LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUND-WATER AND ENVIRONMENTAL ENGINEERING SERVICES

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November 15, 2012

Ms. Sherri Buss, R.L.A.
TKDA
444 Cedar Street
Suite 1500
St. Paul, MN 55101

Re: CUP and AOP Applications - Groundwater Protection Review
Zavoral Mine and Reclamation Project
City of Scandia, Minnesota

Dear Ms. Buss:

Leggette, Brashears & Graham, Inc. (LBG) has reviewed the relevant groundwater information in the Zavoral Mine and Reclamation Project environmental review documents, including Tiller Corporation's (Tiller) Conditional Use Permit (CUP) and the Annual Operating Permit (AOP) applications.

The purpose of this correspondence is to provide TKDA and the City of Scandia (City) with LBG's comments on the Groundwater Quality Protection Plan (GWPP) associated with the CUP and AOP applications, and to recommend permit conditions that should be considered for protecting the uppermost groundwater that underlies the Site, and the groundwater to the east or hydraulically downgradient of the Site.

As part of this process, LBG reviewed sections of the following documents that pertain to groundwater:

- Final Environmental Impact Statement (FEIS), August 2012;
- Response to Comments of Draft EIS, August 2012;
- CUP Application, submitted November 2008 and updated September, 2012;
- AOP Application, submitted October 2012;
- Zavoral Mining and Reclamation Groundwater Quality Protection Plan (GWPP), October 2012;
- Zavoral Mining and Reclamation Surface Water Plan (SWP), October 2012; and,
- Other relevant documents related to the environmental review process.

LBG also reviewed information on the surface waters east of the Site that hydraulically connected to the water table aquifer or the uppermost aquifer. These include the three streams (Zavoral, Middle, and South creeks) and associated wetlands which originate from groundwater seeps and springs located along the ravines that are adjacent to the north, central, and southern boundaries of the Site. LBG discussed these features with Washington County Conservation District (WCD) staff and concerns that were raised during the environmental review process about the potential impact to these the surface water. The WCD is responsible for reviewing the surface water monitoring plan and making recommendations on conditions to address these concerns. LBG and WCD will work together to ensure the groundwater and surface water monitoring programs are compatible.

GWPP Review Comments and CUP Condition Recommendations

CUP #7

1. **Page 1, Section 2, 2nd Paragraph:** The first sentence states the groundwater table varies from approximately 840 feet above mean sea level (ft amsl) in the western portion of the Site to just below 700 ft amsl at the St. Croix River. The geologic cross sections in the FEIS and the water table elevations determined from the Trails End and Magnuson wells shown on Figure 1 of the GWPP show elevations on the west side of the Site are less than 820 ft amsl. The text should be revised so it is consistent with the cross sections in the FEIS and map on Figure 1 of the GWPP.

2. **Figure 1:** The posted water table elevations on Figure 1 for the Trails End and Magnuson wells are the same (816.7 ft amsl). The Magnuson elevation shown on the cross section on Figure 33 in the FEIS is 819.4 ft amsl. The groundwater elevations should be validated and revised accordingly, if incorrect.

3. **Page 2, Section 4, 4.1:**

   a. More explanation is needed on the methods that will used to determine the water table elevation from the soil borings. This is not the most accurate approach and the measurements are not reproducible if done incorrectly.

   b. In the event bedrock is encountered above the water table, which could occur in the southern portion of the Site, Tiller should be prepared to use a drilling method that is capable of drilling into bedrock and obtaining a water level measurement.

   c. The current placement of the proposed borings may not provide the best triangulation for determining groundwater flow direction. The easternmost boring (next to the proposed monitoring well) should be moved approximately 800 feet to the north in the northeastern corner of the Site.

   d. It is recommended that the proposed monitoring well location be relocated adjacent to the existing Zavoral Production Well for the following reasons:

      1. It is closer proximity to the Zavoral Production Well and therefore, would be more likely to detect influence on the water table aquifer, if any, that would result from pumping the deep aquifer.

      2. Because of the uncertainty associated with the triangulation of groundwater flow from the soil borings and the slight variations that

occur with flow directions, having the well closer to the fuel pad area would be an advantageous for DRO monitoring; and,

3. The well in this location would seem to provide more reliable and conservative information on changing groundwater conditions on Site, if any, due to mining and reclamation activities.

e. Although the on Site monitoring well is important to understanding what the general groundwater conditions are underlying a portion of the Site, it may not represent what is occurring across the entire Site during mining and reclamation, and what changes may be occurring, if any, along the three creeks and wetland areas to the east. It is recommended that additional groundwater observation wells or piezometers be installed downdradient of the Site in the vicinity of the wetlands or near the surface water monitoring stations proposed by the WCD. Before the plan is finalized, the number and configuration of these off Site piezometers will be discussed in more detail and coordinated with WCD so the optimum monitoring locations are established without being redundant.

4. Page 3, Section 4.2:

a. The surface waters mentioned above are downgradient and hydraulically connected to the water table aquifer or uppermost groundwater on Site. These features rely on the baseflow from the on-Site groundwater source, in addition to groundwater from other areas outside of the Site to maintain natural flow and temperature conditions. If changes occur to the groundwater levels and/or temperature of the groundwater due to the mining and reclamation activities on Site, the potential for negative impacts to the surface waters exists. Because no on-Site data are available at this time additional and more frequent monitoring is recommended to evaluate the potential impact to surface waters. The plan should be modified to include:

1. A more frequent water level measurement schedule than once per year in the on Site monitoring well and off-Site piezometers;

2. Monitoring of temperature and electrical conductivity in the on Site monitoring well and off-Site piezometers;

3. Collection of dissolved oxygen measurements in the field during monthly site visits; and,

4. A schedule for monitoring water levels, temperature, and electrical conductivity in the downgradient piezometers.

b. The frequency of the measurements should be set at a rate that can detect seasonal changes that may result from recharge from infiltration. At a minimum, manual measurements should be collected monthly in the on Site monitoring well and off-Site piezometers for the first year of operation. If data loggers are installed, measurements can be collected much more frequently at no additional cost.

c. To obtain more frequent and consistent data, LBG recommends dedicated data logging equipment that measure and store water level, temperature, and electrical conductivity data be used in the on Site monitoring well and off Site piezometers;

d. The results should be compared to the surface water measurement data collected by the WCD.

e. Groundwater level measurements, temperature, and electrical conductivity should be collected monthly in the Trails End well for the first year of operation for background purposes and for comparison to the on Site monitoring data. The monitoring frequency can be revaluated annually.

CUP

f. The City's consulting hydrogeologist will make scheduled Site visits, download the data, and collect manual measurements. Data will be evaluated and reported to the City.

CUP

g. The GWPP will be reevaluated on an annual basis or sooner if a significant change in the groundwater conditions occur. Modifications to the GWPP will be made to address any concerns. Reductions in monitoring can also be reevaluated annually.

Thank you again for the opportunity to assist TKDA and the City on this project. If you have any questions, please contact me at (651) 558-9207.

Sincerely,

LEGGETTE, BRASHEARS & GRAHAM, INC.

David S. Hume, P.G.
Senior Associate

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TKDA

Memorandum

To:	Sherri Buss	**Reference:**	Traffic Monitoring Scandia EIS Scoping Process Zavoral Mine
Copies To:			
From:	Bryant Ficek	**Project No.:**	14305.001
Date:	December 20, 2012	**Routing:**	

As part of the City of Scandia's permitting process, we have reviewed the traffic analysis and mitigation recommendations included in the Zavoral Mine and Reclamation Plan Final Environmental Impact Statement (EIS). The purpose of this review was to determine the potential need for monitoring as part of the Conditional Use Permit (CUP) and/or the Annual Operating Permit (AOP) for the site. This memorandum presents our findings and recommendations for monitoring traffic as a condition of these permits.

Issues

The EIS stated that most raw materials from the Zavoral site will be transported to the Scandia Mine for processing. The identified haul route for trucks transporting the materials is Trunk Highway (TH) 97 through Scandia to County State Aid Highway (CSAH) 1.

As identified and discussed in the EIS, potential traffic safety issues due to the mining operations are a potential increase in overall crashes in the area, concerns about safety along TH 97, and the potential impact on bicycle and pedestrian facilities.

Also as identified and discussed in the EIS, potential capacity issues due to the mining operations extend to the overall number of trucks on the roadway system, operations at the intersection of TH 97 and TH 95, and general wear and tear on the roadway system.

Potential Monitoring Program

Having identified the need to monitor the activities at the Zavoral site in regard to the issues identified, the following is recommended:

- Item 1 – 14-hour video turning movement count(s) at the intersection of TH 97 and TH 95
- Item 2 – Review and comparison of the truck counts entering and exiting the Zavoral Site and the Scandia Mine
- Item 3 – Direct reporting of incidents involving trucks
- Item 4 – Review of crash records

Item 1. TKDA will complete a 14-hour video log of the TH 97 and TH 95 intersection, including the new access to the Zavoral site (potentially 6 a.m. to 8 p.m.). Video logs are a standard method for taking traffic counts. The video log will record all of the trucks entering and exiting, and the traffic conditions at the intersection. This information could then be used to compare the number of trucks against the information in the EIS, perform an operational capacity check on the TH 97 and TH 95 intersection, and confirm the hours of operation of the mining site. This item is recommended to be completed once during normal operations on a random weekday early in first year of mine operations. TKDA's traffic engineer will review the video log, and will provide a summary of the observations related to traffic operations, and identify any issues or problems related to the conditions required for operations. If issues are identified related to the site's operations, additional video counts and reviews could then be ordered by the City.

Item 2. Due to other regulations and requirements, operators of the mine sites are required to record the number trucks leaving and entering the Zavoral site and the Scandia Mine. This information should be provided to the City for review. The total truck counts at each site could be compared to determine whether hauling from the Zavoral site is replacing current hauling from sites in Chisago County and Wisconsin, and that the maximum number of trucks matches the information in the EIS. As reporting on trucks occurs quarterly, this review could also occur quarterly.

Item 3. After contacting emergency services, if needed, truck operators working at the Zavoral site should contact the City to report any incidents involving their truck hauling activities. Whether a crash, speeding ticket, or other violation, the details of the incident should be relayed, as well as any mitigation the site operators may take in response to the incident. Knowing that this reporting must take place, the operators will hopefully be encouraged to work proactively with truck drivers on properly obeying driving laws and any conditions on the mine set by the City. It is recognized, however, that many truckers operate independently and cannot be required to relay information to the operators. When operators become aware of any incident, this information should be provided to the City promptly.

Item 4. The City should review crash records for the same segments and intersections recorded in the EIS. This information is available through a Minnesota Department of Transportation (MnDOT) online program that is available to any agency or consultant. A review of the crash records would allow the City to determine if areas are experiencing any uptick in crashes that can be directly or indirectly related to the truck traffic. MnDOT updates crash records regularly. However, crash records are not generally used for day-to-day or even month-to-month comparisons. Instead, review of crash records over a longer period of time allows trends to be discerned. Therefore, this item is recommended to be completed once every six months.

These four recommended items, combined with standard enforcement activities for speeds and weight restrictions, should provide the City with sufficient information to adequately monitor operations at the mining site; provide information on traffic activities to the public, if necessary; and determine appropriate action should a permit condition be violated.

Items 1 and 2 could be made a part of the AOP. This would allow the City to increase or decrease the number of times to check the truck counts each year as conditions warrant. Items

3 and 4 could be made a part of either the CUP or AOP since the recommendation will not likely change from year to year.

Monitoring Costs

Assuming the City does not have traffic counting equipment, Item 1 would most efficiently be accomplished through a consultant. A number of firms are available in the area to complete the traffic count discussed and perform a simple capacity check of the TH 97 and TH 95 intersection. A rough estimate for a consultant to complete these various work items is:

- 14-hour video turning movement count of an intersection – $575 per count
- Intersection capacity check – $500 per intersection per peak hour review

Assuming that a capacity check is performed on two peak hours (morning and afternoon), the total cost of Item 1 is anticipated to be $1,575.

Items 2 and 3 are reliant on the operators of the site to monitor truck numbers and report incidents, when known, to the City. The related cost for the City would involve time for a contact person to maintain a record of any incidents and a review of truck numbers at each site against each other and the EIS information. The contact person at the City would also be responsible for providing the information to the City Administrator for reports to the City Council.

Item 4 could also be accomplished by a contact person within the City. The software from MnDOT is free and relatively intuitive. Set up of the software and a short tutorial should not take more than an hour. Another couple of hours would be necessary every six months (as recommended here) to check the records, print out the crashes, and review for any trends or unusual circumstances. If the City does not want to assume this task, several traffic consultants are available who should be able to easily accomplish this task for less than $500 per review period.

If you have any questions or comments regarding this information, please contact me at 651.726.7944 or bryant.ficek@tkda.com.

INDOOR
ENVIRONMENT
GROUP, INC.

December 20, 2012

Sherri Buss
TKDA
444 Cedar St, Suite 1500
St. Paul, MN 55101

Subject: Zavoral Mine EIS Review

Dear Ms. Buss:

Indoor Environment Group, Inc. (IEG) has recently completed a review of the Final Environmental Impact Statement (EIS) for the Zavoral Mine in Scandia, Minnesota.

Based on that review and our site visit, we provide the following **observations**:

1. The most likely airborne contaminants to be released during this operation have been correctly identified as:

    a. Airborne particulate matter (PM, PM_{10} & $PM_{2.5}$)
    b. Respirable dust
    c. Respirable silica
    d. Diesel exhaust particulates
    e. Nitrogen dioxide

2. The calculations and resulting levels provided in Table 27: Summary of Ambient Air Quality Modeling Analysis for Uncontrolled Emissions are reasonable based on the maximum activity data used for the model.

3. We also feel that the estimated Worst-case levels in Table 28: Summary of Ambient Air Quality Modeling Analysis for Mitigated Emissions are reasonable if the fugitive dust control plan provided by Tiller is diligently followed.

4. According to information provided by Tiller, the fine aggregate at the site was found to have a silica content of 25%. Based on that figure, the calculated emissions levels of 3.8 $\mu g/m^3$ for uncontrolled emissions and 0.26 $\mu g/m^3$ for mitigated emissions of respirable silica are reasonable.

5. According to the calculations provided in the EIS, the uncontrolled emissions numbers will potentially exceed State and Federal Air Quality Standards for $PM_{2.5}$, PM_{10} and the ACGIH TLV and State of California REL for respirable silica during site activities. In each case, however, adherence to the proposed fugitive dust control plan should reduce the emissions below the current State and Federal standards.

6. The fugitive dust control plan submitted by Tiller follows generally acceptable procedures for the mining and transportation of fine aggregates such as those involved in this process. We do feel that these procedures will adequately reduce dust emissions during site operations with some slight modifications as we have recommended in the next section.

7. Diesel exhaust emissions are not clearly addressed in the EIS or in any operational plan from Tiller. While we do not feel that the emissions will be significant to the point of exceeding State or Federal Air Quality Standards, we do feel that some controls should be implemented to reduce the potential impact from these emissions and have included recommendations in the next section.

8. Based on the information provided in the EIS and our review of the proposed site activities, we feel that the environmental and community air quality impact from the Zavoral Mine activities should be minimal. For that reason, we do not feel that permanent monitoring stations would be necessary for this operation. However, the potential impact could be great increased if the dust control plan is not followed diligently. For that reason we have provided recommendations for periodic air monitoring and procedural oversight.

Recommendations:

CUP

1. Regarding the proposal fugitive dust control plan, we recommend the following modifications:

    a. Set a specific minimum frequency for watering of the unpaved haul roads on the site including the milled portions or ensure that road conditions are monitored on a daily basis. We would recommend watering at least twice daily (unless recent precipitation is keeping these roads adequately wet) and at least once every 3 working hours in hot, dry conditions.

    b. Ensure that hauling and loading equipment are washed on a regular basis and at least daily in hot, dry conditions.

    c. Require that sweeping activities are conducted using vacuum-assisted sweeping equipment or ensure that sweeping operations do not generate visible airborne emissions.

    d. Ensure that the dust control polymers remain effective throughout the season. The coverage of this material should be inspected on at least a weekly basis and a reapplication performed if the polymers are no longer effective.

2. Require that Tiller perform employee exposure monitoring or similar onsite testing at the site at least once per season and submit those results (with employee personal information redacted) to the City for review. Monitoring should be specific for respirable dust and respirable silica, should include mining, loading and hauling personnel and should represent worst-case exposure conditions.

CUP

3. Require an idle reduction policy for the site and the approach area limiting vehicle idle times to no more than 15 or 30 minutes.

4. Perform periodic onsite review of dust control activities to ensure compliance with the dust control plan.

5. Perform periodic air monitoring to gauge the effectiveness of the dust control activities. Monitoring should be based on the following guidelines

   a. Monitoring should be performed two to three times per season.

   b. Monitoring should be scheduled in conjunction with days of maximum site activity and worst-case environmental conditions (when feasible).

   c. It is also recommended that a 2nd day of sampling be performed during each session to record the ambient conditions on a day with no site activity.

ADP

   d. Monitoring stations should be established at a minimum of three locations:
      i. Upwind of mining and loading operations
      ii. Downwind of mining and loading operations
      iii. Downwind of site entrance

   e. Monitoring plan should include the collection of the following samples at each sampling location:
      i. Airborne particulate matter PM_{10} - Fibrous Aerosol Monitor fitted with a PM 10 impactor
      ii. Respirable dust – cyclones/37mm PVC cassettes and lab analysis (NIOSH method 0600/7500; mod OSHA ID-142)
      iii. Respirable silica (quantitative) - cyclones/37mm PVC cassettes and lab analysis

   f. Results should be compared to current State and Federal Ambient Air Quality Standards, ACHIG TLV or OSHA PELS as applicable.

CUP

6. If sample results indicate levels above generally accepted/mandated action levels, site work should stop and all procedures reviewed and modified as necessary to reduce emissions. Additional monitoring should be performed immediately to confirm that an acceptable reduction in emissions has occurred.

7. The fugitive dust control plan and air monitoring plan should be reviewed and updated as necessary on at least an annual basis.

Cost Estimate – Dust Monitoring

On-site air sampling – base daily rate:	$1,200.00
Data review/report prep – per session:	$200.00
Lab prep/shipping – per session:	$75.00
Sample analysis/equipment – per location:	
Airborne particulates PM_{10}	$95.00
Respirable dust	$55.00
Respirable silica	$85.00

Estimated cost per year based on our recommendations (sampling at three locations per session):

Option 1 - Two sessions/year, two days/session:	$8,350.00
Option 2 - Three sessions/year, two days/session, dust only:	$12,455.00

These figures are only an estimate based on current laboratory fees, equipment rental rates and the recommended scope of services. An actual quote for monitoring services can be provided upon selection of the City's desired sampling plan.

Please feel free to contact our office if you have any questions regarding our findings or recommendations or desire additional information.

Sincerely,

Indoor Environment Group, Inc.

Dave Gutterud
Director of Operations

SBP ASSOCIATES, INC.

PO Box 16587
St. Louis Park, MN 55416
Phone: 952-920-1500

December 24, 2012

Ms. Sherri Buss
TKDA
444 Cedar Street, Suite 1500
St. Paul, MN 55101

Dear Ms. Buss:

RE: Proposed Zavoral CUP Conditions, Monitoring Protocol, and Costs

This memorandum provides proposed CUP conditions, and a proposed initial operating year noise monitoring protocol and costs for the Zavoral mine facility.

A. Mine Operations Noise

This noise includes the noise from the loading and excavating equipment, as well as noise from the haul trucks. The noise impacts from these sources must comply with standards contained in Minnesota Rule 7030.0040. Sensitive receptors include the residences near the site and the Scenic Riverway.

B. Proposed Monitoring Protocol

Each mine operations noise monitoring event will consist of the following:

AOP

1) A Noise specialist, contracted by the City, will identify one or two worst-case representative residential locations for each phase of mining and conduct at least one hour of monitoring at each location during operations in the morning and one hour of monitoring during operations in the afternoon at each location.

2) Additionally, at least one hour of monitoring will be conducted at a representative location in the scenic riverway during mine operations.

A monitoring event will be conducted within three weeks of the beginning of each mining phase, weather permitting. Monitoring will be conducted in accordance with Minnesota Rules.

The noise specialist will work through the City to notify residents of monitoring periods and to request access to properties as necessary to conduct the monitoring.

C. CUP Conditions

Following are proposed CUP conditions relating to noise for the Zavoral mine:

CUP

1. The applicant shall cooperate with the City and allow access to the site as necessary to conduct noise monitoring.

2. The applicant will provide funding for the proposed monitoring.

3. Should noise levels exceed State Standards for any of the testing, the applicant will identify and take corrective actions to bring the noise levels into compliance.

4. The applicant shall assure that on site loading and excavating equipment will be equipped with broad band back-up warning systems.

5. For the purpose of minimizing the use of back-up beeper warning signals, the applicant shall assure that on site haul routes minimize the need for haul trucks to back up on the site.

6. The applicant shall assure that on-site equipment is properly muffled and shall inspect mufflers on on-site equipment on a weekly basis and document the inspections.

7. The applicant will assure that the mining plan will minimize any time when the noise from the on site equipment and haul trucks are operating without noise mitigation from berms and/or the mine face.

D. Proposed Monitoring Costs

Following are estimated costs for the initial operating year.

Estimated Noise Monitoring Costs

Task	Labor	Cost ($115/hr.)	Notes
Project Management	8 hours	$920	
Mine Operations Monitoring and Report	25 hours	$2,875	1 person x 25 hrs/test event.
Other Direct Costs		$100	
Total Estimated Cost		**$3,895**	

Please contact me with any questions you may have regarding these conditions, monitoring plans, or estimated costs.

Sincerely,

Stephen B. Platisha, P.E.

WASHINGTON CONSERVATION DISTRICT
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MEMORANDUM

TO: Kristina Handt, City of Scandia

FROM: Jed Chesnut, Washington Conservation District

DATE: December 20, 2012

RE: **Recommendations for conditions of the proposed Zavoral Mine Conditional Use Permit**

This memorandum provides recommendations to the City of Scandia for conditions to be included in a conditional use permit (CUP) issued to Tiller Corporation for the operation of the Zavoral Mine and Reclamation Project (Zavoral Mine). The recommended conditions provided below are based on the potential mitigation measures as discussed and listed in the Zavoral Mine and Reclamation Project Final Environmental Impact Statement (FEIS) (deemed adequate by the City of Scandia on September 25, 2012).

1. The wetland boundaries of all wetlands within the project area (Wetlands A, B, C as shown in the CCES wetland delineation report dated January 14, 2011) shall be field reviewed annually by the WCD, City, and Technical Evaluation Panel to determine if mining activities have any impact on the wetlands, including the black ash seepage swamps. The timing of the field review shall occur within the growing season, as defined in the Northcentral and Northeast Regional Supplement to the U.S. Army Corps of Engineers Wetland Delineation Manual, and shall be coordinated with the Applicant and when active mining operations are in effect.
2. The Applicant shall keep records of when the Zavoral Site Well is pumped and provide these to the City for groundwater monitoring activities. These data shall be accessible by the WCD, as necessary.
3. The Applicant shall provide the wetland delineation boundary data in a Geographic Information System format (such as an ArcGIS shapefile) that was obtained as part of the wetland delineation conducted by Critical Connections Ecological Services (CCES) in October, 2010.
4. The project shall comply with the "Summary of Recommendations for Avoiding and Minimizing Impacts to Blanding's Turtle Populations" as found in Appendix C of the Zavoral Mine FEIS. Tiller Corporation shall provide the WCD with its Blanding's Turtle Standard Operating Procedures guidelines for WCD review and comment. Site visits will be conducted by WCD to verify compliance. Costs associated with maintaining compliance and performing site visits shall be at the expense of the Applicant.
5. The Applicant must, within 60 days of approval of this resolution, prepare an updated reclamation plan which includes performance standards, as listed below, for approval by the City. Reclamation shall proceed concurrently and proportional to mining operations. The reclamation plan shall minimize the amount of the exposed, mined portion of the site. Progress on concurrent reclamation shall be demonstrated in the AOP application, in addition to the reporting requirement listed below.
6. The Applicant shall successfully establish permanent, native vegetation in reclaimed areas as per the schedule, extents, and methods as provided in the Zavoral Reclamation Plan and subsequent Zavoral Reclamation Plan Topsoil and Prairie Establishment Memorandum (October 3, 2011) by CCES. Reclamation success is defined as follows:

a. 90% areal coverage of vegetation for each reclaimed area, within 3 years post seed installation;
b. 80% of species must be native and non-invasive at the end of the 5th growing season, post seed installation of each reclaimed area;
c. The reclaimed areas shall contain at least 50% of the species for both grasses and forbs contained in the specified seed mixes the end of the 5th growing season, post seed installation;
d. Aggressive native species and invasive non-native species, as listed in the Zavoral Reclamation Plan by CCES shall account for no more than 20% cover of the reclaimed areas at the end of the 5th growing season, post seed installation.

7. Vegetation establishment and monitoring shall continue for a period of 5 years after completion of the Zavoral Mine project, in its entirety.
8. Annual reclamation monitoring reports shall be submitted to the City by the Applicant, on or before November 1st, that describes the reclamation activities that occurred in the specified year and the status of all reclaimed areas. Detailed information such as percent coverage of vegetation, species composition, etc., pertaining to compliance with the performance standards as provided above shall be included. Corrective action plans shall be included in the reclamation monitoring report if the reclaimed areas do not meet the performance standards.
9. In addition to the annual monitoring reports, the Applicant shall submit to the City monthly reclamation activity progress reports during the growing season for the first two years post seed installation for each reclamation area.
10. The site shall be inspected by the WCD on an as-needed basis, as requested by the City, to ensure compliance with the CUP as it relates to reclamation activities and implementation of the Zavoral Reclamation Plan (by CCES). The costs to review the reclamation plan and conduct site visits shall be at the expense of the Applicant.
11. Upon the determination by the City that a reclaimed area has not met the vegetative performance standards listed above, the City shall order corrective action(s) including, but not limited to, reseeding, overseeding, spot seeding, etc. to ensure reclamation success. The specific corrective actions may be dependent on site conditions and will be determined through consultation with the WCD, the Applicant, and other experts as necessary.
12. The transplantation of trees shall be monitored to ensure a survival rate of at least 80% is met for all transplanted trees. The Applicant must provide the City with the quantity, location, species, and proposed maintenance plan for all trees transplanted as part of the reclamation. Survival rates of less than 80% will require replacement of the dead trees by the Applicant. Replacement tree species will be selected in consultation with and approved by the City and WCD to ensure the overall intent of the project is met.
13. The water monitoring station that was installed on Zavoral Creek for the pump test shall continue to be operated by the WCD during the lifetime of the project and will be used to track surface water quality and quantity. In addition, a monitoring station will be installed on Zavoral Creek near Crystal Springs in order to isolate potential effects due to mining from other effects due to unrelated activities in the watershed. The data will be analyzed to determine the effect, if any, to the surface water due to the Zavoral Mine operation and notification shall be made to the City of Scandia if a negative impact is identified. Data collection & analysis, additional monitoring equipment, installation, and all other monitoring related costs shall be funded by the Applicant.

Additional Conditions to be considered based on the WCD's review of the Zavoral EAW/EIS, but are not specifically listed as possible mitigation measures in the FEIS:

1. The City, as Local Government Unit for the Wetland Conservation Act, receives, reviews, and approves an application to fill the isolated basins that exist within the previously mined areas. The application could be for a "no loss" decision which provides official documentation that mining within the previously mined area does not impact wetlands.
2. The seepage wetlands are monitored for inputs of fine sediment-laden groundwater that may arise from increased infiltration within the mine pit. Data collection & analysis, additional monitoring equipment, installation, and all other monitoring related costs shall be funded by the Applicant.