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Memorandum

To: Scandia City Council

Reference: Tiller Corporation—2015 Annual Operating Permit Application for the Zavoral Mine

Copies To: Kristina Handt, City Administrator
Mike Caron, Tiller Corporation
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Project No.: 15744.002

From: Sherri Buss, RLA AICP, Planner

Routing:

Date: February 11, 2014

SUBJECT: Tiller Corporation, Inc. - Annual Operating Permit (AOP) Application for a Mining and Processing Operation

MEETING DATE: February 17, 2015

LOCATION: East of the Intersection of State TH 97 and State TH 95

APPLICANT: Tiller Corporation
P.O. Box 1480
Maple Grove, Minnesota 55311

60-DAY PERIOD: March 26, 2015

ZONING: Aggregate Mining Overlay District

ITEMS REVIEWED: Application, Plans and Related Submittals; monitoring reports and recommendations from City's subconsultants; comments from agencies

BRIEF DESCRIPTION OF THE REQUEST:

The City of Scandia approved a Conditional Use Permit (CUP) for the Zavoral Mine and Reclamation Project on February 19, 2013. The City's Mining Ordinance requires Tiller to obtain an Annual Operating Permit for the mine in addition to the CUP. Tiller Corporation

submitted its application for the 2015 AOP on January 23, 2015. The 114-acre site (Site) is located along St. Croix Trail North (State Trunk Highway [TH] 95), a State Scenic Byway, east of its intersection with Scandia Trail North (State TH 97). The plans approved with the CUP permit mining and reclamation to occur on 64 acres of the Site (the "Project"). No processing or concrete and asphalt recycling activities are proposed as part of the project.

The City's Mining Ordinance specifies an AOP cycle that coincides with the active mining season. Applications are due by January 31 each year, so that permits can be approved before the start of the mining season in that year.

The conditions approved with the CUP and the 2014 AOP apply to the project and its operation.

EVALUATION OF THE AOP REQUEST

The Applicant is requesting an Annual Operating Permit (AOP) for a mining operation. The permit requirements are governed by the City's Ordinance No. 103, Regulation of Mining and Related Activities, which is Chapter 4 of the Development Code. The Ordinance requires review of the following items for the AOP:

1. The operating conditions of the previous year and conditions required by the CUP and AOP.
2. Proposed operating conditions and any variation from the previous year.
3. Results of the annual inspection by the City.

The applicant submitted the following materials with the AOP application:

- Application Form including Annual Report for activities in 2014, proposed activities in 2015, and reclamation report
- Groundwater sampling results
- Well Water Use data
- Annual Reclamation Report for 2014
- Site Plan—2015 Activity

The CUP conditions require that the City complete a variety of monitoring activities and reports that will be used to evaluate the AOP application and develop any conditions for operations in 2014. The monitoring reports that City staff used to evaluate operations at the site include the following:

- Zavoral Mine and Reclamation Project—Annual Surface Water Monitoring Report and Staff Memorandum, Washington Conservation District (WCD), January 15 and February 5, 2015
- Zavoral Mine and Reclamation Project—Annual Wetland Boundary Monitoring Report, WCD, January 15, 2015
- Zavoral Mine and Reclamation Project—Annual Erosion and Sediment Control Inspection Report, January 15, 2015
- 2015 Groundwater Monitoring Summary—Zavoral Aggregate Mining and Reclamation Project, Leggette, Brashears & Graham, Inc (LBG), January 16, 2015
- Zavoral Mine Traffic Monitoring Memo, Bolton & Menk, Inc., January, 2015
- Dust Emissions Monitoring—Zavoral Mine, Indoor Environment Group, Inc., January 14, 2015
- Zavoral Mine Noise Monitoring Results, SBP Associates, Inc., January 15, 2015.



CUP AND AOP REQUIREMENTS: SUMMARY TABLE

The City of Scandia approved a Conditional Use Permit and an Annual Operating Permit for the mining operation and reclamation activities on the Zavoral Site on February 19, 2013. The conditions included the items noted on the table below. Tiller’s performance is also indicated on the table and in the text sections that follow:

In the status column, a + indicates that the operator is meeting the requirement, and a – indicates that the requirement has not been met during the 2014 operating year. The symbol * indicates partial completion. Further discussion on the conditions and performance in 2014 is discussed in the text sections that follow the table. The CUP conditions are identified by number in standard text; the AOP conditions are identified by number in **Bold** text in the first column on the table below.

CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
1/1&2. Comply with Project approved by City February 19, 2013	Ongoing	+	In process--monitored by City staff and consultants. Activities during 2014 were generally consistent with those proposed in the approved AOP.
2. Comply with Rules and Regulations	Ongoing	+	In process--monitored by City staff and consultants. No violations of federal, state or city regulations identified in 2014.
3. Maximum mining depth 840 amsl and 25 separation between mining and groundwater	Ongoing	+	Tiller established a benchmark to monitor the elevation of the mine floor in 2013. City monitoring of groundwater levels by LBG identified the maximum mining depth provided by Tiller in 2014 between 850 and 855 amsl, That depth is 10-15 feet above the permitted depth and maintains the required separation from the water table.
4. No frac sand minning	Ongoing	+	Depth of mining information and bedrock depth information confirmed that no frac sand mining occurred in 2014.
5. No dewatering	Ongoing	+	No dewatering occurred on the site in 2014, and is not included in the mining plan or activity proposed for 2015.
6. & 7. Daily pumping from	Annual	+	Production well records are being kept by Tiller Corp. and are



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
well shall not exceed 10,000 gallons; annual pumping shall not exceed 1 million gallons; pumping records.			available to the City. Water use at the site in 2013 was 8.500 gallons for dust control. The DNR Water Appropriation Permit for the site allows up to 1 million gallons to be pumped each year. Pumping records were provided to the WCD, Washington County Health Dept., and Minnesota DNR as required.
8. Revise groundwater plan	2013	+	The revised Groundwater Quality Protection Plan (GWQPP) was submitted to the City in April, 2013.
9. Groundwater observation wells	Ongoing	+	Monitoring wells were installed at the site in 2013 and meet the CUP requirement.
10 /6. Groundwater data and annual report	Ongoing	+	Groundwater samples were analyzed and no changes in conditions were noted. Data are included in the 2015 AOP Application. Slow rise and fall in groundwater levels during 2014 were consistent with seasonal variations.
11. Review GWQPP	Annual	+	Tiller submitted the revised GWQPP in April, 2013. The plan meets the CUP requirement.
12. Diesel Range Organics (DRO) sampling	Annual	+	Baseline groundwater samples were collected before the start of mining and before a diesel fuel tank was installed at the site. Sampling results for 2014 show no DRO was detected.
13. Fuel storage requirements	Ongoing	+	Tiller installed a portable 500-gallon double-walled diesel fuel tank on the site in October, 2013. Fuel storage meets Federal, State and City requirements.
14. Equipment fueling	Ongoing	+	Tiller installed a hard-surfaced fueling pad in 2013 and equipment is fueled over the pad.
15. Spill cleanup equipment on site	Ongoing	+	A spill kit is stored on-site when the site is active or there is equipment on the site.
16 Stormwater permit	Prior to operations	+	Applicant obtained required NPDES General Permit (MNG490000) and CMSCWD Stormwater and Erosion



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
			and Sediment permits prior to the start of operations. Permits are on file at City.
17. Stormwater Best Management Practices	Ongoing	+	Stormwater BMP's were installed at the site as required by permits. Inspections completed by CMSCWD twice per month and WCD as required by CUP. No significant issues identified.
18. Air Emissions Permit	Prior to operations	+	MPCA Permit obtained prior to beginning mining operations (Permit no. 05301018-001).
19. Endangered Species Take Permit	Prior to operations	+	Status of Butternut tree changed to endangered in August, 2013. WCD verified the presence of the Butternut tree in 2014.
20. Blanding's Turtles protection	Ongoing	+	Blanding's Turtles Plan submitted and WCD verified compliance. No Blanding's Turtles identified at the site in 2014.
21. Raptor nests inspection	Ongoing	+	Raptor survey conducted prior to tree clearing in 2013. No additional clearing in 2014. No active nests identified.
22. Berm on south end of site	Prior to operations	-	Berm is required before Phase 2 mining begins. Phase 2 mining started in 2014: Tiller has proposed alternative to berm.
23. Minimize unnecessary equipment; reduce soil tracking	Ongoing	+	City site visit verified that unnecessary equipment is not stored at the site, and that BMP's including sweeping, watering and paved entrance are being implemented to reduce soil tracking.
24. Monitor equipment for leaks	Ongoing	+	Tiller reported that it monitored equipment for leaks and prohibits "topping off" of tanks. No evidence of leaks observed in site visit.
25 & 26. Location of above-ground storage tanks	Ongoing	+	A portable 500-gallon double-walled diesel fuel tank is located on-site as a fuel source for equipment. Location meets CUP requirement. Tiller submitted AST form to MPCA within 30 days of tank installation.



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
27. Water quality monitoring and reports	Annual	+	WCD completed water quality monitoring and submitted annual report. No mining impacts identified to surface waters.
28/8. Monitoring point in Zavoral Creek	Ongoing	+	Monitoring station installed at Zavoral Creek and WCD completed baseline monitoring in 2014. No negative impacts related to mining identified.
29/7&8. Monitoring station near Crystal Springs-installation and reporting	Annual	+	Monitoring station installed at Crystal Springs, and WCD completed baseline monitoring in 2014. No negative impacts related to mining identified.
30/9&10. Wetland boundaries	Annual	+	Applicant provided wetland delineation boundary as required. No on-site review during 2014 because mining commenced after the growing season ended. WCD proposes monitoring during growing season for 2015. Groundwater data suggest that mining had no detrimental effect on the seepage wetlands
31. Mn/DOT Access Permit	Prior to driveway construction	+	The applicant obtained the required permit (TP 1721) prior to driveway construction completed in 2013. A copy is on file at the City.
32 & 33. Construct new driveway access and right-turn lane	Prior to operations	+	New driveway access and right-turn lane constructed by November, 2013.
34/26-28. Traffic monitoring	Annual	+	The City completed traffic monitoring as required. Bolton & Menk report includes results and recommendations, discussed below.
35. Truck-hauling records between Zavoral and Scandia mine sites	Annual	+	Approximately 3,620 truckloads (83,500 tons) of Class C add-rock were hauled to the Scandia Mine from the Zavoral Mine after operations began in the 4 th quarter of 2013. Tiller indicated that this is the only Class C add-rock hauled to the Scandia site in 2014.
36. Traffic	Ongoing	*	Traffic monitoring data indicate that



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maximum levels			the average truck traffic was 383 trips per working day, with a peak of 601 trips per day. The average daily numbers were within the range of counts analyzed for Alternative 3 in the EIS (334-400 daily average) and slightly above the Alternative 3 peak (600 per day). The City received complaints from residents regarding hauling activity during 2014.
37. Hauling on state, county and local streets	Ongoing	+	Trucks primarily utilized TH 97, TH 95, CR 91, the existing haul route to Scandia Mine. One haul event utilized TH 95 onto westbound TH97 for a local project in 2014.
38. Truck warning signs	Prior to traffic operations	*	Tiller applied to Washington County to install truck warning signs on County Road 91 near the mine entrance, but the County denied the request because adequate site distances exist near the mine on Lofton. Tiller applied to MN/DOT to install warning signs at the requested locations, but has not received a decision on the request.
39. Parking and circulation	Ongoing	+	All parking occurred within the site.
40. Crash reporting	Ongoing	+	No truck that was hauling for Tiller was involved in a reported crash or cited for a traffic violation in 2014. The Bolton & Menk report notes that there was an incident in which a car rear-ended a truck hauling for Tiller, but the incident was not reported.
41. Fence	Prior to mining operations	+	Fencing located along TH 95 per approved site plan was maintained and in-place prior to start of operations.
42/3. Hours of operation	Ongoing	+	Hours of operation were consistent with the CUP requirement. Tiller requested extended hours on February 6, 2014, but the City did not approve the request.
43. Berm removals	Project	N/A	Berm removals required upon



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
	completion		completion of project.
44/17-19. Dust Control Plan implementation	Ongoing	+	Applicant submitted updated dust control plan to the City as required in April, 2013.
45. Dust Control materials	Ongoing	+	Dust control plan includes use of dust control materials required by CUP conditions. Only water was needed for dust control in 2014.
46/ 12-16. Dust Control monitoring	Annual	+	The City completed dust control monitoring in January 2015 as required by the CUP and AOP. Results indicate all parameters were below federal and state standards.
47. Review Dust Control procedures	Annual	+	City consultant had no recommendations for changes in procedures for 2015 AOP.
48. Berms and screens	Ongoing	+	Phase I screening berm constructed in 2013.
49. Truck idling	Ongoing	+	Tiller indicated that trucks are not permitted to idle for more than 30 minutes. No complaints or observations of longer idling during 2014.
50 & 51/21-25. Noise standards and monitoring	Ongoing	+	Noise monitoring completed. Noise did not exceed state standards at any of the 5 monitored sites.
52-54. Broadband alarms and noise control	Ongoing	+	All Tiller equipment is equipped with broadband alarms. Equipment inspected twice weekly during operations and maintenance completed as needed.
55. Vegetative Clearing	Sept.-April	+	No clearing of trees or brush in 2014.
56. Recycle debris	Ongoing	+	No clearing of trees or brush in 2014.
57. Weed control and site maintenance	Ongoing	+	City inspections in 2014 indicated that site maintenance met CUP requirements. Tiller completed spot-herbicide treatment in 2014 and mowing to control weeds.
58. Sanitary facilities	Ongoing	+	On-site sanitary facilities met CUP and Mine Safety and Health Administration requirements.
59. Waste disposal	Ongoing	+	Waste disposal met CUP requirements.



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
60. Updated Reclamation Plan	April 19, 2013	+	Updated Reclamation Plan provided on April 18, 2013. City met with Tiller in 2014 to review tree replacement requirements, and approved revised plan.
61. Reclamation proportional to mining	Ongoing	+	Phase I reclamation completed per mining plan and CUP requirement. Reviewed at site visit in 2014.
62-64./ 29-30 Reclamation and monitoring	Ongoing	+	Grading, soil placement and seeding met CUP requirements. Monitoring of reclamation success began in 2015.
65/ 31 . Tree transplants	Ongoing	+	White pine transplants did not meet CUP requirement for 80% survival. Applicant requested revised condition regarding replacement and revised plan was approved by the City and implemented in 2014.
66. Reclamation report	Annual	+	Annual reclamation report for 2014 was submitted with the 2014 AOP Application.
67. Reclamation monitoring by City	Ongoing	*	WCD completed reclamation monitoring and report. Report noted that it is too early to determine whether the reclamation is meeting the success parameters included in the conditions.
68-69. Final reclamation	End of project	N/A	Final approval of reclamation will occur at end of project.
70. Woodlands outside mining	Ongoing	+	Mining activities did not disturb woodlands outside of mine area limits.
71. Stockpile height	Ongoing	+	There are three existing stockpile of engineered soil for reclamation on the site. The stockpile is not visible from TH 95 and 97, and meets the CUP requirement.
72. Lighting	Ongoing	+	No lighting was added at the site in 2014.
73. Sign permit	Before placement	+	Tiller submitted truck-warning sign permits to Washington County and Mn/DOT as required. No other signage was added to the site in 2014.
74. Pay monitoring costs	Ongoing	+	The applicant has paid the monitoring costs to date.



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
75. Provide site access	Ongoing	+	The applicant provided site access as requested by the City and its consultants.
76. GWQPP Plan	April 19, 2013	+	The applicant provided a final corrected copy of the GWQPP in April 2013.
77. CUP and Reclamation Agreement	March 5, 2013	+	Compliance and Reclamation Agreement signed by Applicant and City.
78. Additional monitoring	Ongoing	+	City requested additional video monitoring of trucks on Lofton and TH 97 in 2014; completed by city consultant.
79. Financial guarantee	Ongoing	+	Compliance and Reclamation Agreement included the financial guarantee.
80. AOP	Annual	+	Applicant obtained the 2014 AOP and has applied for the 2015 AOP.
81. Letter of Credit	Prior to activity	*	Applicant provided Letter of Credit as required by CUP for 2014. Phase 2 reclamation will require LOC for \$97,000 in 2015.
82. Fees and escrows	Ongoing	+	Applicant paid fees and escrows as required by CUP.
83. Compliance with agreements and permits	Ongoing	+	Applicant complied with agreements and permits in 2014.
AOP Conditions			
1. Production Well Records	AOP	+	Records provided with AOP application.
2. Additional Hour Requests	AOP	+	Request for additional hours indicated haul routes, but was not approved by the City.
3. Trucking contractor information	AOP	—	Tiller provided a copy of the Safety Procedures form it provided to hauling companies and each operator, and described the verbal review of procedures with haulers. The City received complaints about continuing hauler violation of stop signs and other issues in 2014.
4. Reclamation	AOP	+	The reclamation plan requirements were met based on amended plan adopted in 2014.
5. Trucks hauling	AOP	+	The applicant provided the required



CUP Condition/ AOP Condition in Bold	Deadline Specified in CUP/AOP	Status	Notes
data			data.
6. Truck crashes	AOP	+	One crash was identified but not reported to law enforcement in 2014. The truck hauling for Tiller was not at fault.

OPERATING CONDITIONS - EVALUATION FOR THE 2014 AOP

The sections that follow include an evaluation of the operations at the site in 2014, based on the requirements of the City's Mining Ordinance and the AOP approved in 2014.

Site Operations - Background Information

2014 was the second year of operation at the Zavoral Mine site. Development of the internal haul road occurred, and mining continued in the Phase 1 area and began in the Phase 2 area in November, 2014. Approximately 327,120 tons of material was removed to the site and hauled to the Scandia Mine site. Reclamation activities included monitoring and maintenance of the Phase I Reclamation area. Tiller worked with the City during 2014 to address the condition regarding white pine transplants and modify the reclamation plan.

The City and its consultants continued to monitor activities and impacts at the site, and the consultants provided their summary reports for this annual review by January 15, 2015.

The application indicates that construction of the access road into the site will continue, and side slopes of the road will be established at final grades. Mining will continue in the Phase 2 area in 2015, and may move into the Phase 3 area. Maintenance and monitoring of existing reclamation areas will also continue, and reclamation in the Phase 2 area will follow mining through the site.

Annual Activity

The application generally includes the data required by the ordinance regarding annual activity on the site, as follows:

	<u>2014</u>
The amount of material removed from the site:	327,120 Tons
Amount of add-rock brought onto the site:	0 Tons
Recycled asphalt and concrete brought to the site:	0 Tons
Millings brought to the site to construct haul road	585 Tons
Average number of trips to and from the site each day:	383 Trips/day; the peak number of trips per day was 601.

Depth of Excavation

The CUP requires that the maximum mining depth shall be 840 feet above mean sea level (amsl), and that the separation between the depth of mining and ground water level shall be 25 feet or more. The City's groundwater consultant, Leggette, Brashears, and Graham, Inc. (LBG)



reviews the mining depth and groundwater separation each year. LBG's Summary report (January 16, 2015) indicates that the depth of mining in 2014 was 850 to 855 feet amsl across the site, based on mining depth information provided by Tiller. The separation between the depth of mining and groundwater level in 2014 was 40 to 65 feet across the site. The activity of the site met the CUP requirements for mining depth and groundwater separation.

Silica Sand Mining

No silica sand ("frac sand") mining occurred at the site in 2014.

Ground Water Monitoring Plan and Monitoring Issues

The CUP and AOP include several conditions related to groundwater monitoring, listed below in *italics*. The City's groundwater consultant, Leggette, Brashears, and Graham, Inc. (LBG) reviews the ground water monitoring results each year for the AOP and provides comments to the City. The section below summarizes LBG's findings related to each of the conditions. LBG's annual report to the City includes the data gathered, complete findings, and recommendations for 2014.

- *No dewatering is permitted at the site*
 - No dewatering occurred with the mining activities in 2014. None is proposed for 2015.
- *Daily pumping from the Zavoral Site Well shall not exceed 10,000 gallons at a maximum rate of 1,200 gallons per minute, and annual pumping shall not exceed 1 million gallons.*
 - Tiller pumped the Zavoral Site Well on three occasions in 2014. Water was used for dust control. Tiller pumped a total of 8,500 gallons during 2014. The pumping was within the levels permitted by the CUP. LBG's memo stated that the pumping did not affect groundwater levels in the uppermost aquifer below the site.
- *The applicant shall provide records of Zavoral Well pumping that document the daily and annual use, and provide records to several agencies.*
 - The applicant provided records of the Zavoral Well pumping to the City. The records were also provided to the Minnesota DNR, Carnelian-Marine St. Croix Watershed District (CMSCWD), WCD, and the Washington County Health Department as required. The City received no agency comments regarding the pumping records.
- *The applicant shall provide a revised Groundwater Monitoring Plan to the City, including the locations of monitoring wells.*
 - The applicant completed the update to the Groundwater Quality Protection Plan (GWQPP) that was required by the CUP, and the updated plan (dated April 2013) is on file at the City.
- *The applicant shall maintain the groundwater monitoring wells and piezometers and complete required monitoring.*
 - Tiller installed the monitoring wells and maintained the wells as required. LBG manually measured the water levels and downloaded data at the four observation wells.
- *The City's consulting hydrologist shall make regular site visits while the mine is operating, download and analyze data, and provide an annual report to the City.*



- LBG completed site visits in June, October, and January, and completed the annual report as required. LBG's findings and recommendations are summarized below.
- *The City shall review the GWPP annually and modify the plan as needed.*
 - LBG reviews the GWPP annually and provides recommendations as needed.
- *Monitoring shall include Diesel Range Organics (DRO's).*
 - The groundwater analytic results for 2014 show that DRO's were not detected at or above the method detection limits.

LBG Analysis and Recommendations Based on 2013 Monitoring Data

- The 2014 groundwater monitoring was completed in accordance with the approved GWQPP. Monitoring was completed in June and October, 2014 and January, 2015 (to get results through December 2014.)
- Groundwater levels across the site increased from 1 to 1.5 feet from April through July, and declined between October and the end of 2014. The trends follow the same patterns observed in 2013, and are typical of seasonal variations caused by variable precipitation and subsequent recharge of groundwater.
- The hydraulic gradient and flow direction were consistent with the 2013 results.
- The depth of mining and separation from groundwater levels met the CUP requirements.
- The Zavoral Site Well was pumped three times for dust control at rates and volumes below the maximum allowable limits prescribed in the CUP, and no impacts to the water table aquifer were observed as a result of pumping.
- The groundwater levels and groundwater quality parameters remained relatively stable during 2014, particularly during mining operations.
- The chemistry results indicate no concerns, and Diesel Range Organics (DRO) were not detected above the method detection limit in any samples.
- No impacts to groundwater levels or quality were observed as a result of the 2014 mining operations.
- LBG provided a conceptual hydrogeologic cross-section of the mine site and the graphic summarizes the estimated mining depths and groundwater level data in their summary report.
- LBG's report concludes that based on the evaluations of the 2014 monitoring data, Tiller's activities at the Zavoral site met all of the CUP conditions related to groundwater. LBG recommends that the current conditions included in the CUP and AOP be maintained as written in 2015. The Planner has included the groundwater conditions from the 2014 AOP in the proposed conditions for 2015.

Surface Water Monitoring

The Zavoral Mine CUP and AOP include several conditions related to surface water monitoring, listed below in *italics*. The Washington Conservation District (WCD) monitors the potential impacts of the mining operation on surface waters on behalf of the City. The following section summarizes the WCD's findings related to each of the conditions. The complete findings and recommendations for 2014 are presented in the WCD's annual reports to the City.



- *The applicant shall obtain the required permits for stormwater management prior to beginning operations at the site.*
 - The applicant obtained the required MPCA and CMSCWD permits prior to beginning operations at the site. Copies of the permits are on file at the City. The CMSCWD Administrator noted that the mine operator complied with the Watershed District permit in 2014.
- *The applicant shall implement the Best Management Practices included in the Storm Water Pollution Prevention Plan (SWPPP) and Surface Water Plan.*
 - The WCD completed an annual report on the Zavoral Mine project compliance with its approved SWPPP and Surface Water Plan. WCD staff completed six site inspections during 2014. The report notes that “The erosion and sediment controls at the Zavoral Mining and Reclamation project area have been professionally installed, well-maintained, and fortified where deemed necessary. Additionally, all minor deficiencies have been rectified immediately and effectively. Tiller created swales and drainage ways to ensure that stormwater runoff drains internally to the mine pit. Tiller implemented street sweeping best management practices to ensure that debris does not accumulate on Highway 97 and in roadside ditches. Overall Tiller has been very cooperative and has provided the WCD with detailed tours of the site, descriptive summaries of its operations, and has provided follow-up correspondence when needed.” The report concluded that the erosion and sediment control on the site was implemented per the CUP requirements. The WCD did not recommend changes to the AOP conditions for 2015, and therefore the proposed conditions are the same as those included in the 2014 AOP.
 - City staff are concerned that Tiller decided to modify the approved SWPPP in 2014, and not comply with condition #22 of the CUP, without discussing the change with City staff. Condition #22 required Tiller to construct a berm on the south end of the mine site to reduce or divert surface water flows before Phase 2 mining starts. Mining started in the Phase 2 area in November, 2014, but the berm was not constructed. The progress report submitted with the 2015 AOP application states that “prior to progression of mining into Phase 2, an effective diversion berm will be constructed.” However, the required berm was not constructed.

When questioned about the condition by City staff, Tiller provided a response that they made changes to the SWPPP that they believe accomplish the intent of Condition #22 by grading the site to direct stormwater internally into low areas within and adjacent to Phase 2. The WCD’s report notes this change, and indicates that the work should significantly reduce the potential for stormwater discharge off the site along the south and southeast edges of the mine.

WCD staff indicated that they believe that the swales proposed by Tiller to replace the berms would meet the intent of condition #22 in the CUP, and noted that this portion of the mining area is currently stabilized and well-vegetated. Construction a berm would disturb the area and introduce the possibility of erosion and sedimentation off-site, and therefore the WCD suggested it would be preferred to leave the area undisturbed as long as possible and keep the existing erosion and sediment control practices in place. The WCD should continue to



monitor the area as required by the CUP, to ensure that internal drainage is maintained and that Tiller meets the SWPPP requirements. WCD staff recommended that Tiller provide a list of specific changes that they propose to the SWPPP to the City, so that changes can be documented and tracked, and staff can compare on-site conditions to what was originally proposed. This will aid staff in determining Tiller's compliance with approved permits.

City staff recommend that Tiller be required to discuss any proposed changes that do not comply with the conditions of the CUP or AOP with City staff before they implement the changes. This was done in 2014 to address the condition related to survival rates of the White Pine transplants, and is the approach that staff believe should be required for any proposed deviation from the conditions in the CUP and AOP. Staff recognize that the EIS proposed an "adaptive management" approach to site management that recognized that some conditions could change over time, and site management may need to adapt to site conditions. However, any changes to CUP conditions should be discussed with the City prior to implementation. The City Attorney recommended a condition that requires that Tiller shall provide advanced notice to, and shall obtain written approval from the City prior to deviating from any performance requirement contained within the CUP, AOP or approved permits including the SWPPP. Failure to obtain written approval for a deviation from the performance requirements of the CUP, AOP or approved permits shall be a violation of this AOP.

- *The City or its consultant shall monitor the potential impacts of mining activities on the water resources of the site, and submit monitoring reports to the CMSCWD, WCD and the Minnesota DNR.*
 - The WCD monitored the potential impacts of the mining activities on the surface waters at the site during 2014 on behalf of the City, and submitted the required annual report. The City provided the reports to the CMSCWD, WCD (the LBG report), Minnesota DNR and submitted the groundwater report to the Washington County Department of Health. The WCD's report concluded that "To date, data results do not indicate any impacts to the stream caused by mining operations."
- *The monitoring station on Zavoral Creek shall be maintained and monitored for the lifetime of the project.*
 - The WCD installed stream monitoring equipment on Zavoral Creek in 2013 and 2014, prior to the start of mining operations to gather baseline data. Monitoring continued through the end of 2014, and indicated no impacts to the stream from mining operations. WCD staff recommended that monitoring follow the same procedures and methods in 2015.
- *The City shall install a monitoring station upstream of or near Crystal Springs, analyze the data, and report at least annually on any impacts.*
 - The WCD installed stream monitoring equipment near Crystal Springs. Due to the harsh winter conditions, the equipment at Crystal Springs was removed on October 31, 2013, and was reinstalled in 2014. Surface water data were analyzed and included in the WCD's annual monitoring report to the City. WCD staff recommended that monitoring follow the same procedures and methods in 2015.



- *The City shall complete an annual field review of the wetland boundaries of wetlands within the project area and determine any potential impacts.*
 - The WCD did not complete the annual field review of wetland boundaries in the project area in 2014 because the mining activities at the Zavoral site did not begin until after the growing season ended. The WCD reviewed the hydrologic data provided by LBG that indicated that fluctuation in groundwater elevations at the site were less than 1 foot in 2014 as in 2013, and the WCD stated that this degree of fluctuation would be consistent with natural variations of wetland hydrology, assuming that the elevation of the wells can be reasonably extrapolated to the seepage discharge at the wetlands. The groundwater elevation data do not predict detrimental impacts to the seepage wetlands. The WCD will complete the field review in 2015 to meet the conditions.
 - WCD staff recommended that the AOP provide flexibility regarding when the wetland boundary monitoring can occur. The Planner has included the WCD's recommended condition for 2015: "Field review of the wetland boundaries (Wetlands A, B, and C as shown in the CCES wetland delineation report dated January 14, 2011) shall during the growing season as defined by the U.S. Army Corps of Engineers Wetland Delineation Manual. The review may include coordination with the Technical Evaluation Panel and other stakeholder agencies including but not limited to the National Park Service and U.S. Army Corps of Engineers."
- *The City or its consultant shall download the data from the monitoring sites on Zavoral Creek and Crystal Springs at least twice per month while the mine is in operation and after large storm events. The consultant will provide a summary of the data and analysis annually for use in the AOP evaluation.*
 - The WCD gathered baseline and storm event data from the monitoring stations on Zavoral Creek, Crystal Springs and Middle Creek in 2014. .

The WCD reported that the data results do not indicate any impacts to the stream caused by the mining operations. The monitoring data included quick, unsustained spikes in turbidity at monitoring stations. The explanation is unknown, but the WCD indicated that it could be due to data logger error, sediment adhering to the sensor, animal activity, or other natural phenomenon, and is not due to mining activity.
- *The applicant shall provide the wetland boundary delineation data to the City. The City shall monitor any changes to the wetland boundaries.*
 - Tiller provided the boundary delineation data to the City as required. As noted above, the WCD reviewed the groundwater data gathered in 2014 and found no impacts to the wetlands
- *The City or its subconsultant shall complete twice annual macro-invertebrate monitoring on Zavoral Creek and provide the information to the CMSCWD.*
 - In 2015, the WCD collected macroinvertebrate samples in June and September to be used as baseline data for comparisons to future data collection. No additional data was collected during mining activities in 2014 because mining started during the late fall and winter months. The WCD provided the baseline information to the CMSCWD.



WCD Analysis and Recommendations Based on 2014 Monitoring Data

- The WCD annual reports on surface waters, erosion and sediment control, and wetlands concluded that the results of the data analysis and site visits do not indicate any impacts to the stream or wetlands caused by the mining operations.
- The WCD recommended that monitoring continue in the same locations on Zavoral Creek, Crystal Springs, and Middle Creek in 2015, and follow the same procedures and methods used in 2014.

Watershed District Comments

The Carnelian-Marine St. Croix Watershed District (CMSCWD) reviewed Tiller's annual report and monitoring data gathered at the site. District Administrator Jim Shave noted that "The District is satisfied with the performance of Tiller Corporation with regards to the District permit #P13-002."

Air Quality Monitoring and Dust Control

The Zavoral Mine CUP and AOP include several conditions related to air quality monitoring and dust control, listed below in *italics*. Indoor Environment Group, Inc. (IEG) monitors the potential impacts of the mining operation on air quality on behalf of the City. The following section summarizes IEG's findings related to each of the conditions. The complete findings and recommendations for 2015 are presented in IEG's annual report to the City.

- *The applicant shall obtain the required Air Emissions Permit from the MPCA prior to beginning any operations at the site, and provide a copy of the permit to the City.*
 - Tiller obtained the required permit prior to the start of mining operations, and provided a copy of the permit to the City.
- *The applicant shall implement the Dust Control Plan within 60 days of approval of the CUP.*
 - IEG indicated that the dust control implemented at the site is in compliance with the dust control plan. The only exceptions were a few uncovered loads leaving the site. IEG indicated that the monitoring results indicate that the plan is working effectively to keep dust and exhaust emissions to a minimum.
- *The applicant shall utilize non-chloride, agriculturally derived organic polymers or naturally-occurring polymers on internal haul roads to control dust. The applicant shall reapply the polymers if they are no longer effective.*
 - Dust control was accomplished at the site in 2014 by watering unpaved roadways. Polymers were not needed due to the late start in operations.
- *The City or its consultants shall perform periodic on-site review and monitoring of dust control activities during the months that the mine is in operation to assure compliance with the CUP.*
 - IEG completed monitoring at the site in 2014 as required by the CUP and AOP. Monitoring and analysis included respirable dust, silica, particulate monitoring, diesel particulate matter and nitrogen dioxide. The IEG analysis indicated that emissions at the site for all categories of particulates were below particulate levels and below EPA standards.



- *The Dust Control Plan and air monitoring procedures shall be reviewed and updated as necessary on at least an annual basis with the AOP application.*
 - IEG reviewed the Dust Control Plan and recommended no changes for 2015. The report noted that if mining occurs during summer months, monitoring should be completed during that time in 2015.
- *The City or its consultant shall establish air monitoring stations at a minimum of five locations, and collect samples as prescribed in the AOP.*
 - IEG indicated that the air monitoring stations were established and samples collected as required in the AOP.
- *The City or its consultant shall analyze and compare the air monitoring results to current State and Federal Ambient Air Quality Standards, and take action as prescribed in the AOP if the results indicate levels that are above the standards.*
 - IEG completed monitoring at the site in 2014 as required by the CUP and AOP. Monitoring and analysis included respirable dust, silica, particulate monitoring, diesel particulate matter and nitrogen dioxide. The IEG analysis indicated that emissions at the site for all categories of particulates were below particulate levels and below EPA standards.
- *The applicant shall water and wash haul roads on the site during active mining operations, in accord with the Dust Control Plan.*
 - Tiller completed the watering of haul roads during active mining as required in the Dust Control Plan.
- *The applicant shall wash hauling and loading equipment on a regular basis during active mining operations.*
 - Tiller completed the equipment washing during active mining as required in the Dust Control Plan.
- *The applicant shall complete sweeping activities as required by the AOP.*
 - Tiller completed regular sweeping as required.

IEG Analysis and Recommendations Based on 2014 Monitoring Data

- The IEG monitoring and analysis indicated that the Dust Control Plan implementation is working to control particulates and emissions at the site. There were no violations of federal or state air emissions standards identified in 2014.
- Based on the monitoring results, IEG recommended the following for 2015:
 - Complete dust sampling activity during the summer months if the mine is in operation.
 - Continue monthly dust control site review.
 - Maintain compliance with the current Dust Control Plan
 - The Planner included the IEG recommendations as proposed conditions for the 2014 AOP.

Noise Monitoring

The Zavoral Mine CUP and AOP include several conditions related to noise monitoring, listed below in *italics*. SBP Associates monitors the noise generated by the mining operation on behalf of the City. The following section summarizes SBP's findings related to each of the



conditions. The complete findings and recommendations for 2015 are presented in SBP's annual report to the City.

- *The project shall comply with the City's adopted noise standards (the City has adopted the MPCA standards as its standards). The City or its consultant shall complete noise monitoring at the Project site. The monitoring locations, protocols, and methodology shall be specified in the AOP.*
 - SBP chose 5 monitoring locations including sensitive receptors around the mine site perimeter, and mapped the locations in their report. Noise from mining operations was apparent intermittently at some sites, and not audible at others. Noise levels were within State standards at each of the monitored locations. In residential areas, for example, the maximum L10 daytime noise limit is 65 decibels (dBA), and the maximum noise level among the five monitoring sites was 54.0 dBA. The maximum L50 daytime noise level permitted in residential areas is 60 dBA, and the maximum level monitored at any of the five sites was 47.5 dBA. Detailed results and explanation of terminology are provided in the SBP report, and are similar to the results of monitoring completed in 2014.
- *The AOP specifies that monitoring shall include one or two-worst case residential locations for each phase of mining, and conduct at least one hour of monitoring at each location on a quarterly basis during operations in the morning and one hour of monitoring during operations in the afternoon.*
 - SBP's monitoring locations and duration met the AOP requirements.
- *Noise monitoring shall include at least one hour of monitoring at a representative location along the St. Croix Scenic Riverway quarterly during mining operations.*
 - SBP's monitoring included the required monitoring along the St. Croix River.
- *A noise monitoring event will be conducted within three weeks of the beginning of each mining phase, weather permitting, during a typical haul event.*
 - Monitoring was completed to meet the CUP requirements
- *The City shall request access to properties as necessary and notify residents.*
 - Access was requested as required.
- *If the noise levels at the site exceed State standards, the applicant shall stop all work on the site, and the applicant will identify and take corrective actions to bring the noise levels into compliance.*
 - Noise levels at the site did not exceed State standards in 2014.

SBP Analysis and Recommendations Based on 2014 Monitoring Data

- SBP found that noise levels were within the State Standards at each of the monitoring locations during each of the required monitoring events. Sound from mining operations was intermittently audible at some of the sites, and not audible at others, but did not exceed State Standards.
- SBP recommended no changes in the monitoring sites or protocol for 2015.



Noise Complaints

The City received two complaints related to truck noise at TH 97 and Lofton in 2014. One complaint was related to the numbers of trucks using TH 97. The numbers of trucks were within the CUP requirements for both average and peak numbers in 2014.

Another resident complained about loud brake noise on two haul trucks. Tiller followed-up with the contractor, and the two trucks were removed from the haul until repairs had been made to address the excess noise generated during braking.

Traffic and Monitoring

The Zavoral Mine CUP and AOP include several conditions related to traffic and monitoring, listed below in *italics*. Bolton and Menk monitors traffic generated by the mining operation on behalf of the City. The following section summarizes Bolton and Menk's findings related to each of the conditions. The complete findings and recommendations for 2015 are presented in their annual report to the City.

- *The City or its consultant shall complete traffic monitoring of the project. The traffic monitoring protocol and requirements shall be identified in the AOP.*
 - Bolton and Menk completed the traffic monitoring as required in the AOP.
- *The AOP requires that the consultant complete a 14-hour video log of the TH 97 and CR 91 (Lofton Avenue) intersection. The consultant shall provide a summary of observations and identify any issues or problems.*
 - Bolton and Menk's monitoring included the required video log. The analysis indicated that "right-turning trucks onto Lofton Avenue tended to turn into the opposing lane if there is no opposing traffic, but had no problem staying in their lane when there was opposing traffic. Trucks turning left onto TH 97 from Lofton Avenue occasionally caused some vehicles heading eastbound on TH 97 to slow down for the trucks, but did not cause any significant problems." The report recommended the following:
 - That Tiller inform truck drivers to stay in their lanes during turning movements
 - If monitoring indicates that the trucks continue to have difficulty staying in their lanes, the County should modify the intersection to accommodate large trucks, or
 - The City should modify the CUP to restrict the haul to shorter-wheel-based single unit trucks.
 - The report notes that two Cobra lights were installed at the TH 97 and Lofton intersection in 2014, and that proposed improvements for 2015 include designated left turn lanes at the intersection. The improvements may increase the levels of safety at the intersection.
- *The AOP requires that the consultant complete a 14-hour video log of the TH 95 and TH 97) intersection. The consultant shall provide a summary of observations and identify any issues or problems. The consultant report indicated the following:*



- The addition of trucks entering/existing the mine did not appear to appreciably lower the level of service at the intersection. An acceptable level of service was maintained at the intersection during the monitoring activities, which occurred during typical hauling operations.
- *The City shall review the crash records for roadways in the area that will be used for hauling every six months to identify safety issues.*
 - Bolton and Menk reviewed the Mn/DOT crash data along the corridors from 2008 through October 31, 2014, the time frame for which data was available, and data from a video log of the TH 97 and Lofton intersection that was required by the 2014 AOP. Since the mine opened (November, 2013) there have been eight crashes on the TH 97 corridor and no crashed on the Lofton Avenue corridor. The crashes did not involve trucks related to the Zavoral Mine and Scandia mine operations. The report notes that the crash rate is lower than the 5-year base crash rate for TH 97, and indicates that safety on the corridor does not appear to be compromised due to the trucking operations at the mine.
 - On January 8, 2014, a haul truck from the Zavoral Mine was involved in a collision. The haul truck was rear-ended by a passenger car at the TH 95 and TH 97 intersection, and the truck was not considered responsible for this crash. The haul truck was at a complete stop on eastbound TH 97 at the intersection with TH 95, when the passenger vehicle approaching the intersection from the west allegedly slid into the rearend of the hauling truck. The collision was deemed a result of the slippery conditions because of the snowfall that day. The crash is not listed in the individual crash reports because no accident report was filed as there were no injuries and minor damage to the vehicles. It was included in the crash totals.
 - The report notes that truck warning signs may be beneficial at the highway intersections, particularly the TH 97 and Lofton intersection. Tiller submitted an application to install truck warning signs at the requested locations, but has not received a decision from MnDOT.
 - The report suggests that video monitoring may be completed again in 2015 to identify or document problems at the TH 97 and Lofton intersection.
- *Traffic generated by the project shall not exceed the maximum levels analyzed in the EIS for Alternative 3 (average 334 to 400 round trips per working day; 600 peak round trips per day.)*
 - Tiller reported that the average number of truck trips per day was 383, and the peak number of trips per day was 601. The average number of peak slightly exceeded the number analyzed for Alternative 3 in the EIS, and the average number was within the average analyzed for Alternative 3. The Planner included a proposed condition for the 2014 AOP that Tiller maintain the average and peak number of trips per day at or below the numbers analyzed for Alternative 3 in the EIS.



Trucking Operation Complaints

The City received numerous complaints about trucking operations throughout 2014, particularly regarding truck activity on TH 97 and Lofton. Complaints noted that trucks did not comply with stop signs, were speeding, and that some trucks and braking operations were noisy.

The City contacted Tiller about the complaints. Tiller responded that their Field Superintendent would work with the hauling contractor to see that drivers comply with traffic laws, and that their field personnel would monitor the entrances and exits of the sites to identify problems and address them with the hauling contractor.

City staff recommend the following conditions for 2015 based on the continuing complaints:

- The City should complete video monitoring at the TH 97 intersection in 2015.
- Tiller shall monitor the entrances and exits to the site during 2015, and work with their hauling contractors and trucks to improve compliance with traffic laws.
- If the City documents that haul trucks are not complying with traffic regulations, the City may require that trucks no longer use the TH 97 and Lofton intersection, and must use the TH 97 and Manning Avenue intersection for haul trips.

Reclamation Plan

Tiller submitted a detailed Reclamation Plan for the Zavoral Mine site that was approved as part of the CUP. The plan specified that Phase I of the reclamation would include work in the northeastern portion of the project site, in the previously mined area within the St. Croix River District and Scenic Easement Areas. Phase I included removal of existing stock piles, grading, top soil placement, and seeding to establish native dry and mesic prairie seed mixes. It also include transplanting white pine trees from other portions of the mine site to locations within the Phase I area.

The CUP for the Zavoral Mine included the following conditions for reclamation (in *italics*). Tiller's performance follows each condition in plain text.

- *Tiller required to revise the Reclamation Plan within 60 days of approval of the CUP.*
 - Tiller submitted a revised Reclamation Plan that met the CUP requirements on April 13, 2013.
- *Reclamation to proceed concurrently and proportionally to mining operations. Progress to be demonstrated in each AOP application.*
 - The Phase I reclamation proposed in the Reclamation Plan was completed in 2014, and summarized in the 2015 AOP application. The reclamation to date is proportional to mine operations.
- *Tiller required to use clean, non-contaminated fill and topsoil for all reclamation, and establish permanent native vegetation on reclaimed areas per the schedule in the Reclamation Plan.*
 - Clean fill and topsoil were applied in the Phase I area in 2014, and the site was seeded with native prairie mixes as specified in the Reclamation Plan.



- *Reclamation success must meet the criteria included in the CUP conditions. Vegetation establishment and monitoring shall continue for five years after completion of the project.*
 - The WCD monitored the reclamation activities in 2014, and found that the reclamation met the criteria and requirements of the CUP and 2014 AOP.
- *City shall monitor transplanting of trees to ensure a survival rate of at least 80%. Survival rates of less than 80% will require replacement of dead trees by the applicant.*
 - Tiller worked with the City to develop a revised reclamation plan in 2014 due to the lack of survival of transplanted white pines. The City approved a revised plan in 2014, and Tiller implemented the plan.

The WCD reviewed the annual reclamation report, and noted that the report findings are consistent with the WCD's observations, and are in compliance with the CUP and 2014 AOP.

Other Operating Requirements

Setbacks

The AOP application indicates that the minimum setbacks are maintained as follows:

- 50 feet from the adjoining property line
- 200 feet from an existing occupied structure
- 100 feet from residential property boundaries of 5 acres or less
- 100 feet from any road right-of-way

The setbacks meet the requirements of Ordinance No. 103. City inspection during 2014 indicated that the setbacks were maintained and meet City requirements.

Fencing

A portion of the site along State Highway 95 is fenced with a four-foot high chain link fence, as indicated on the approved site plan, with a locking metal gate at the site entrance. The fencing meets the intent of the City's Ordinance. City staff reviewed the fencing during site visits in 2014, and verified that it meets the requirements of the Ordinance and CUP.

Hours of Operation

The site is operated from 7 a.m. to 7 p.m. Monday through Thursday and between 7 a.m. to 2 p.m. on Friday, excluding Federal holidays, and during daylight hours, or one hour before sunrise and one hour after sunset during seasons when daylight is not available between 7 a.m. and 7 p.m. The Applicant is required to obtain the City's permission for any extended hours in accordance with procedures set in Ordinance No. 103. Tiller requested extended hours on February 6, 2014, but the City did not approve the request.

Screening

Screening berms, wooded buffer areas, TH 95 and agricultural fields separate the mining site from surrounding properties, per the site plan approved with the CUP. The required screening



berm shown in the site plan was constructed along the west and southwest perimeter of the property from October to December 2013. The berm exceeds the 6-foot height required by the CUP. Seeding and mulching on the berm will be completed in 2014. City staff reviewed the screening during annual site visits in 2014, and the screening meets the requirements of the CUP.

Noise

The site is required to comply with State and City noise standards. The monitoring completed in 2014 indicated that the site did not violate the standards in 2014.

Site Clearance

Site clearing has occurred in the Phase 1 and 2 mining areas. Tiller stores the topsoil for future use in reclamation. The clearance and disposal of waste meet the CUP requirements.

Appearance/Condition

The City's site inspections in 2014 confirmed that the site and facilities are maintained in a neat condition. The CUP does not include conditions for improvement of the appearance or condition of the site.

Sanitary Facilities

The application indicates that site is served by portable sanitary facilities that meet the requirements of the City's Ordinance and the Mine Safety and Health Administration. City staff inspection confirmed that the City's requirements were met in 2014.

Waste Disposal

The application indicates that waste generated by the operation is disposed of in accordance with Federal, State and City requirements. Site visits in 2014 confirmed that the Applicant is meeting the requirements of the CUP.

Fuel and Chemical Storage

Tiller installed a portable 500-gallon double-walled above ground storage tank at the site, which is used to fuel the operating equipment. Tiller filed an AST Notification form with the MPCA within 30 days of tank installation, as required. Fueling occurs over a hard-surfaced pad constructed of compacted millings. The tank location is up-gradient of the on-site groundwater monitoring well and more than 500 feet from any surface waters. The location is indicated on the Site Plan, and meets the ordinance and CUP requirements.

Contingency Response Plan

The site operates under an Emergency Contingency Response Plan that was submitted and is on file at the City.

Processing

No processing is occurring or planned at the site.



Trucking Operations

The site has access to State Trunk Highways 95 and 97. The main haul route from the site is State Highway 97 westbound and then northbound on County Road 91 (Lofton Avenue) to the Scandia Mine. Lofton Avenue is a paved 9-ton road. The applicant constructed the required northbound right turn lane from State Highway 95 into the Zavoral Site in 2014. Issues related to trucking operations are discussed in the Traffic section, above.

Signs

The CUP required installation of truck warning signs, contingent upon approval from the appropriate road authority. Tiller applied to Washington County to request installation of a truck entering sign at Lofton Avenue near 223rd street. Washington County denied the request, and indicated that there are adequate site distances to the Scandia Mine on Lofton Avenue.

Tiller applied to Mn/DOT to install warning signs near the TH 95 and TH 97 intersection. Mn/DOT has not ruled on the request to date.

SITE INSPECTION

City staff completed site visits to the Zavoral site on October 23, 2014. The site visit in October reviewed site operations in relation to the AOP and CUP conditions, and including documenting conditions on the site in site photos. The site visit also reviewed the reclamation activities and included discussion of difficulties encountered in transplanting white pines.

ACTION REQUESTED:

The City Council can:

1. Approve the AOP;
2. Approve the AOP with conditions;
3. Deny the application if it is found that the request is not consistent with the Comprehensive Plan, CUP, AOP Criteria, and Mining Ordinance, and is not in the best interest of the community;
4. Table the request if the Council needs additional information to make its decision.

PLANNING STAFF RECOMMENDATIONS:

The Planner recommends approval of the Tiller Corporation 2015 AOP for the Zavoral Mine and Reclamation Project, with the following conditions:

(Dates were updated as needed. Proposed new or revised conditions are underlined.)

1. All site operation and reclamation activities shall, in addition to the requirements of the Conditional Use Permit and this Annual Operating Permit, comply with and be governed by the Conditional Use Permit Compliance and Reclamation Agreement between the City, the Applicant and the Owner approved by the City on February 19, 2013, and the updated Reclamation Plan approved in 2014.



2. Site operations in 2015 shall be consistent with the application and plans submitted to the City in November 2008, and as required by the Conditional Use Permit and these conditions.
3. The applicant's requests for operating hours or haul routes outside those specified in the Conditional Use Permit shall be accompanied by a proposed truck haul route for approval by staff.
4. The applicant shall inform all of its contractors about the following requirements related to trucking operations, and monitor compliance with the requirements by all of its contractors:
 - a. Engine braking is prohibited in Scandia per City Ordinance.
 - b. Lofton Avenue is restricted to daylight hours only as defined in the CUP for the Zavoral Mine and Reclamation Project.
 - c. Haul loads are required to be covered.
5. The City or its consultants shall monitor the potential impacts of mining activities on the ground and surface water resources at the site while mining activities are occurring at the site. The applicant shall cooperate with the City as requested to complete the monitoring activities. The City shall submit all status reports and ground and surface water monitoring reports to the applicant, CMSCWD, the WCD and the Minnesota DNR.
6. The City's consulting hydrogeologist shall make monthly site visits to download groundwater monitoring data and collect manual measurements. Monitoring shall occur during all months when the mine is in operation. The hydrogeologist shall evaluate the data and report the results to the City at least quarterly or more frequently if the consultant identifies issues or problems during the monitoring activity.
7. The City or its consultant shall install a monitoring station upstream of or near the existing monitoring station near Crystal Springs in order to isolate potential effects due to mining from other effects to due unrelated activities within the watershed. The applicant shall permit installation of the monitoring station on the Project Site if requested. The City or its consultant will analyze the data to determine the effect, if any, to the springs due to the Zavoral Mine operation, and identify any negative impacts. Monitoring shall occur during all months when the mine is in operation, weather permitting.
8. The City or its consultant shall install a monitoring station on Middle Creek to collect the same continuous parameters as the stations installed on Zavoral Creek and Crystal Springs. The applicant shall permit installation of the monitoring station. The City or its consultant will analyze the monitoring data to determine the effect, if any, to the creek due to Zavoral mine operation, and identify any negative impacts. Monitoring shall occur during all months when the mine is in operation, weather permitting.
9. The City or its consultant shall visit the monitoring sites on Zavoral Creek, Middle Creek, and near Crystal Springs at least twice per month to download the automated data loggers at the monitoring stations and gather data for analysis and analyze the water quality and quantity data gathered at the site. Monitoring shall occur during all months when the mine is in operation, weather permitting. The consultant may also visit the sites after large storm events to gather and analyze monitoring data. If the consultant detects any negative impact to Zavoral Creek, Middle Creek or Crystal Springs, due to the Zavoral Mine operation, they will notify the City immediately. The consultant shall provide a summary of the monitoring data and analysis by early January for use in the AOP evaluation.



10. If a change to the boundaries of the wetlands within the project area is observed that cannot be attributed to climatic influences or other local disturbances not related to mining, the City shall require that quantitative monitoring (including but not limited to, the installation of shallow monitoring wells and piezometers) be initiated for all wetlands within the project area. This monitoring could include the installation of wetland hydrology monitoring equipment along multiple transects across each wetland boundary. The City may conduct this comprehensive monitoring to verify whether the Zavoral Mine is causing the changes to the wetlands. If the City determines that the Zavoral Mine is impacting the wetlands, the quantitative data will be used by the City in consultation with the Technical Evaluation Panel to prepare a Restoration Order and calculate the required replacement for unpermitted wetland impacts.
11. Field review of the wetland boundaries (Wetlands A, B, and C as shown in the CCES wetland delineation report dated January 14, 2011) shall occur during the growing season as defined by the U.S. Army Corps of Engineers Wetland Delineation Manual. The wetland boundary review may include coordination with the Technical Evaluation Panel and other stakeholder agencies including but not limited to the National Park Service and U.S. Army Corps of Engineers.”
12. The City or its consultant shall complete twice annual macro-invertebrate monitoring on Zavoral Creek and provide this information to the CMSCWD.
13. The City or its consultant shall perform periodic on-site review and monitoring of dust control activities to assure compliance with this permit. Monitoring shall occur during all months that the mine is in operation. The applicant shall cooperate with the City as requested to complete the monitoring activities.
14. The City or its consultant shall establish air monitoring stations at a minimum of five locations: upwind of mining and loading operations, downwind of mining and loading operations, at the site entrance, downwind of the site entrance, and downwind of one location on the haul route. The City may establish additional monitoring locations based on City or public concerns.
15. The air quality monitoring plan shall include the collection of the following samples at each sampling location: Airborne particulate matter PM10 (monitor using a fibrous aerosol monitor fitted with a PM10 impactor); Respirable dust (using cyclones/37mm PVC cassettes and lab analysis [NIOSH method 0600/7500; mod OSHA ID-142]); Respirable silica, quantitative (using cyclones/37mm PVC cassettes and lab analysis); Diesel particulates (37 Quartz Fiber NIOSH 5040) and Nitrogen dioxide (TEA Tude, OSHA ID-1820; or equipment and methods that meet current OSHA or State standards. A monitoring station for respirable dust and respirable silica shall be established as close as possible to and downwind of the on-site operations.
16. The City or its consultant shall analyze and compare the air monitoring results to current State and Federal Ambient Air Quality Standards, ACGIH TLV or OSHA PELs or current applicable standards.
17. If sample results indicate levels above generally accepted or mandated action levels, the applicant shall stop all work on the site, review operating procedures and modify Project operations as necessary to reduce emissions. The City shall complete additional monitoring



- immediately after new procedures are in place to confirm that an acceptable reduction in emissions has occurred.
18. The applicant shall water and wash haul roads on the site during active mining operations, in accord with the applicant's updated Dust Control Plan, unless recent precipitation is keeping haul roads washed and wet.
 19. The applicant shall wash hauling and loading equipment on a regular basis during active mining operations.
 20. The applicant shall complete sweeping activities using vacuum-assisted sweeping equipment or similar equipment that ensures that sweeping operations do not generate visible airborne emissions.
 21. The City or its consultant shall complete noise monitoring at the Project site. The applicant shall cooperate with the City as requested to complete the monitoring activities.
 22. Noise monitoring shall include identification of one or two worst-case representative residential locations for each phase of mining and conduct at least one hour of monitoring at each location on a quarterly basis during operations in the morning and one hour of monitoring during operations in the afternoon.
 23. Noise monitoring shall include at least one hour of monitoring at a representative location along the St. Croix Scenic Riverway quarterly during mining operations.
 24. A noise monitoring event will be conducted within six weeks of the beginning of each mining phase, weather permitting, during a typical haul event. The City may conduct additional monitoring if needed based on site conditions. Monitoring shall be conducted in accord with Minnesota Rules.
 25. The City shall notify residents of monitoring periods and request access to properties as necessary to conduct monitoring activities.
 26. If monitoring results indicate levels above state standards, the applicant shall stop all work on the site, review operating procedures and modify Project operations as necessary to reduce noise to permitted levels. The City shall complete additional monitoring immediately after new procedures are in place to confirm that an acceptable reduction in noise has occurred.
 27. The City or its consultant shall complete traffic monitoring of the Project. The applicant shall cooperate with the City as requested to complete the monitoring activities.
 28. The Applicant shall maintain the traffic generated by the Project so that traffic does not exceed the maximum levels analyzed in the EIS for Alternative 3—average 334 to 400 round trips per working day and 600 peak round trips per day.
 29. The City or its consultant shall complete a 14-hour video log of the TH 97 and 95 intersection that shall include the new access to the Zavoral site and count the numbers of trucks entering and exiting the site. The City's consultant shall review the log, and shall provide a summary of the observations related to traffic operations to the City, and identify any issues or problems related to the conditions required for operations. If issues are identified, the City may order additional video traffic counts.



30. The City or its consultant shall complete a 14-hour video log of the TH 97 and CR 91 (Lofton Avenue) intersection in 2015, to observe traffic, trucking operations, and identify potential safety issues. The consultant shall provide a summary of observations to the City and identify any issues or problems.
31. The applicant shall regularly monitor the entrances and exits to the site, and work with their hauling contractors and truck drivers to improve compliance with traffic laws.
32. If the City documents that haul trucks are not complying with traffic regulations at the TH 97 and Lofton Avenue intersection, or entrances and exits from the Scandia Mine, the City may require that trucks cease use of the TH 97 and Lofton intersection, and must use the TH 97 and Manning Avenue intersection for haul trips.
33. The City shall review the crash records for the roadways in the area that will be used for truck-hauling every six months, to identify safety issues. The City shall contact Mn/DOT to discuss safety issues if identified.
34. The City or its consultants shall complete monitoring of reclamation activities on the site on behalf of the City. The applicant shall cooperate with the City as requested to complete the monitoring activities. The City shall inspect the reclamation activities on an as-needed basis.
35. The applicant shall submit to the City quarterly reclamation activity progress reports during the growing season post-seed installation of each monitoring area, and shall submit an annual reclamation report with the AOP application for 2014.
36. The applicant shall provide advanced notice to, and shall obtain written approval from the City prior to deviating from any performance requirement contained within the CUP, AOP, or approved permits, including the SWPPP. Failure to obtain written approval for a deviation from the performance requirements of the CUP, AOP, or approved permits shall be a violation of this AOP.
37. The applicant shall provide a letter of credit in the amount of \$97,000 for the Phase 2 reclamation work to the City.
38. This Annual Operating Permit shall expire on March 31, 2016.
39. The applicant shall pay all fees and escrows associated with this application.

ACTION REQUESTED:

Staff request that the Council review this report and approve the AOP at the meeting on February 17.

