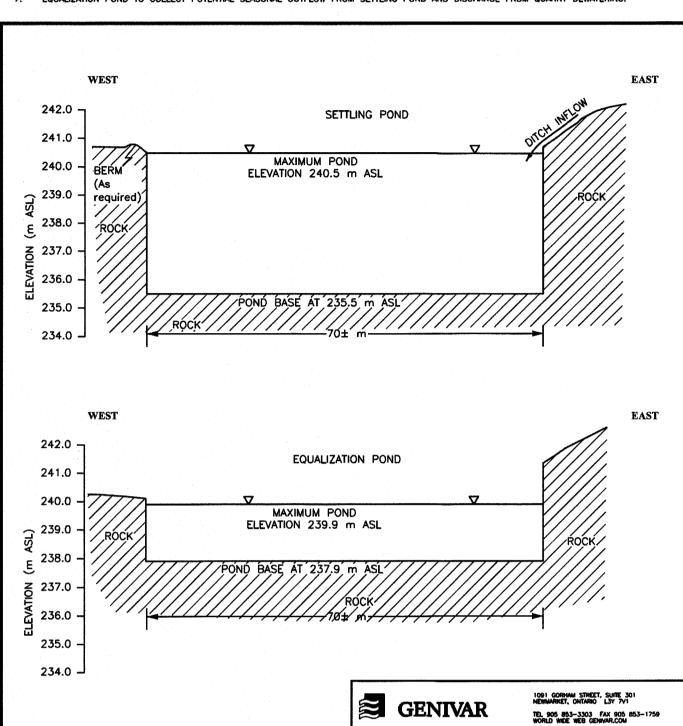
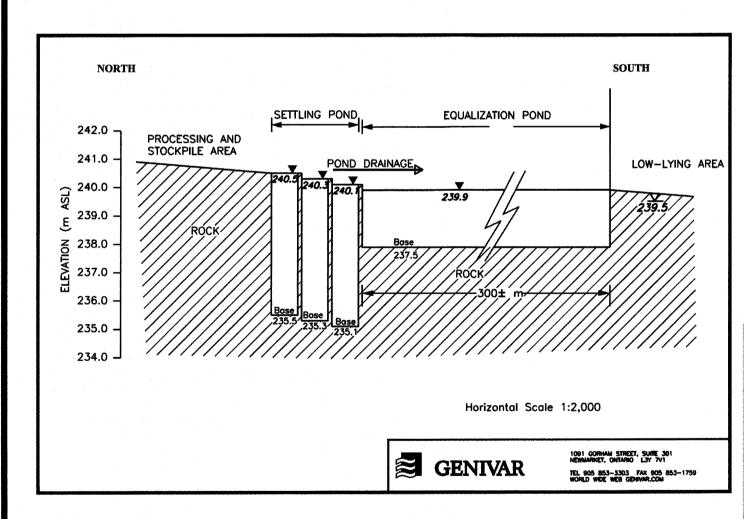
SETTLING AND EQUALIZATION PONDS GENERAL NOTES:

- 1. SITE PREPARATION FOR PONDS INCLUDES CLEAR, GRUB, AND STRIP SOIL.
- PONDS TO BE EXTRACTED INTO ROCK. PERIMETER BERMS TO BE USED AS REQUIRED TO MAINTAIN PERIMETER OF SETTLING POND AT ELEVATION 240.0 mASL.
- ROCK CUT AS REQUIRED FOR PERIMETER DITCHES AND OUTFLOW/INFLOW CHANNELS FOR PONDS.
- WATER ELEVATIONS IN POND TO BE MAXIMUM ELEVATION CONTROLLED BY OUTFLOW CHANNEL ELEVATION.
- 5. SETTLING POND PROVIDES FOR 0.5 m OF SEDIMENT ACCUMULATION IN BASE.
- 6. SETTLING POND TO COLLECT RUNOFF AND WASH WATER FROM STOCKPILE AND PROCESSING AREA.
- EQUALIZATION POND TO COLLECT POTENTIAL SEASONAL OUTFLOW FROM SETTLING POND AND DISCHARGE FROM QUARRY DEWATERING.





				GROUNDWATER AND SURFA	ICE WATER	·
		NITORING			MECHANISMS T	SUGGESTED CONTINGENCY MEASURES
PARAMETER Groundwater levels	FREQUENCY Bimonthly Prior to Extraction, Then Monthly	BH03-1, BH03-4, BH03-5, BH03-6, BH04-7, BH04-8	PARAMETERS Water levels	TRIGGER MECHANISM At BH03-1, BH03-4, BH03-6, BH04-7, BH04-8: Groundwater level decrease by more than 1 m below baseline condition. BH03-5: Groundwater level decrease of 5 m below baseline conditions.	ACTION Determine if the water level decrease is a result of quarry activities. If the impact is quarry related at BH03-1, BH03-4, BH03-6, BH04-7 and BH04-8 implement the applicable contingency measure. If impact is at BH03-5, evaluate off-site residential well effects then: 1) implement contingency measures if required, or 2) revise Trigger Mechanism.	Construction of a groundwater recharge zone will maintain acceptable groundwater levels to the south. This recharge zone could be developed with an infiltration trench(s) or ponds that are supplemented with water removed from the quarry during dewaterin Construction of a low permeable barrier with grout-fill trenches or boreholes will prevent groundwater movement through rock fractures. As a result, groundwater drawdown would not extend beyond the property boundary and baseline groundwater conditions would be maintained to the south.
	Annually (May)	Residential wells within 1km of site	Water levels	Water level below pump intake or insufficient storage capacity in well to meet residential requirements.	Determine if the water level decrease is a result of quarry activities. If the impact is quarry related, implement the applicable contingency measure.	A temporary potable water supply could be provided. The water supply wells impacted by the quarry would then be deepened or replaced with suitable groundwater supplies as a long-term contingency measure.
Groundwater quality	Annually (May)	8H03-1, BH03-4, BH03-5, BH03-6, BH04-7, BH04-8	Field: pH, conductivity, temperature Lab: Major ions, metals, TSS, nutrients	Degradation of water quality in excess of baseline conditions and ODWQS. Ammonia (Total):50 mg/L. Nitrate: 10.0 mg/L. Phosphorus: 0.2 mg/L.	Determine if the water quality degradation is a result of quarry activities. If the impact is quarry related, implement the applicable contingency measure.	
Surface Water Flow Rates	Bimonthly, Monthly During dewatering	SW1, SW2, SW3, SW4, SW5, SWA, SWB	Flow Rate	Decrease or increase in flow rate more than 50% of baseline flow rate.	Determine if the flow rate change is a result of quarry activities. If the impact is quarry related, implement the applicable contingency measure.	Discharge may be directed to one or more discharge points to compensate for loss of surface water flow o to supplement surface water flow. As the tributaries the Cranberry River are ephemeral, they provide the opportunity for flow modifications in response to changing site operations or weather conditions. The overall flow in the Cranberry River would remain the same.
Surface Water Quality	Semi-Annually (May and September)	SW1, SW2, SW3, SW4, SW5, SWA, SWB	Field: pH, conductivity, temperature, turbidity, dissolved oxygen, Lab: Major ions, metals, TSS, nutrients, oil and grease, and BTEX	Degradation of water quality in excess of baseline conditions (*) and PWQO. TSS: 25 mg/L, Ammonia (unionized): 0.02 mg/L, Total Phosphorus: 0.2 mg/L, Total Phosphorus: 0.2 mg/L, Oil & Grease: 1.0 mg/L, Arsenic: 0.005 mg/L, Boron: 0.200 mg/L, Cadmium: 0.0001 mg/L, Chromium: 0.0089 mg/L, Cobalt: 0.001 mg/L*, Ton: 2.2 mg/L*, Lead: 0.001 mg/L, Nicket: 0.025 mg/L, Silver: 0.002 mg/L, Vanadium: 0.006 mg/L, Benzene: 0.100 mg/L, Toluene: 0.008 mg/L, Xytenes: 0.002 mg/L. Turbidity: 100 NTU	Determine if the water quality change is a result of quarry activities. If the impact is quarry related, implement the applicable contingency measure for quarry discharge. Test for TSS, if TSS is >25 mg/L and the change is quarry related, implement the applicable contingency measure.	Quality could be improved with the discharge of wate into a constructed wetland. Controlled flow through t wetland would reduce total suspended solids and provide additional water quality polishing and temperature equalization prior to discharge into a watercourse(s). The design of the Settling Pond could be improved to reduce the discharge rate, provide a longer residenct time for enhanced settling, or provide additional storic capacity. In addition, supplemental inline settling por could be constructed owing to the large size of the Equalization Pond.
	Bimonthly During Dewatering (After precipitation events when possible)	SW1, SW2, SW3, SW4, SW5, SWA, SWB	Field: pH, conductivity, temperature, turbidity, dissolved oxygen, visible sheen	Visible sheen	Determine if the water quality change is a result of quarry activities. If the impact is quarry related, implement the applicable contingency measure for quarry discharge.	
Quarry Discharge	Daily	Discharge Point(s) For Dewatering Pump(s)	Flow rates	Exceeds permitted flow rate	Reduce discharge rate in accordance with permit.	
	Monthly	Discharge Point(s) For Dewatering Pump(s) and Equalization Pond	Field: pH, conductivity, temperature, turbidity, dissolved oxygen, visible sheen	Turbidity: 100 NTU	Test for TSS. If TSS is >25 mg/L and the change is quarry related, implement the applicable contingency measure.	Quality could be improved with the discharge of wate into a constructed wetland. Controlled flow through twelfand would reduce total suspended solids and provide additional water quality polishing and temperature equalization prior to discharge into a watercourse(s).
	Annually Prior to dewatering of Each Phase and Bimonthly During Dewatering	Discharge Point(s) For Dewatering Pump(s)	Field: pH, conductivity, temperature, turbidity, dissolved oxygen, visible sheen Lab: Major ions, metals, TSS, nutrients	TSS: 25 mg/L, Ammonia (unionized): 0.02 mg/L, Total Phosphorus: 0.03 mg/L, Oil & Grease (Mineral/Synthentic): 1.0 mg/L.	Implement the applicable Contingency measure.	The design of the Settling Pond could be improved to reduce the discharge rate, provide a longer residence time for enhanced settling, or provide additional storal capacity. In addition, supplemental inline settling por could be constructed owing to the large size of the Equalization Pond.
calcium, magne	sium.	phate, alkalinity, sodiu	m, potassium,	3) Nutrients include: total amm phosphorus. 4) TSS indicates total suspend " denotes concentration natural."	ded solids.	BTEX indicates benzene, toluene, ethylbenzene, xylenes. Bimonthly indicates once every two months. Sem annually indicates twice per year.
			***************************************		ns - Table 2, Sebright Quarry	Reference: Contingency Measures - Section 3.5,

			NATURAL ENVIR	ONMENT		
MONITORING			TRIGGER MECHANISMS		SUGGESTED CONTINGENCY MEASURES	
PARAMETER	FREQUENCY	LOCATIONS	TRIGGER MECHANISM	ACTION	:	
Surface water and Discharge		discharge quality and quantity OUNDWATER AND SURFACE	discharge quality and	ms for surface water and I quantity under ND SURFACE WATER		
Condition of 30 m Buffer and Sedimentation and Erosion Controls	Semi-annually (June and September/ October)	Adjacent to Cranberry River and Watercourses 1 and 2	Sedimentation of buffer recorded via inspections and photographs.	Implement contingency measures.	Placement of sedimentation control, such as fabric/geotextile or straw bales, on the quarry side of the affected buffer. Re-establish and/or expand the vegetation buffer upon completion of adjacent quarry activities.	
Reference: Section 4.1, 4.2- Sebright Quarry Performance Monitoring Plan		Reference:Section 4.3, Sebright Quarry Performance Monitoring Plan		Reference:Section 4.4, Sebright Quarry Performance Monitoring Plan		

MONITORING Monitoring shall conform to industry standards.		TRIGGER MECHANISMS		SUGGESTED CONTINGENCY MEASURES		
PARAMETER	FREQUENCY	LOCATIONS	TRIGGER MECHANISM	ACTION		
Ground Vibration and Overpressure	All blasts	One digital seismograph to be established at closest privately owned sensitive receptor adjacent to the property.	Vibration - 12.5 mm/second Peak Particle Velocity	Implement one or more of the contingency measures.	Reduction in the explosives used per period or blast. Modification of the blasting schedule. Modify the orientation of the blast face. Modify the blasting design, including decking, reduced hole diameter, and sequential blasting techniques.	
			Overpressure - 128 dB Peak Sound Pressure level	implement one or more of the contingency measures.		
teference: Section 5.2, Sebright Quarry Performance Monitoring Plan tecommendations, Blast Impact Analysis - Giofam Sebright Quarry		Reference: Section 5.3, Sebright Quarry Performance Monitoring Plan Recommendations, Blast Impact Analysis - Giofam Sebright Quarry		Reference: Section 5.4, Sebright Quarry Performance Monitoring		

	DUST MANAGEMENT PL		
SOURCE OF DUST	CONTROL MEASURE	TRIGGER MECHANISM	INSPECTION AND MAINTENANCE
Aggregate crushing and screening	The processing plant shall be equipped with a water spray system capable of supplying up to 1000 L/hr with variable application rate.	Spray bars will be triggered whenever the site manager or scale operator observes visible dust emissions.	The water spray system for the processing plant will be inspected when in use.
	Water shall be provided from the sump/settling pond.	the topics do versions agreement to the second	enter a l'impossa de la company de la compan
	Where possible, height of lifts and discharge distances to the top of stockpile shall be kept to a minimum.	Operations may be curtailed if dust control equipment is not adequately performing.	The Site Operator shall be informed of any issues that arise from inspection performed.
Inpaved Roads	A truck/trailer mounted tank equipped with spray bar to deliver water or another approved dust suppressant evenly over the haul route surface.	When Site Manager or scale operator observes visible dust emissions producing a	Haul routes to be re-graded approximately monthly during May to October, to ensure that loose fine material on the haul route surface is minimized.
	Water/approved dust suppressant shall be available to allow the tank/truck to fill and apply the full payload each hour, if necessary, during dry conditions.	trailing cloud of dust greater than 1/3 of a trailer length	
	The actual application rate shall vary, depending on surface moisture conditions and traffic conditions.		
	Trucks and other mobile equipment shall reduce speed as necessary to reduce trailing dust clouds. The maximum speed will be 30 km/hr.		
Paved Roads	The facility shall have the capability to spray water or other approved dust suppressants on pave surfaces on-site, as well as roads near the quarry entrance as needed. Environmentally hazardous compounds such as waste oil shall not be used as a dust suppressant.	When Site Manager or scale operator observes visible dust emissions producing a trailing cloud of dust greater than 1/3 of a trailer length.	Haul routes shall be maintained during quarry operations to ensure that loose fine material on the haul route surface is minimized.
	The actual application rate shall vary, depending on surface moisture conditions and traffic conditions.		
	Trucks and other mobile equipment shall reduce speed as necessary to reduce trailing dust clouds. The maximum speed will be 30 km/hr.		
Fruck Loading and Fransportation	The highest point of the material loaded into a truck shall not exceed the vehicle tray walls unless it is covered.	When Site Manager or scale operator observes the material to be dry and dusty and	
	Truck loading will be suspended when warranted.	the wind is directed toward a residence at a speed greater than 30 km/h or otherwise sufficient to cause wide-spread visible emissions.	
Wind erosion of Exposed	Aggregate stockpiles shall be located on the Quarry floor/close proximity to extraction face/stockpile area.	When Site Manager or scale operator observes the material to be dry and dusty and	
	Extraction shall be suspended when warranted.	the wind is directed toward a residence at a speed greater than 30 km/h or otherwise sufficient to cause wide-spread visible erosion of the open face.	
Rock Drilling	Primary and secondary dust collectors shall be employed on the rock drill during use.		The dust collectors will be maintained to the manufacturer's specifications.

Il control measures are to	*	The DMP shall be kept on file a
e in place prior to extraction.		Training on new and existing o
ontrol measures shall		staff.
emain in place so long as	٠	Refresher training shall be pro-

IMPLEMENTATION

COMPLAINT PROCEDURE

- at the scale house. provided at a minimum of once every 3 years. The Site Manager shall be responsible for ensuring the DMP is followed.
 - operating procedures shall be provided to relevant | The staff shall follow the DMP procedures. The quarry management shall communicate the DMP to responsible supervisors, who shall ensure staff is following operating procedures defined in the DMP.

Heavy plumes are observed: and

A complaint is received.

Management shall ensure the DMP is reviewed annually.

Wet/vacuum sweeper arrives and cleans paved surfaces;

If the information collected from the survey procedures indicates that the Quarry is not the source of the dust complaint, the complainant shall be notified of this finding. Documentation supporting this response mechanism (including the site survey record and wind station readings at the time of the complaint) shall be provided to the complainant upon request. The Site Manager or other Quarry staff shall respond to all complaints within 24 hours with a phone call to the complainant.

The Site Manager shall ensure all elements of the DMP are being followed. Control

measures, such as spraying shall be increased or operations may be curtailed, as

If the Level 1 response does not adequately resolve the source of the dust complaint, the DMP shall be reviewed for additional control measures.

If the Level 2 response does not adequately resolve the source of the dust complaint, the Quarry shall commit to making physical changes to the facility to address the source of the dust emissions. Such changes may include, but are not limited to

If it is determined that the complaint is related to Quarry activities, the following response procedures shall be followed, the in the order provided below:

If it is determined that the complaint is related to Quarry activities, in order, the following

additional enclosures, relocation of equipment, or additional paving.

- Records shall be made each time the following events occur:

 Visual inspection for dusty conditions in areas of emission sources shall occur at a minimum of twice daily during dry weather and once per day otherwise.

 Dust suppressant is applied to paved/unpaved haul routes; Records will be kept on site . Unpaved haul routes are maintained. in a log book.
 - Water sprays are used at the processing plant;
- The Quarry Site Manager will request that the MOE District Office and/or City of Kawartha Lakes notify them immediately if they receive a complaint to allow for prompt company response and follow-up. Complainants will be requested to identify the location and time of the incident.

Signs shall be placed outside the Quarry providing a phone number for citizens to call should they

- If a complaint is received the Quarry shall notify the MOE District Manager in writing of each
- ironmental complaint within two (2) business days. The notification shall include
- a description of the nature of the complaint; the time, date and location of the incident; the wind direction and weather conditions at the time of the incident; and
- names of the Quarry personnel responsible for handling the incident.
- The Site Manager shall ensure the following steps are implemented:
- create a record of this survey;
- determine weather conditions (both current and at the time that the complaint was
- report on all on-site activities at the time the complaint was made.

Reference: Dust Management Plan Sebright Quarry City of Kawartha Lakes, April 2011

procedures shall be followed:

Level 3 - Operational Modifications

ANNUAL REPORTS						
CONTENT						
DATA	GROUNDWATER AND SURFACE WATER	NATURAL ENVIRONMENT	BLASTING			
Historic data and data collected for the current year, including water quality and quantity, and terrestrial health.	Required	Required				
An assessment of changes in data trends or patterns and an evaluation of potential quarry effects.	Required	Required	,			
A comparison of the data with the trigger mechanisms.	Required	Required	a natr mark			
A comparison of quarry dewatering rates to permitted rates in accordance with the Permit to Take Water.	Required					
A summary of mitigative or contingency measures implemented and associated results.	Required	Required	Required			
A summary of public complaints and response/action to resolve the complaints.	Required					
Changes to the site operations.	Required	Required	Required			
Review of blasting procedures such as drilling and loading to ensure compliance with industry standards.			Required see Detailed Blast Records			
Recommended changes to the Performance Monitoring Plan.	Required	Required	Required			

DISTRIBUTION - Copies of report(s) to be provided to MNR and City of Kawartha Lakes, and to MOE as required by PTTW and C of A.

Reference: Section 3.6, 4.5, 5.4 Sebright Quarry Performance Monitoring Plan Also see detailed Blast Record Requirements.

DETAILED BLAST RECORDS

Detailed blast records shall be maintained. The MOE (1985) recommends that the body of blast reports should include the following information:

- Location, date and time of the blast.
- Dimensional sketch including photographs, if necessary, of the location of the blasting operation, and the nearest point of
- Physical and topographical description of the ground between the source and the receptor location.
- Type of material being blasted. Sub-soil condition, if known.
- Prevailing meteorological conditions including wind speed in m/s,
- Number of drill holes.
- wind direction, air temperature in °C, relative humidity, degree of cloud cover and ground moisture content.

- · Pattern and pitch of drill holes
- Size of holes.
 - Depth of drilling. Depth of collar (or stemming).
- Depth of toe-load.
- Weight of charge per delay.
- Number and time of delays.
- The result and calculated value of Peak pressure Level in dB and Peak Particle Velocity in mm/s.
- Applicable limits or Trigger Mechanisms.
- The excess, if any, over the prescribed limit or Trigger Mechanism.

Reference: Recommendations, Blast Impact Analysis - Glofam Sebright Quarry, March 2011.

SCHEDULE OF AMENDMENTS DESCRIPTION

NO. APPROVED GENERAL REVISIONS

> TRUDY P. PATERSON IS APPROVED BY THE MINISTRY OF NATURAL RESOURCES PURSUANT TO SECTION 8 (4) OF THE AGGREGATE RESOURCES ACT TO PREPARE AND CERTIFY SITE PLANS.

GIOFAM SEBRIGHT QUARRY CITY OF KAWARTHA LAKES

APPLICANT: GIOFAM INVESTMENTS INC. BOX 1359 UXBRIDGE, ONTARIO

L9P 1N6

DETAILS

PROJECT NO. 05 - 2019 DRWG. NO. 052019 - 5 OF !

DATE: APRIL 2011 SCALE:



ENGINEERING PLANNING ENVIRONMENTAL CONSULTANTS 93 BELL FARM ROAD, SUITE 107 TELEPHONE (705) 726-1141 BARRIE, ONTARIO L4M 5G1 FAX. (405)(7050-038+0331