5 can travel well beyond that distance depending on particle size, wind speed and direction, stockpile height, moisture, surrounding terrain, and the effectiveness of dust controls.

***Fine particulate matter may travel hundreds to thousands of feet from an uncontrolled or poorly controlled stockpile, and smaller particles can remain airborne and disperse farther downwind. The Township should therefore require site-specific air-quality and dispersion analysis where residences, schools, businesses, or other sensitive receptors may be affected, with greater separation or additional controls where necessary to address noise, dust, visual impacts, drainage, erosion, or safety.*

I think it is useful to include both property-line and dwelling setbacks where appropriate. A setback measured only from an existing house may provide little protection to the remainder of the neighboring property, while a property-line setback by itself may not provide sufficient separation from an occupied residence. Using both standards for higher-impact activities such as

processing can better protect neighboring land use while still creating an objective requirement for the applicant.

Water-related and environmentally sensitive features deserve somewhat different treatment. I suggest establishing a presumptive minimum separation of 1500 feet between extraction and streams, lakes, significant wetlands, prairie fens, springs, seeps, or other groundwater-dependent natural resources. This distance should not be treated as a guarantee that impacts cannot occur beyond 1500 feet. Groundwater movement, thermal transport, wetland hydrology, surface drainage, and ecological connections are site-specific and may extend considerably farther.

For that reason, the Township should retain authority to require greater setbacks where its hydrogeologic, environmental, engineering, or ecological consultants determine that additional separation is necessary. Groundwater travel time, groundwater-flow direction, thermal effects associated with wet mining, wetland hydrology, habitat connections, slope stability, drainage, and other competent technical evidence could all justify a greater distance.

Conversely, I would be cautious about allowing a reduced setback from an important water or natural resource simply because an applicant requests one. Any reduction below the established minimum should be supported by site-specific technical evidence demonstrating that the reduced distance will remain protective, reviewed by the Township's independent consultants, and approved through a clearly documented process. Necessary EGLE or other governmental approvals should not, by themselves, substitute for the Township's own land-use and environmental review.

The ordinance should also clearly explain how setbacks are measured. Measurement points should be identifiable on an approved survey or site plan and should not shift informally as mining progresses. Property lines, rights-of-way, dwelling locations, extraction boundaries, processing areas, haul roads, wetlands, water features, and other setback reference points should be clearly mapped so that compliance can be verified during inspections.

I also suggest making clear that the stated setbacks are minimum protections, not automatic entitlements to operate up to that exact distance. If a noise study, air-quality analysis, groundwater investigation, traffic evaluation, slope-stability analysis, natural-resource assessment, or other site-specific evidence demonstrates that a larger separation is necessary to meet the Township's standards, the larger setback should be incorporated into the approved plan and permit.

Overall, the goal should be to establish predictable minimum separation between mining activity and neighboring properties, residences, roads, and sensitive natural resources while preserving the Township's ability to require greater protection when actual site conditions justify it. This would provide applicants with clearer expectations at the beginning of the process while preventing a minimum setback from becoming an artificial limit on the Township's ability to respond to site-specific risks.

21 | Fencing, Warning Signs, and Screening

I suggest that Springfield Township strengthen its operating standards for fencing, warning signs, and screening so that these measures function as long-term protections for neighboring residents and the public rather than simply as features shown on an approved site plan. For a mining operation that may continue for decades, these protections should be installed before the activity they are intended to address begins and maintained throughout the life of the operation.

Active mining areas can contain steep excavation slopes, deep water, heavy equipment, stockpiles, conveyors, processing equipment, and other hazards that may not be obvious to someone approaching the property. I suggest requiring durable fencing of at least six feet in height around active mining areas and other hazardous portions of the site unless the Township determines that an alternative provides equal or greater protection. Gates should be secured outside approved operating hours, and damaged fencing should be repaired promptly.

The ordinance should distinguish between fencing required for safety and fencing or landscaping required for screening. Chain-link fencing may be appropriate as a safety or security barrier around active or hazardous areas, but chain link alone should not be considered adequate visual screening where mining operations are visible from neighboring residences, public roads, parks, trails, or other sensitive land uses.

Where a perimeter fence is intended to provide visual separation from neighboring properties, I suggest requiring an opaque or substantially opaque treatment appropriate to the location. This could include board-on-board wood fencing, durable composite fencing, masonry, another Township-approved solid screening material, or a combination of fencing, berms, and vegetation. If chain-link fencing is used in these locations for security purposes, it should be supplemented by an approved visual-screening system rather than serving as the sole screen. The Township should also consider the expected life of the materials being proposed. A mining operation may continue for decades, so fencing should be constructed of materials capable of being maintained in a safe and visually acceptable condition over that period. Wood or other materials that deteriorate should be repaired, refinished, or replaced when necessary. The permit should make maintenance of required fencing a continuing obligation rather than a one-time installation requirement.

Warning and no-trespassing signs should also be placed at appropriate locations along the secured area and near other identified hazards. Signs should be visible, maintained in readable condition, and replaced when damaged, faded, or missing. Where appropriate for public safety, the Township could establish a maximum spacing, such as 200 feet, while allowing additional signage near entrances, trails, roads, water bodies, steep slopes, or other locations where unauthorized access may be more likely.

The primary mine entrance should clearly display the name of the operation and an emergency contact number that is answered or monitored outside normal operating hours. This would provide residents, emergency responders, and others with a direct point of contact if an

urgent condition such as an open gate, damaged fence, spill, fire, or other immediate safety concern is observed.

I also suggest strengthening requirements for visual and acoustical screening. Screening shown on an approved plan should be installed and established before the mining activity it is intended to screen begins. Residents should not have to experience several years of an unscreened processing area, haul road, stockpile, or excavation while newly planted vegetation slowly becomes effective.

Where berms are used, they should be designed as permanent functioning site features rather than simply piles of material placed along the property boundary. Berms should be stable, appropriately graded, protected from erosion, designed to maintain natural drainage, and constructed so they do not concentrate or discharge water onto neighboring property. Long-term inspection and maintenance should be required so erosion, settlement, vegetation loss, or other deterioration does not reduce their effectiveness over time.

I recommend that vegetation used for permanent screening consist primarily of native species appropriate to Springfield Township and the specific site conditions. Ground cover used to stabilize berms and disturbed areas should favor native grasses, sedges, wildflowers, or other suitable native vegetation where practicable. This would allow required screening and erosion control to also contribute habitat value rather than creating large areas of low-diversity vegetation.

Tree and shrub screening should similarly use native species and include a diverse mixture of evergreen and deciduous vegetation. Evergreens can provide year-round screening, while native deciduous trees and shrubs can provide additional visual screening, habitat, structural diversity, and ecological value. Using several species rather than a single row of one tree species would also reduce the likelihood that disease, pests, drought, or another stressor could eliminate an entire screening area at once.

The landscaping plan should identify the species, quantities, planting sizes, spacing, and expected mature height of required vegetation so the Township can evaluate whether the proposed screening will actually accomplish its intended purpose. Where acoustical screening is required, the applicant should also demonstrate that the combination of berm height, location, vegetation, distance, fencing, or other measures is appropriate for the noise sources being screened rather than assuming that landscaping alone will provide meaningful noise reduction.

Most importantly, I suggest requiring a continuing replacement and maintenance obligation. Required landscaping should not be considered satisfied simply because trees were planted once at the beginning of the project. Trees, shrubs, or other vegetation that die, are substantially damaged, become diseased, or otherwise fail to provide the required screening should be replaced with comparable approved vegetation within the next appropriate planting season. If repeated losses occur, the Township could require evaluation of the cause and modification of the planting plan rather than repeatedly installing vegetation that is unlikely to survive.

The Township should also require control of invasive plant species within required screening and reclamation areas where they threaten the establishment or function of the approved native vegetation. Long-term mining sites can provide substantial areas of disturbed soil where invasive species can become established, so vegetation management should be considered part of maintaining the approved screening system.

Overall, I suggest treating fencing, warning signs, berms, and vegetation as continuing permit requirements rather than one-time construction items. Safety fencing should effectively restrict access to hazardous areas, while screening requirements should actually protect neighboring properties from the visual effects of the operation. Allowing chain link where it serves a legitimate safety purpose, but not allowing exposed chain link alone to satisfy residential or roadside screening requirements, would provide a reasonable distinction between these two purposes.

22 | Noise and Vibration

I suggest that Springfield Township establish strict, measurable, and enforceable noise and vibration requirements for mining operations. These requirements should apply throughout the entire life of the project, not only during active extraction. Site preparation, clearing, excavation, processing, crushing, screening, loading, stockpiling, equipment operation, internal hauling, berm construction, maintenance, reclamation, and mine-related truck traffic can all generate noise or vibration that affects surrounding properties.

Springfield Township already has generally applicable noise and vibration standards in Sections 40-883 and 40-884. I recommend that mining operations remain fully subject to those standards and that the ordinance not provide a mining-specific allowance to exceed the otherwise applicable Township noise limit by 10 dB or by another amount simply because the activity is mining. A long-term industrial land use should not receive a higher allowable noise level solely because of the type of operation being conducted.

For a substantial mining operation, I recommend requiring an independent, site-specific noise and vibration study prepared by a qualified acoustical or vibration professional before approval. As discussed elsewhere in these recommendations, the study should begin with representative field-measured baseline conditions. It should then evaluate the actual operation being proposed, including the specific equipment, processing plant, loaders, crushers, screens, conveyors, backup alarms, internal haul trucks, stockpiles, berm construction, reclamation equipment, and other significant noise or vibration sources.

The analysis should evaluate realistic and reasonably foreseeable operating conditions rather than only an ideal or minimum-production scenario. If multiple pieces of equipment may operate simultaneously, the study should evaluate those combined conditions. If processing equipment, loaders, trucks, and reclamation equipment could operate at the same time, the Township should understand the combined effect before approving the operation.

Noise should be evaluated at locations where people may actually experience it. Monitoring and modeling locations should include property boundaries and representative nearby residences, schools, parks, businesses, farms, or other sensitive receptors where appropriate. The Township's acoustical consultant should be able to require additional locations where topography, distance, vegetation, prevailing activity patterns, or other site conditions warrant further evaluation.

I also suggest that the Township require the noise-control plan to identify the assumptions upon which approval is based. This should include the type and number of equipment units, anticipated sound levels, equipment locations, processing locations, haul-road locations, hours of use, berms and other sound barriers, and other mitigation measures relied upon to demonstrate compliance. If the operator later proposes substantially different or louder equipment, relocates a significant noise source, or changes an operating condition used in the approved analysis, the Township should be able to require additional review before the change occurs.

The same principle discussed elsewhere in these recommendations should apply here: **the application may contain predictions, but the permit should contain enforceable limits.**

I recommend requiring noise monitoring during operation rather than relying exclusively on computer modeling performed before the mine opens. A qualified acoustic engineer/professional could establish the appropriate monitoring locations, methods, equipment standards, duration, weather restrictions, and measurement metrics. Monitoring should be capable of identifying both sustained noise and shorter-duration events where appropriate, rather than relying on an averaging method that could obscure repeated loud events.

Additional monitoring should be required when a credible complaint, change in equipment, change in operations, or Township inspection indicates that conditions may differ from those originally evaluated. The Township should also retain the ability to conduct or commission independent sound and vibration measurements at the operator's expense through the established escrow system.

Vibration should receive similar treatment. The approved plan should identify significant sources of vibration and establish objective measurement methods and compliance thresholds recommended by a qualified professional. Vibration should be evaluated not only for potential structural effects but also for repeated off-site impacts that may materially interfere with neighboring properties. Monitoring locations should be based on the actual source, geology, distance, nearby structures, and other relevant site conditions.

Reclamation should specifically remain subject to the same noise and vibration protections. Reclamation can involve bulldozers, excavators, scrapers, trucks, grading equipment, removal or relocation of berms, movement of large quantities of soil, and other heavy-equipment activity. The fact that extraction has ended should not mean surrounding residents lose the protections that applied while the mine was operating.

I also strongly suggest that mine-related haul traffic be included in the noise and vibration review. For a large mining operation, some of the most frequent off-site impacts may occur after a truck leaves the property. Heavy trucks can create engine noise, acceleration and braking noise, tire noise, rattling, backup or warning sounds where applicable, and vibration associated with repeated passage over road surfaces. Those impacts may occur repeatedly each day along an approved haul route and may affect homes, schools, pedestrians, businesses, and other properties that are not adjacent to the mine itself.

The traffic and noise studies should therefore work together. Where significant mine-generated truck traffic is proposed, I suggest requiring representative evaluation of noise and vibration conditions along the proposed haul route, particularly near residences, schools, intersections, hills, curves, stop locations, and other locations where trucks are likely to accelerate, brake, idle, or generate greater noise. The study should consider the proposed number and type of trucks and the cumulative effect of repeated truck passages during approved operating hours.

Additional consideration should be given to historic and older homes located along the approved haul route. These structures may have been built before modern construction standards

and may contain older masonry, foundations, plaster, chimneys, or other materials that could be more susceptible to repeated vibration. Where historic or potentially vulnerable structures are present, the Township should consider requiring a qualified professional to evaluate whether mine-generated truck traffic could create vibration levels warranting additional monitoring, documentation, or protective measures. This review could also help establish baseline conditions before hauling begins so that any future concerns can be evaluated against documented pre-operation conditions.

Where legally permissible, the Township could also consider operational requirements intended to reduce unnecessary haul-route noise, including restrictions on unnecessary idling, staging or queuing on public roads, unnecessary use of engine brakes, and other avoidable noise-generating practices. Requirements affecting operation on public roads should be coordinated with the Road Commission for Oakland County or other agency having jurisdiction, but the existence of separate road authority should not prevent the Township from considering mine-generated truck noise when evaluating the overall impacts of the proposed land use.

I also recommend encouraging quieter equipment where it can be used safely and lawfully. For example, broadband or other less intrusive backup-warning technology could be required where technically feasible and consistent with occupational-safety requirements. Equipment should also be properly maintained so damaged mufflers, loose components, worn bearings, deteriorated exhaust systems, or similar conditions do not create unnecessary noise or vibration.

Noise and vibration complaints should be tied directly to the centralized complaint and monitoring system recommended elsewhere in this document. A complaint should not automatically establish a violation, but it should trigger a documented response when appropriate. The Township should be able to compare the complaint with approved operating conditions, monitoring information, equipment activity, truck records, weather conditions, and independent field measurements.

Where monitoring confirms an exceedance or demonstrates that an approved noise-control measure is not performing as represented, the ordinance should require timely corrective action. Depending on the circumstances, that could include equipment repair, relocation of equipment, additional acoustical barriers, changes in operating practices, reduction of simultaneous equipment use, modification of internal haul routes, additional monitoring, or temporary cessation of the activity causing the exceedance until compliance is restored.

Repeated exceedances should not be treated as routine operating conditions. Persistent failure to comply with approved noise or vibration limits should be grounds for escalating enforcement under the Township's Mining Permit, including corrective orders, suspension of the affected activity, or other enforcement measures authorized by the ordinance.

Overall, I suggest that Springfield treat noise and vibration as continuing operational impacts that must be measured and controlled throughout mining, processing, hauling, reclamation, and closure. The standards should apply to what residents actually experience, not simply what a pre-approval computer model predicts. Clear limits, field monitoring, independent

verification, haul-route evaluation, complaint investigation, and mandatory corrective action would provide the Township with a much stronger and more enforceable system for protecting surrounding residents over the life of a mining operation.

23 | Fugitive Dust and Air Quality

I suggest that Springfield Township take a proactive approach to fugitive dust and air quality by requiring both dust-control measures and ongoing air monitoring for substantial commercial mining operations. Dust should not be addressed only after residents complain or after a visible plume has already left the property. A mining operation involving excavation, crushing, screening, loading, stockpiling, internal truck traffic, exposed soils, and commercial hauling creates multiple potential sources of airborne particulate matter that should be anticipated and monitored from the beginning.

This is particularly important where mining occurs near homes, schools, farms, livestock, parks, businesses, or other places where people may spend significant amounts of time outdoors. Some residents may also be more vulnerable to particulate air pollution because of existing respiratory or cardiovascular conditions, age, or other health factors. The Township should not have to wait for those residents to demonstrate that a problem exists before obtaining objective air-quality information.

I recommend requiring every substantial mining operation to prepare and follow a Township-approved fugitive-dust and air-quality management plan developed by a qualified air-quality professional. The plan should address all significant sources of dust, including excavation areas, internal haul roads, crushing and screening operations, conveyors, loading and unloading, stockpiles, overburden and topsoil piles, unvegetated areas, reclamation activities, truck trackout, high-wind conditions, and other activities capable of generating airborne particulate matter.

Dust-control measures should be preventative rather than reactive. Internal roads and disturbed areas should be watered, stabilized, paved, treated, or otherwise controlled as necessary before substantial visible dust develops. Stockpiles and exposed soils should be stabilized when appropriate, truck speeds should be controlled, trackout should be prevented and promptly removed, and crushing, screening, transfer, and loading operations should use appropriate suppression or containment measures. Only dust suppressants that are lawful and appropriate for the intended use should be permitted, particularly where groundwater, wetlands, surface water, or private wells could be affected.

I do not think visible dust alone should be the Township's compliance standard. Fine particulate matter can be present even when a large dust cloud is not obvious to the eye. For that reason, I recommend requiring continuous, 24-hour perimeter monitoring for PM10 and PM2.5 beginning before any ground-disturbing activity and continuing without interruption until final reclamation is complete. Monitoring should continue during nights, weekends, shutdowns, and other periods when active mining is not occurring, since exposed soils, stockpiles, haul roads, berms, and other disturbed areas may remain potential sources of windblown particulate matter even when equipment is not operating.

Monitoring should begin before substantial site disturbance, preferably so that the Township has representative baseline air-quality information for comparison, preferably one full calendar year for appropriate baseline. The monitoring network should then remain operational

throughout active mining and reclamation. Monitoring locations should be selected by a qualified air-quality professional and approved by the Township, with consideration given to prevailing winds, property boundaries, processing areas, internal haul roads, neighboring residences, schools, farms, and other sensitive receptors. At least one location should generally provide representative upwind or background conditions and additional locations should monitor downwind conditions.

The monitoring system should also include appropriate meteorological information, such as wind direction and wind speed, so elevated particulate readings can be evaluated in relation to mine operations and other potential sources. Monitoring data should include date and time information sufficient to compare an elevated reading with activities occurring at the mine at that time.

Crystalline silica deserves specific consideration. For example, the proposed operation on Ormond road would primarily produce 2NS sand, making silica-bearing material a central part of the mining and processing activity rather than an incidental material. Crushing, screening, conveying, stockpiling, loading, truck movement, and disturbance of dry sand can all generate fine mineral dust. I recommend requiring the applicant's air-quality professional to specifically evaluate the potential for respirable crystalline silica, identify the activities and locations most likely to generate it, and establish an appropriate silica-monitoring program. That program should include monitoring methods, locations, action levels, reporting requirements, and corrective measures designed to protect both workers and nearby residents from repeated or prolonged exposure.

Because ordinary real-time PM_{2.5} and PM₁₀ monitors do not necessarily identify how much of the particulate matter is crystalline silica, silica should not simply be assumed to be adequately monitored through general particulate measurements. Where silica-containing material is present or silica-generating activities are proposed, periodic filter-based or other scientifically appropriate sampling and laboratory analysis should be required at locations and frequencies established by the Township's air-quality consultant. Additional silica sampling should be required following significant operational changes, unusual particulate readings, or other circumstances indicating that further investigation is warranted.

The Township should establish measurable alert and action levels before operations begin. The approved monitoring plan should clearly state what occurs when particulate concentrations increase above normal or approved conditions. An initial alert could require operational review and additional dust controls, while a higher or sustained level could require immediate corrective action, additional sampling, reduction of the activity generating the dust, or temporary shutdown of that activity until compliance is restored.

High-wind conditions should also have predetermined operating requirements. Rather than waiting until dust is visibly leaving the property, the permit could establish wind-speed or site-condition triggers at which additional suppression measures are required or particularly dust-generating activities must be reduced or temporarily stopped.

Monitoring equipment should be maintained, calibrated, and operated according to approved professional protocols. Missing monitoring data should not automatically be treated as evidence that conditions were acceptable. The operator should be required to promptly report equipment failures, identify the period for which data were unavailable, restore monitoring within a defined period, and use temporary replacement monitoring where reasonably necessary.

Continuous monitoring should itself be an enforceable permit requirement. An operator should not be permitted to continue routine dust-generating mining or processing activities for extended periods while required air-monitoring equipment is knowingly inoperable. Repeated failure to operate, maintain, calibrate, report, or provide required monitoring data should constitute a permit violation.

I suggest that deliberate disabling of monitoring equipment, repeated unexplained data gaps, failure to conduct required silica sampling, falsification or withholding of monitoring information, or continued operation after an established air-quality shutdown threshold has been reached be treated as serious violations. Depending on the severity and frequency of the violation, the Township should have authority, consistent with applicable law and due-process requirements, to impose fines, order cessation of the affected activity, suspend operations, and ultimately suspend or revoke the Mining Permit for repeated or significant noncompliance.

Air-quality requirements should also apply during reclamation. Reclamation may involve extensive grading, movement of soil and aggregate, demolition or removal of processing areas, truck traffic, berm reconstruction, and other activities capable of generating substantial dust. Air-quality protections should continue until significant dust-generating activity has ended and disturbed areas have been adequately stabilized.

The approved haul route should also be considered when evaluating fugitive dust. The operator should remain responsible for preventing material from being tracked or spilled onto public roads from the mining property and for promptly cleaning mine-related trackout. Dust associated with material deposited on the roadway should not become a continuing impact simply because trucks have crossed the property line.

I also recommend making the monitoring results readily available to the public. Continuous monitoring may generate far more information than is practical to summarize every day or month, so quarterly public reporting may provide a reasonable balance. The Township could publish quarterly summaries of PM_{2.5}, PM₁₀, silica sampling, exceedances or action-level events, monitoring interruptions, corrective actions, and other significant findings on the Township's mining-project webpage. The underlying monitoring data should remain available to the Township and its consultants for independent review.

Residents should also be able to submit air-quality and dust complaints through the centralized complaint system recommended elsewhere in this document. Complaints should not automatically establish that a violation occurred, but they should be compared against monitoring data, wind conditions, mine activity, photographs or observations, and other available evidence. A pattern of complaints occurring at the same time as elevated particulate readings could provide important information that either source alone might not reveal.

Finally, I recommend that the Township retain the ability to independently verify the operator's monitoring. Township consultants should be able to inspect monitoring equipment, review calibration and maintenance records, obtain the underlying electronic data, conduct independent particulate or silica sampling, and install temporary monitoring equipment when necessary. Reasonable costs could be funded through the operator's regulatory escrow.

Overall, I suggest moving away from a system in which air monitoring occurs only "where necessary" after complaints or other evidence indicates a problem. For a substantial commercial mining operation, air monitoring should be a basic condition of operation. The goal should be straightforward: prevent dust where possible, continuously measure PM2.5 and PM10, specifically monitor crystalline silica using appropriate scientific methods, establish response thresholds before operations begin, make the results available to the Township and public, and require immediate corrective action when monitoring identifies a problem. Failure to perform required monitoring or repeated failure to comply with air-quality requirements should carry meaningful consequences, including fines, suspension of affected activities, and, where warranted, suspension or revocation of the Mining Permit.

24 | Ethics and Applicant Interactions

I suggest that Springfield Township establish clear ethical standards governing interactions between Township elected officials, appointed officials, employees, consultants, and any applicant with a pending mining application.

While an application is pending, Township representatives involved in reviewing, advising on, administering, or deciding the application should not solicit or accept any gift, meal, service, benefit, or other item of value from the applicant, property owner, operator, affiliated company, contractor, consultant, attorney, or other party acting on behalf of the project.

The restriction should apply regardless of monetary value. A clear prohibition is easier to understand and enforce than attempting to determine whether a particular benefit was significant enough to create influence or the appearance of influence.

Township representatives should also disclose potential conflicts of interest and recuse themselves where required. Substantive communications with an applicant concerning the merits of the project, proposed conditions, technical issues, or significant project changes should be documented and maintained as part of the official project record.

These requirements should remain in effect for the entire period that an application is pending, including technical review, public hearings, Special Land Use consideration, and any related Township decision-making.

Overall, I suggest maintaining a professional, documented, arm's-length relationship between the Township and a mining applicant while an application is pending. A simple no-gifts or benefits standard would protect Township representatives, applicants, and residents while helping preserve public confidence in the fairness and independence of the review process.

25 | Administrative Authority and Township Oversight

I suggest that the mining ordinance clearly distinguish between routine administrative responsibilities and substantive decision-making authority. The Superintendent or other designated Township administrator may appropriately coordinate applications, receive documents, issue routine notices, maintain records, communicate procedural requirements, and carry out other ministerial responsibilities.

However, significant decisions affecting the scope, requirements, approval, modification, or enforcement of a mining operation should not rest with one Township employee or official. Decisions involving material waivers, significant interpretations of ordinance requirements, extensions or exceptions, major changes to an approved operation, reductions in required protections, permit continuation, significant corrective actions, or other matters capable of materially affecting residents, natural resources, or the approved project should require written findings and approval by the Township Board, Planning Commission, or other legally authorized Township body, as appropriate.

Where technical judgment is required, the decision should also be informed by the Township's independent professional consultants rather than relying solely on administrative discretion. The ordinance should clearly identify which decisions may be made administratively and which require formal Township action. Administrative authority should not be so broadly written that a single official can effectively modify the requirements or protections established through the public approval process.

Overall, I suggest keeping routine administration efficient while reserving significant discretionary decisions for a transparent, documented process with appropriate professional review and Township oversight.