



444 Cedar Street, Suite 1500  
Saint Paul, MN 55101  
651.292.4400  
tkda.com

## Memorandum

**To:** Kristina Handt, City Administrator, Scandia      **Reference:** Zavoral Mine CUP

**Copies To:** Mike Caron, Tiller Corporation      \_\_\_\_\_  
Tom Miller, City Attorney      \_\_\_\_\_

**From:** Sherri Buss, City Planner      **Project No.:** 14305.001

**Date:** November 20, 2012      **Routing:** \_\_\_\_\_

The City requested that several technical experts provide detailed monitoring protocols that may be utilized if the Zavoral Mine and Reclamation Project CUP is approved. The proposed monitoring implements the recommended monitoring activities and mitigation proposed in the EIS, and will help the City to monitor project activity to determine if the project impacts are within the levels projected in the EIS analysis.

The City would contract with each of the technical experts to complete the monitoring activities and report the results of monitoring to the City. The proposed conditions for the mine operation also include some monitoring and reporting by Tiller Corporation, but the City believes that most of the monitoring needs to be completed by contractors reporting directly to the City.

The subcontractor proposals, including proposed monitoring activities and cost estimates for the first year of monitoring, are attached. The total proposed cost for monitoring (including equipment and staff costs) includes the following:

Groundwater resources and impacts (LBG)	\$ 41,331.
Surface waters, wetlands, rare species and Reclamation (WCD)	42,639.
Air quality (Indoor Environment Group)	6,595.
Noise (SBP Associates)	3,895.
Traffic (Ficek, TKDA)	2,555.
City Planner (site visits, coordination of subconsultants and report compilation for annual AOP-16 hrs.)	<u>1888.</u>
<b>TOTAL</b>	<b>\$ 98,903.</b>

# LEGGETTE, BRASHEARS & GRAHAM, INC.

## PROFESSIONAL GROUND-WATER AND ENVIRONMENTAL ENGINEERING SERVICES

8 PINE TREE DRIVE  
SUITE 250  
ST. PAUL, MN 55112  
(651) 490-1405  
FAX (651) 490-1006  
[www.lbgweb.com](http://www.lbgweb.com)

January 14, 2013

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

Re: Scope for Work and Cost Estimate - Revised  
Groundwater Monitoring, Evaluation and Reporting  
Zavoral Site Aggregate Mining Operations  
City of Scandia, Minnesota

Dear Ms. Buss:

Provided below is Leggette, Brashears & Graham, Inc.'s (LBG) proposed scope of work and cost estimate for groundwater monitoring and reporting associated with Tiller Corporation's (Tiller) proposed aggregate mine at the Zavoral site (Site) in the City of Scandia (City), Minnesota. This proposal replaces our original scope and cost estimate that proposed on November 15, 2012. The revisions are based on the updated conditions of the Conditional Use Permit (CUP) and Annual Operating Permit (AOP) applications.

LBG understands our scope is to assist TKDA and the City by providing one year of groundwater monitoring services based on the proposed monitoring plan protocol in Tiller's Groundwater Quality Protection Plan (GWPP) and the conditions of the permit applications.

The tasks to be completed for the one-year monitoring program are as follows:

- Task 1: Project Communication
- Task 2: Install Dedicated Monitoring Equipment
- Task 3: Conduct Monthly Site Visits
- Task 4: Evaluate Data and Report Results
- Task 5: Attend Meetings

### **Task 1: Project Communication**

This task includes services for LBG project communication with LBG staff, TKDA, Washington County Conservation District (WCD), the City, and Tiller representatives.

### **Task 2: Install Monitoring Equipment**

This task includes LBG costs for purchasing, installing, and programming the dedicated data loggers that will be installed in four (4) wells that will be used for monitoring groundwater. These include one (1) on Site monitoring well, two (2) on site piezometers and one (1) private well (Trails End Well). Costs include:

- Installing and programming In Situ, Inc. data logging equipment;
- Installing one (1) Aqua TROLL 200 data logger in the on Site monitoring well for measuring the water levels, temperature, and electrical conductivity; and,
- Installing three (3) Level TROLLs for measuring water levels and temperature in the on Site piezometers and Trails End Well.

### **Task 3: Conduct Monthly Site Visits**

This task includes LBG labor, expenses, and equipment for downloading data from the loggers and collecting manual measurements in two piezometers, on-Site monitoring well and the Trails End Well. Assumptions include:

- Monthly site visits for one year of monitoring;
- Downloading water level, electrical conductivity, and temperature data from the on-Site monitoring well, two piezometers, and Trails End Well data loggers; and,
- Manually measure water level, dissolved oxygen, electrical conductivity, and temperature data from each of the wells above.

### **Task 4: Evaluate Data and Report Results**

LBG will analyze and evaluate the data collected from the field on a monthly schedule. Data plots and water table contour maps will be reported to monthly TKDA, the City, WCD, and Tiller. LBG will work closely with the WCD to assist in evaluating the groundwater conditions in the vicinity of the WCD's surface water monitoring stations.

### **Task 5: Prepare for and Attend Meetings**

This includes LBG costs to prepare for and attend four City Council meetings.

### **Cost Estimate**

The estimated cost to complete the above scope is summarized in the attached table.

Thank you for the opportunity to assist TKDA and the City on this project. If you have any questions, please contact me at (615) 558-9207

Sincerely,

LEGGETTE, BRASHEARS & GRAHAM, INC



David S. Hume, P.G.  
Senior Associate

DSH

Attachment

S:\Tech\Scandia Aggregate\Zavoral\1 yr monitoring cost (revised 1-11-13).doc

**COST SUMMARY**

**Proposal for Groundwater Monitoring Services  
One-Year Monitoring Period  
Zavoral Aggregate Mining and Reclamation Project  
City of Scandia, Minnesota**

<b>Task</b>	<b>Project Total</b>
Task 1	\$2,142
Task 2 *	\$10,525
Task 3	\$9,958
Task 4	\$13,709
Task 5	\$4,998
<b>GRAND TOTAL</b>	<b>\$41,331</b>

\* Includes \$ 8,500 for purchase of four (4) data loggers.

**CONTRACT BETWEEN WASHINGTON CONSERVATION DISTRICT AND CITY OF  
SCANDIA FOR TECHNICAL ASSISTANCE**

**2012-2013 General Technical Services Program**

**A. PARTIES**

This Agreement is made and entered into by Washington Conservation District, (WCD), and City of Scandia (City).

**B. PURPOSE**

WHEREAS, the City has requested assistance from the WCD to implement the policies specified in MINN. STAT. § 103A.206; and

WHEREAS, the WCD is authorized to enter agreements to provide such assistance pursuant to MINN. STAT. § 103C.331, SUBD. 3 and 7.

NOW, THEREFORE, the parties agree as follows:

**C. TERM OF CONTRACT**

The term of this agreement shall be from **October 22, 2012 to December 31, 2013** unless terminated earlier as provided herein.

**D. SCOPE OF SERVICES**

The WCD will perform all services and furnish and deliver work products generally described in Exhibits A and B, attached and made part of this agreement, when directed by a City representative.

**E. COST**

In full consideration for services under this agreement, the WCD shall charge the City a fee for its staff services and actual costs for project expenses in accordance with Exhibit A and Exhibit B.

Costs for services for activities detailed in the attached Exhibits include:

Exhibit A: WCA LGU Support - \$2,835

Exhibit B: Zavoral Mine Monitoring, Inspection, and Review Services - \$42,639

**Total Agreement: \$45,474**

Any additional costs for special studies or capital projects must be set forth in a written amendment to this Agreement.

**F. BILLING PAYMENTS**

WCD will bill the City for staff services and actual direct project expenses. For fiscal years **2012-13**, the services provided by the WCD hereunder shall be billed at a maximum rate of \$74 per hour. Invoices will be sent monthly and are payable by the City net 60 days.

**G. EQUAL EMPLOYMENT OPPORTUNITY- CIVIL RIGHTS**

During the performance of this Agreement, the WCD agrees to the following:

No person shall, on the grounds of race, color, religion, age, sex, disability, marital status, public assistance, criminal record, creed or national origin, be excluded from full employment rights in, be denied the benefits of, or be otherwise subjected to discrimination under any program, service, or activity under the provisions of all applicable federal and state laws against discrimination including the Civil Rights Act of 1964.

If during the term of this Agreement, it is discovered the WCD is not in compliance with the applicable regulations as aforesaid, or if the WCD engages in any discriminatory practices, then the City through the office, may cancel said Agreement as provided by the cancellation clause of this Agreement.

**H. STANDARDS**

The WCD shall comply with all applicable Federal and State statutes and regulations as well as local ordinances now in effect or hereafter adopted.

Failure to meet the requirements of the above may be cause for cancellation of this contract effective the date of receipt of the Notice of Cancellation.

**I. DATA PRIVACY**

All data collected, created, received, maintained, or disseminated, or used for any purpose in the course of the WCD's performance of the Agreement is governed by the Minnesota Government Data Practices Act, Minnesota 1984, Section 13.01, et seq., or any other applicable state statutes and state rules adopted to implement the Act, as well as state statutes and federal regulations on data privacy. The WCD agrees to abide by these statutes, rules and regulations and as they may be amended.

**J. AUDITS, REPORTS, AND MONITORING PROCEDURES**

The WCD will:

1. Maintain records that reflect all revenues, cost incurred and services provided in the performance of the Agreement.
2. Agree that the City, County, the State Auditor, or legislative authority, or any of their duly authorized representatives at any time during normal business hours, and as often as they may deem reasonably necessary, shall have access to the rights to examine audit, excerpt, and transcribe any books, documents, papers, records, etc., and accounting procedures and practices of the WCD which are relevant to the contract.

**K. INDEMNITY**

The WCD and the City mutually agree, to the fullest extent permitted by law, to indemnify and hold each other harmless for any and all damages, liability or cost (including reasonable attorneys' fees and costs of defense) arising from their own negligent acts, errors or omissions in the performance of their services under this agreement, to the extent each party is responsible for such damages and losses on a comparative basis of fault. Parties agree to provide proof of contractual liability insurance upon request.

**L. INDEPENDENT CONTRACTOR**

It is agreed that nothing herein contained is intended or should be construed in any manner as creating or establishing the relationship of co-partners between the parties hereto or as constituting the WCD as the agent, representative, or employee of the City for any purpose or in

any manner whatsoever. The WCD is to be and shall remain an independent contractor with respect to all services performed under this Agreement.

The WCD represents that it has, or will secure at its own expense, all personnel required in performing services under this Agreement. Any and all personnel of the WCD or other person, while engaged in the performance of any work or services required by the WCD under this Agreement, shall have no contractual relationship with the City and shall not be considered employees of the City.

**M. MODIFICATIONS**

Any material alteration or variation shall be reduced to writing as an amendment and signed by the parties. Any alterations, modification, or variations deemed not to be material by agreement of the WCD and the City shall not require written approval.

**N. MERGER**

It is understood and agreed that the entire agreement of the parties is contained here and that this contract supersedes oral agreements and negotiations between the parties relating to this subject matter. All items referred to in this contract are incorporated or attached and deemed to be part of the contract.

**O. TERMINATION**

Either the WCD or the City may terminate this Agreement with or without cause by giving the other party thirty (30) days written notice prior to the effective date of such termination. If the City terminates this Agreement without cause, it shall pay to the WCD for services performed up to the date of termination.

**EXHIBIT B**  
**2012 (partial) -2013 SCOPE OF SERVICES FOR THE CITY OF SCANDIA**  
**TECHNICAL SERVICES AGREEMENT**  
**BETWEEN THE WASHINGTON CONSERVATION DISTRICT (WCD) AND**  
**CITY OF SCANDIA (City)**

At the request of the City the WCD shall furnish the following services under the terms of the AGREEMENT. All tasks related to the proposed Zavoral Mine Conditional Use Permit (CUP) assume the project will operate under its "Preferred Alternative" as described in the project Final Environmental Impact Statement (FEIS). Any significant deviation from the proposed project schedules or work plans may require modifications to this Scope of Services and an amended written agreement between the City of Scandia and the WCD. Additional meetings or tasks that are not specifically included in the tasks below requested by the City, including agents acting on behalf of the City (e.g. engineer or planning consultant), will be billed on an hourly basis at the billing rates per the attached rate table.

Site visits for performing monitoring/data collection tasks have been combined, when feasible, for Technical Services 1-4 to provide a cost savings to the City. A cost for each performing each service independently can be provided in the event that not all services are selected under contract.

**Technical Service 1: Surface Water Monitoring**

**TASK 1. Stream Monitoring Equipment Installation and Data Collection**

The water monitoring methods described in this task are procedures that are necessary to determine potential changes to Zavoral's Creek caused by mining activities in the watershed. Monitoring at an upstream and downstream location in relation to the mine allows us to determine changes in the following: discharge, velocity, stage, turbidity, suspended solids, dissolved oxygen, temperature, conductivity, and pH. Originally, a more simple methodology was planned to include one monitoring location on Middle Creek (stage and discharge only) and only one on Zavoral's Creek (discharge, stage, and automated sampling). That plan was replaced in favor of having a more intensive monitoring plan where there are two locations on Zavoral's Creek and no monitoring on Middle Creek. The revised monitoring is detailed below.

The WCD will install stream monitoring equipment at two locations on Zavoral's Creek: one near the mouth and one at Crystal Springs. Monitoring will occur March-October. The station near the mouth is an existing monitoring station and will track continuous 15-minute stage, discharge, velocity, turbidity, dissolved oxygen (DO), temperature, and conductivity data. An automated sampler will be used to collect stormwater composite samples and grab samples will be collected during baseflow conditions, with a goal of collecting 15 total samples. Samples will be analyzed for total and volatile suspended solids in order to form a correlation between turbidity and suspended solids, so suspended solids results from previous years can be compared to 2013 data. A new monitoring station will be installed at Crystal Springs, and continuous 15-minute stage, discharge, velocity, turbidity, DO, temperature, and conductivity data will be collected. Grab samples will be collected at the same time as when grab samples are collected at the mouth site, and will be analyzed for total and volatile suspended solids. In-stream discharge measurements will be taken at both sites to develop stage-discharge rating curves. Transparency, DO, temperature, conductivity, and pH will be collected in the field at both sites. The Crystal Springs site will be monitored only if access to the location is granted by the private land owner and is physically feasible; otherwise an alternative optimal location further downstream from Crystal Springs will need to be determined based on accessibility.

This task includes the acquisition of the required equipment, including two YSI 6000 series sondes (continuous turbidity, DO, temperature, and conductivity) and one area-velocity meter.

- Data collection & set up: 90 hrs @ 63/hr = \$5,670
  - New equipment cost estimate = \$23,600
  - Water quality sample analysis = \$500
- Total \$29,770**

**TASK 2. Water Quality/Quantity Data Analysis & Management**

The WCD will perform any necessary procedures to ensure proper data management, including data editing, quality control, storage, and backup. Data will be analyzed and compared to activities within the proposed Zavoral Mine to document any adverse hydrologic effects to the streams.

- Estimate: 85 hrs @ \$63/hr = \$5,355

**TASK 3. Stream Monitoring Summary Report**

The WCD will prepare and submit to the City of Scandia a summary report of the findings of the stream water quality and quantity monitoring. The report will also include summaries and recommendations, if any adverse effects are found that could potentially be caused by mining activities at the proposed Zavoral Mine.

- Estimate: 30 hrs @ \$63/hr = \$1,890

**Technical Service 1: Surface Water Monitoring Summary**  
**Estimated Total: \$37,015**

## **Technical Service 2: Wetland Boundary Monitoring**

### **TASK 1. On-site review of wetland boundaries**

The WCD will coordinate with the Technical Evaluation Panel (TEP), Applicant, and City to conduct an annual field review of the wetland boundaries delineated within the Zavoral Mine project boundary (Wetlands A, B, C as shown in the CCES wetland delineation report dated January 14, 2011). The WCD will prepare and disseminate TEP Findings of Fact summarizing the results and observations of the field review.

The WCD will also review hydrologic monitoring data collected by other City partners and review for changes to the wetland boundaries. A summary technical memorandum will be prepared and submitted to the City with WCD's findings and conclusions.

- Estimate: 12hrs @ \$63/hr = **\$756**

## **Technical Service 2: Wetland Boundary Monitoring**

**Estimated Total: \$756**

### **Technical Service 3: Erosion and Sediment Control Inspections**

#### **TASK 1. Site Inspection**

The WCD will provide site inspections of the proposed Zavoral Mine during times of operation to ensure that erosion/sediment control, stormwater management, and other related requirements are met, as per the project Stormwater Pollution and Prevention Plan (SWPPP) and conditions, if any, of the Conditional Use Permit. Two inspections shall occur on each haul event. The first inspection will be conducted within the first month of initiating mining activities and the final inspection within two weeks of the completion of the activities. Additional inspections shall be at the request of the City and will be billed on an hourly basis. The inspections will verify that stormwater management facilities and erosion/sediment control practices are functioning, are in compliance, and are installed as per the project SWPPP. Any and all violations will be reported to the City for enforcement action, in writing or via email, within 24 hours of observing the site being out of compliance. A summary memo will be submitted to the City on a weekly basis after each inspection

- Estimated 2 site inspections: 2.5 hrs per inspection @ \$74/hr = \$370
  - Prepare and submit 2 summary emails: 2 total hours @ \$74/hr = \$148
- Total \$518**

#### **TASK 2. Annual Inspection Summary Report**

The WCD will prepare and submit to the City of Scandia a summary report of the results of the erosion and sediment control inspections. The report will also document any deviations the project may have from its SWPPP or CUP in regards to Erosion and Sediment Control. The report will be prepared upon termination of mining activities in 2013.

- Estimate: 6hrs @ \$74/hr = **\$444**

### **Technical Service 3: Erosion and Sediment Control Inspections Summary**

**Estimated Total: \$962**

## Technical Service 4: Threatened and Endangered Species (T&E)

### TASK 1. Review Blanding's Turtle Documentation and Conduct Site Reviews

The WCD will review Tiller Corporation's Standard Operating Procedures (SOP) for operations near Blanding's Turtles. The WCD will provide comments and recommendations, if appropriate, to the City to ensure the SOP meets the requirements of the Blanding's turtle documentation, as found in Appendix C of the Zavoral Mine FEIS. Site reviews will be conducted, in conjunction with other Technical Services, to verify compliance with the Blanding's turtle mitigation measures as listed in Appendix C of the Zavoral Mine FEIS.

- Estimated 2 site inspections: 1 hr per inspection @ \$63/hr = \$126
- Review of Tiller Corp's Blanding's Turtle SOP: 4 hrs @\$63/hr = \$252

**Total \$378**

### TASK 2. Annual Inspection of Site and Monitor T&E Listing Status of Butternut Tree

The WCD will perform one annual inspection of the Zavoral Mine site. The site inspection will verify the presence of the one disease-free butternut tree within the property. WCD will monitor the potential listing of the butternut on the State's Threatened and Endangered species list and will notify the City if the tree becomes protected thereby requiring Tiller to implement additional mitigation measures and obtaining a taking permit from the DNR. A summary memo will be submitted to the City summarizing WCD's findings.

- Estimate: 6 hrs @ \$63/hr = **\$378**

## Technical Service 4: Threatened and Endangered Species Summary

**Estimated Total: \$756**

## **Technical Service 5: Reclamation Plan Review and Inspection**

### **TASK 1. Review Zavoral Reclamation Plan**

The WCD will review the Zavoral Property Reclamation Plan to ensure it meets the requirements of the conditions of an approved conditional use permit and is consistent with the potential mitigation measures as provided in the Zavoral Mine FEIS.

- Estimate: 8 hours @ \$63/hr = **\$504**

### **TASK 2. Conduct Site Inspections to Verify Implementation of the Restoration Plan**

The WCD will perform inspection of the Zavoral Mine site on an as needed basis during implementation of the restoration plan. Since this task will depend on the phasing of the project, timing of the reclamation activities, and schedules of the various mining activities, the cost estimate may be subject to significant changes. This task includes coordinating with the City and Tiller to obtain restoration activity timelines.

- Estimated 4 site inspections: 2 hrs per inspection @ \$63/hr = **\$504**

## **Technical Service 5: Reclamation Plan Review and Inspection Summary**

**Estimated Total: \$1,008.00**

## **Technical Service 6: Permit Conditions and Monitoring Protocols**

### **TASK 1. Provide Condition Recommendations**

The WCD will review the Zavoral Mine FEIS and provide recommendations for conditions to be included in the CUP based on the potential mitigation measures listed in the FEIS. These recommendations will be provided in a memorandum to the City of Scandia. These recommendations will be submitted on or before November 15, 2012.

- Estimate: 10 hours @ \$63/hr = **\$630**

### **TASK 2. Develop and Provide Monitoring Protocols**

The WCD will develop and provide monitoring protocols for Technical Services 1 and 2, which involve environmental monitoring. These protocols will be provided in technical memorandum format to the City of Scandia. These protocols will be submitted on or before November 15, 2012.

- Estimate: 8 hours @ \$63/hr = **\$504**

## **Technical Service 6: Permit Conditions and Monitoring Protocols Summary**

**Estimated Total: \$1,134**

## **Technical Service 7: Conditional Use Permit Review**

### **TASK 1. Review Conditional Use Permit and Provide Technical Assistance**

The WCD will review the Zavoral Mine Conditional Use Permit (CUP) and provide technical assistance during the City's review process as it relates to the CUP and the Technical Services as listed in this proposal (1-7). This task includes attending the December 4<sup>th</sup> Planning Commission Meeting and one City Council meeting with the CUP application on the agenda. This task also includes attending one meeting with City Staff.

- Estimate: 16 hours @ \$63/hr = **\$1,008**

### **Technical Service 7: Conditional Use Permit Review Summary**

**Estimated Total: \$1,008**



January 11, 2013

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

Subject: Zavoral Mine dust monitoring estimate

Dear Ms. Buss:

**Indoor Environment Group, Inc. (IEG)** recently completed a review of the Final Environmental Impact Statement (EIS) and the for the Zavoral Mine in Scandia, Minnesota. We have also reviewed the latest versions of the CUP and AOP as well as the staff report submitted to us on January 10, 2012.

Based on the testing requirements recommended to the city, we have prepared the following cost estimate for air quality testing services:

1. Perform periodic air monitoring to gauge the effectiveness of the dust control activities. Monitoring should be based on the following guidelines
  - a. Monitoring would be performed one time.
  - b. Monitoring should be scheduled in conjunction with days of maximum site activity and worst-case environmental conditions (when feasible).
  - c. Monitoring would be performed on two consecutive days with the 2<sup>nd</sup> day of sampling performed to record the ambient conditions on a day with no site activity.
  - d. Monitoring stations would be established at five locations:
    - i. Upwind of mining and loading operations
    - ii. Downwind of mining and loading operations
    - iii. At the site entrance
    - iv. Downwind of site entrance
    - v. Downwind of one location on the haul route
  - e. Monitoring plan would include the collection of the following samples at each sampling location:
    - i. Airborne particulate matter PM<sub>10</sub> - Fibrous Aerosol Monitor fitted with a PM 10 impactor



## 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:

- 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:

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	
<b>Total Estimated Cost</b>		<b>\$3,895</b>	

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

Sincerely,

Stephen B. Platisha, P.E.



444 Cedar Street, Suite 1500  
Saint Paul, MN 55101  
651.292.4400  
tkda.com

## Memorandum

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

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 staff person or consultant to maintain a record of any incidents and a review of truck numbers at each site against each other and the EIS information and complete reports for the City Council and AOP review. Estimate up to 4 hours @ \$120/hour, \$480 total.

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.

### Cost Estimate

Item #1 Traffic Count	\$ 1,575.
Items #2 and 3 Reporting	480.
Item #4	<u>500.</u>
TOTAL	\$ 2,555.

If you have any questions or comments regarding this information, please contact me at 651.726.7944 or [bryant.ficek@tkda.com](mailto:bryant.ficek@tkda.com).

