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Ministry of the Environment

P.O. Box 22032
Kingston, Ontario
K7M 8S5
613/549-4000 or 1-800/267-0974
Fax: 613/548-6908

Ministère de l'Environnement

C.P. 22032
Kingston (Ontario)
K7M 8S5
613/549-4000 ou 1-800/267-0974
Fax: 613/548-6908

Ontario

March 4, 2009

Carden Quarry
Ferma Aggregates Inc.
1 Steinway Blvd, Unit #11
Toronto, Ontario
M9W 6H9

Attention: Antonio Ferragine

Dear Mr. Ferragine:

The Permit To Take Water (PTTW) Directors for the Central and Eastern Regions of the Ministry of the Environment have noted an increase in quarry development interests in the Carden area. There are a number of existing quarries, along with several proposed and developing quarries in this area. Several existing quarries are already regulated by a PTTW, while other quarries in the proposed or development stages have only recently applied, or have yet to apply for a PTTW. Your company has been identified as a quarry owner with an interest in the Carden area.

One of the key guiding principles of the PTTW program is that the Ministry will consider the cumulative impacts of water takings. More specifically, the Ministry may initiate a watershed or aquifer scale assessment, and may engage water takers to collectively reduce the burden on the water resources, and to better manage the demand for water.

Ministry technical staff has reviewed available monitoring data and reports, as well as several predictive models for existing and proposed Carden area quarries. Ministry technical staff has recommended to the Central and Eastern Region PTTW Directors that the Carden area will require a Cumulative Impact Assessment and an ongoing Cumulative Impact Monitoring Program as a result of the existing and proposed quarrying activity in the Carden area.

The PTTW Directors are requesting that all identified Carden area quarry owners take the initiative to work together on a voluntary basis to prepare a Cumulative Impact Assessment, and participate in an ongoing Cumulative Impact Monitoring Program in order to be able to address the Ministry's concerns over the cumulative impacts of the water takings in this area. It is critical that all quarry owners participate in the Cumulative Impact Assessment and Cumulative Impact Monitoring Program in order to better understand and manage the Carden area aquifer resources.

In order to assist quarry operators in conducting and preparing a Cumulative Impact Assessment, the Ministry has prepared a draft Terms of Reference for Carden Area quarry operators. A copy of the draft Terms of Reference document is attached for your reference.

The Ministry has arranged a meeting of the quarry owners with an interest in the Carden area on April 14, 2009 in order to review the draft Terms of Reference document and discuss the preparation of a Cumulative Impact Assessment. The meeting will be held at the Ministry of Natural Resources office in Peterborough (300 Water Street) in the Conference Hall, South Tower, 1st Floor and will run from 10:00 till 12:00 am. You are welcomed to bring a technical consultant to assist you during this meeting; however, we would expect no more than three people representing each company.

The Ministry looks forward to your ongoing participation in this important Ministry initiative. If you have any questions please do not hesitate to contact Ellen Schmarje, Central Region PTTW Director at 416-326-3763 if your quarry is located in the Ministry's Central Region, or Peter Taylor, Eastern Region PTTW Director at 613-540-6884 if your quarry is located in the Ministry's Eastern Region.

Sincerely,

Peter Taylor
Director, Section 34
Eastern Region
Ontario Water Resources Act, R.S.O. 1990

Ellen Schmarje
Director, Section 34
Central Region

PT/gl

Attachment

c: Richard Danziger, Director, City of Kawartha Lakes, Development Services – Planning Division, 180 Kent Street West, Lindsay, ON K9V 2Y6

Janice McKinnon, Clerk, Township of Ramara, P.O. Box 130, Brechin, ON L0K 1B0

Chris Hyde, District Supervisor, Ministry of the Environment – Barrie District Office, 54 Cedar Pointe Drive, Unit 1203, Barrier, ON L4N 5R7

Jacqueline Fuller, District Supervisor, Ministry of the Environment – Peterborough District Office, 300 Water Street, Robinson Place, 2nd Floor, South Tower, Peterborough, ON K9J 8M5

c: Don Goodyear, Manager, SWP, South Georgian Bay Lake Simcoe Source Protection Region, 120 Bayview Parkway, Box 282, Newmarket, ON L3Y 4X1

Bryan MacKell, Director, Planning Department, County of Simcoe, 1110 Highway 26, Midhurst, ON L0L 1X0

Paul Cutmore, Aggregate Officer, Ministry of Natural Resources, Peterborough District Office, 1st Floor, South Tower, 300 Water Street, PO Box 7000, Peterborough, ON K9J 8M5

Craig Laing, Aggregate Officer, Ministry of Natural Resources, Midhurst District Office, 2284 Nursery Road, Midhurst, ON L0L 1X0

Agenda

Cumulative Impact Assessment and Monitoring Program for Quarry Operators in the Carden Plain Area
Goulbourn Township

Date/Time: April 14, 2009 - 10:00 am to 12:00 am

Location: Ministry of Natural Resources Building
300 Water Street
Peterborough, Ontario
Conference Hall, South Tower

1. Welcome and Introductions — Peter Taylor(MOE) & All

2. Overview of PTTW Program and Cumulative Impacts
Peter Taylor and Ellen Schmarje (MOE)

3. Overview of Carden Study Area — Peter Taylor (MOE)

4. Overview of Terms of Reference
Kyle Stephenson, Gillian Dagg-Foster (MOE)

5. Comments on Terms of Reference — Input from All

6. Public and Agency Involvement — Peter Taylor and Ellen Schmarje and Input from All

7. Next steps — Peter Taylor & Ellen Schmarje (MOE)

8. Closing remarks and adjournment.

Minute Taker – Gillian Dagg-Foster (MOE)

Terms of Reference

Cumulative Impact Assessment for Groundwater Takings in the Carden Plain Area

Geographic Townships of Carden and Ramara

Ontario Ministry of the Environment

February 2009

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1.0 Regulatory Background

In most cases, a Permit To Take Water (PTTW) holder is not responsible for larger scale assessments that extend beyond the area of impact of the individual water taking. However, the Director for Permits to Take Water (Director) may consider the need for a larger scale assessment to be conducted based on potential impacts to: natural functions of the ecosystem, water availability, uses of water and other issues as relevant.

Ontario Regulation 387/04 "Water Taking" (under OWRA) requires the Director to consider issues relating to water availability including water balance and sustainable yield (refer to section 4 of the regulation, "Permits").

Considerations of water balance and sustainable yield are intended to address large scale issues of water availability and the cumulative impact of multiple takings. At the largest scale, the assessment of impacts to a watershed or aquifer can be required.

Where the Ministry of the Environment (the Ministry) believes that additional information is needed, the Director has the discretion to initiate or cause to initiate an assessment of the impact of a group of takings on water balance or sustainable yield to better understand the cumulative impacts of these takings on groundwater and surface water resources. The requirement for such an assessment may be triggered by a high density of permitted takings within any given area.

Given the proximity of the existing and proposed water takings for quarry dewatering in the Carden Plain area, a cumulative impact assessment and an ongoing monitoring program will be required by the Ministry. It is expected that the Cumulative Impact Assessment will require an additional hydrogeological study and additional work to determine potential impacts to private and public water wells, surface water and the natural functions of the ecosystem. The cumulative impact assessment will be developed under the PTTW program and will consider impacts relating to the taking (and discharge) of water.

It is expected that the quarry operators involved would work together to have the assessment completed by a qualified professional however, the details of that arrangement will be left up to them. The Ministry would also expect to deal with one lead qualified professional. The success of the cumulative impact assessment and the ongoing monitoring program is dependent upon cooperation between the operators. It is anticipated that the work could be completed in a cooperative fashion on a voluntary basis. However, if a voluntary arrangement cannot be established, the Director has the discretion to require participation through the PTTW program.

Information collected as part of the cumulative impact assessment may be integrated with work to be completed under the Province's Lake Simcoe Protection Act and Clean Water Act (Source Water Protection). Information relevant to the cumulative impact assessment may be available as part of Source Water Protection work already completed

in the area. Conservation Authority and Source Protection Committee representatives will be invited to participate as stakeholders during the development of the cumulative impact assessment to ensure that all relevant aspects of the Clean Water Act are considered, and to ensure that all available information is obtained for inclusion in the assessment.

2.0 Technical Background

In order to obtain a PTTW to carry out quarry dewatering at a rate greater than 50,000 Litres per day, an impact assessment is required. The assessment typically includes a hydrogeologic study to determine the zone of influence around the individual quarry site where groundwater levels will be lowered as the quarry is dewatered. Water wells and surface water features located within the zone of influence can be impacted by the water taking, and the assessment predicts the potential for impact to these receptors. In cases where the hydrogeologic study indicates the potential for impact to surface water features, additional surface water studies / assessments are often required. Groundwater and surface water monitoring programs are typically required to determine real conditions. Trigger mechanisms and contingency plans are often linked to the monitoring program.

The impact assessment carried out for an individual site does not typically consider the potential cumulative impact associate with other nearby water takers. However, multiple aggregate operations (below the groundwater table) are often grouped in specific areas to extract available resources. Cumulative impacts to groundwater can arise where the zones of influence from two or more individual sites intersect resulting in groundwater level drawdown which is greater than that from an individual, isolated site. The water taking associated with multiple adjacent aggregate operations results in the potential for cumulative impacts.

The recent level of aggregate extraction activity in the Carden plain area has resulted in the need for an additional hydrogeological study and impact assessment to determine the potential cumulative impact of quarry dewatering at multiple sites on groundwater and surface water receptors. The sites are located in the area of existing and proposed quarry operations south of Dalrymple Lake. Several of the existing and proposed quarries surround a Provincially Significant Wetland (Cranberry Lake Wetland) and several quarries appear to be licensed to excavate into permeable groundwater units (i.e. the "Green Beds" of the Gull River Formation and the shallow weathered bedrock unit).

It is expected that the additional monitoring and investigation completed to support the cumulative impact assessment would guide the establishment of a groundwater and surface water monitoring network. The monitoring network would allow potential impacts to be observed as quarry operations progress through implementation of an ongoing cumulative effects monitoring program. It is also expected that any predicted adverse effects would be prevented or mitigated (e.g. modifications to site operations). A contingency action plan should also be developed to address any impacts observed during monitoring which are unacceptable to the Ministry.

This document is designed to act as a Terms of Reference (TOR) for completion of the Cumulative Impact Assessment. Specific details on the requirements for the hydrogeological study / impact assessment and monitoring program are provided in Sections 3 through 9 below. A schedule outlining target completion dates for the assessment and associated milestones is provided in Section 10. Details on public participation are provided in Section 11.

3.0 Hydrogeological Study

The impact assessment for a groundwater taking at an individual, isolated site should generally follow the requirements of a Category 3 hydrogeologic study under the PTTW program. The Cumulative Impact Assessment being requested by the Ministry will require additional information (beyond what is included in a typical study for a taking at an individual site) mainly as a result of the expected interaction between the dewatering zones of influence from multiple quarries when they are operated simultaneously. Different extraction plans (e.g. final quarry depths); the timing of aggregate extraction and dewatering at the quarries; and the locations of separate quarry operations in relation to receptors must also be considered.

The "Technical Guidance Document for Hydrogeological Studies In Support of Category 3 Applications for PTTW, MOE, April 2008" (Guidance Document) should be used as a general reference document for completion of the hydrogeologic study / Cumulative Impact Assessment. This Guidance Document is included as Appendix A. Although this document includes detail on the Permit to Take Water program and generally applies to takings at an individual site, the technical guidance provided for assessing groundwater takings can be applied to the Cumulative Impact Assessment with consideration of the modifications discussed above. In the context of the additional hydrogeologic study / Cumulative Impact Assessment, the "proposed water taking" discussed in the Guidance Document should be considered as the group of takings at individual quarries which may combine to create a cumulative effect.

Part A, Section 3 of the Guidance Document outlines the required elements of a hydrogeologic study. This section indicates the key considerations addressing required study area, impacts of the taking and fate of direct discharge water. Further information regarding the study area for the Cumulative Impact Assessment is included in Section 8.0 of the TOR.

Part B of the Guidance Document sets out information which should be included in the hydrogeological study report. Information described in Sections 1, 2, 3 and 4 should be included as part of the hydrogeological study / Cumulative Impact Assessment.

Part B Section 3c of the document discusses additional analysis methods. It is expected that additional predictive analysis methods (i.e. groundwater modeling) will be required to complete the hydrogeologic study / Cumulative Impact Assessment. General guidance on the elements of groundwater modeling which should be addressed is also provided in Section 3c. Impacts from existing quarry operations must be considered as part of the

assessment. The predictive assessment should consider multiple development scenarios including the full simultaneous development of all quarries within the study area.

Part B Section 4 of the Guidance Document describes the impact assessment process. Section 4a describes the process that should be followed to determine impacts to existing groundwater users.

4.0 Surface Water and Natural Functions of the Ecosystem

Given the potential for impact to surface water receptors in the Carden Plain area, including the Cranberry Lake PSW, an appropriately qualified person for surface water studies should be involved in the Cumulative Impact Assessment. Potential impacts to all surface water receptors within the study area, with respect to water quantity, water quality, and natural functions of the ecosystem should be identified through completion of the assessment.

The Ministry's "Technical Guidance Document for Surface Water Studies In Support of Category 3 Applications for PTTW, MOE, April 2008" (Surface Water Guidance Document) should be used as a general reference document for the evaluation and assessment of potential impacts to surface water and natural functions of the ecosystem.

It is anticipated that due to the proximity of several of the Carden plain quarries to a Provincially Significant Wetland (Cranberry Lake wetland), as well as a number of other surface water features such as Dalrymple Lake, Canal Lake, Talbot River, and various other surface watercourses, that a Hydro-ecological Study will be required. This would include identification and mapping of all relevant surface water features, field studies, and a detailed surface water assessment of both existing and future conditions (full simultaneous development of all quarries within the study area). This assessment would include a water budget for the watershed contributing to the Cranberry Lake wetland, which considers all inflows (streamflow, direct runoff, groundwater discharge), and outflows (streamflow, evaporation, groundwater recharge) on a long-term mean annual basis. The assessment should also include impacts to the low flows within all other surface watercourses that may be impacted by quarry operations.

The assessment should consider the biological and ecological impacts of any changes to the water levels within the wetland, as well as changes to low flows in nearby surface watercourses.

Potential water quality and thermal impacts that may arise due to quarry sump water discharges to surface water must also be assessed.

Part B of the Surface Water Guidance Document sets out information which should be included in the surface water report. Information described in Sections 1, 2, 3 and 4 should be included as part of the hydrogeological study / Cumulative Impact Assessment.

Any surface water assessment that was conducted as part of the PTTW application for dewatering at the Tomlinson Brechin Quarry should be reviewed and considered as part of the Cumulative Impact Assessment.

5.0 Mitigation Measures

If the Cumulative Impact Assessment indicates impacts to groundwater or surface water receptors which are unacceptable to the ministry, alternate development approaches must be considered. These approaches could include mitigation measures to reduce impacts to a level acceptable to the ministry or modification to site operations (e.g. modification of extraction area / depth / timing). Part A Section 5 of the Guidance Document shows a schematic of the iterative approach that should be followed to arrive at an acceptable approach for water takings.

6.0 Monitoring Program

A monitoring program should be developed based on the results of the Cumulative Impact Assessment. It is expected that the results of ongoing monitoring would be presented to the Ministry on an annual basis for review.

Part B Section 5 of the Guidance Documents (Groundwater and Surface Water) describes the design considerations for an effective monitoring program. The monitoring plan should be designed to:

- confirm that the takings do not result in impacts to either the natural functions of the ecosystem or to existing water users which are unacceptable to the ministry;
- ensure that groundwater elevations do not fall below an unacceptable level;
- ensure that surface water flows and levels do not fall below the low flow threshold;
- confirm over time whether there is significant deviation between actual and predicted impacts; and,
- initiate contingency action in the event that unforeseen unacceptable impacts do occur.

The monitoring program should include both groundwater and surface water components and may include both monitors on the quarry properties and off-site monitors as necessary to measure impact over time. The monitoring program should use existing monitoring locations at the quarry sites as much as possible, however additional new monitoring locations required for completion of the impact assessment may also be used for the purposes of ongoing monitoring. Quarry operators should cooperate to develop the monitoring network and carry out monitoring on a regular basis.

The surface monitoring program should be designed to assess impacts to both quantity (flows and levels) and quality of all potentially impacted surface water receptors (wetlands and watercourses).

7.0 Contingency Measures and Trigger Mechanisms

Appropriate trigger mechanisms for protection of groundwater and surface water should be developed at selected monitoring locations. If required based on the results of the assessment, suitable contingency plans should also be developed to address unforeseen impacts.

For surface water, the contingency plan may include the strategic discharge of quarry sump water into the Cranberry Lake Marsh, and other surface watercourses as necessary. Prior to any discharge, a Certificate of Approval would be required as per Section 53 of the Ontario Water Resource Act.

8.0 Study Area

A file review of predicted impacts and observed impacts at existing quarries has been undertaken in order to estimate the geographical area over which the Cumulative Impact Assessment should be completed. The study area should be conservatively large to include groundwater takers whose zones of influence may interact based on predicted or measured water level drawdown effects. Figure 1 (Study Area) shows active and proposed quarries in the Carden Plain area and the locations of Permits To Take Water in the study area. The following paragraphs provide further information regarding groundwater takings in the area (existing or planned). Based on this information, the water takers expected to participate in the Cumulative Impact Assessment are discussed at the end of this section.

The study area is based on current information available within Ministry files and should be confirmed based on any additional information available to quarry operators. Ministry files may not be complete and any additional information should be brought forward as the assessment progresses. It is understood that the study area may change based on additional information and analysis.

R.W. Tomlinson Ltd. Brechin Quarry

Background: The proposed quarry is in the Aggregate Resource Act (ARA) licensing process and is not active. The operator does not hold a PTTW.

Depth and area at full extraction: The proposed Brechin Quarry (site) consists of two extraction areas separated by a water course crossing the property (south drainage feature). The north extraction area is approximately 92 hectares and extraction would range between approximately 9 metres and 19 metres below ground surface (mbgs) in this area. The south extraction area is approximately 39 hectares and extraction in this area would range between approximately 21 mbgs and 32 mbgs.

Zone of influence: An analysis of the MOE water well record database was undertaken by consultants for all wells within 2.2 kilometres of the site. 85% of wells within this area are completed in the limestone bedrock with well depths ranging between 6.1 metres and 32 metres. Consultants have indicated that the majority of wells obtain their groundwater supplies from the lower Verulam and upper Bobcaygeon Formations. The proposed quarry base elevation is located 5.8 metres above the permeable "green beds" of the Gull River Formation in order to reduce the area of influence in this zone associated with quarry dewatering. Groundwater modeling results indicate that impact to area groundwater wells as a result of dewatering the Brechin Quarry will not be significant. It has been interpreted that the Cranberry Lake PSW is hydraulically connected to the shallow groundwater flow system and could be impacted by quarry dewatering. Based on modeling results, consultants predict an area of influence (based on the location of 1 metre drawdown at full development) extending a maximum of approximately 1 kilometre from the excavation in the permeable "green beds" and a maximum of approximately 750 metres from the excavation in the upper weathered bedrock unit. Mitigation measures may be required to prevent impact to the Cranberry Lake PSW (Golder Associates Ltd., April 2007).

Groundwater modeling conducted by consultants included a preliminary cumulative impact assessment. The results of this assessment indicate the potential for cumulative impact to groundwater and the Cranberry Lake PSW resulting from the simultaneous operation of area quarries (Golder Associates Ltd., April 2007).

Monitoring Program: Monitoring is planned at on-site monitoring wells, staff gauges in the PSW (yet to be constructed) and an off-site monitoring well (yet to be constructed).

St. Lawrence Cement Inc. Carden Quarry

Background: The site is licensed under the ARA and is currently active. The operator holds a valid PTTW.

Depth and area at full extraction: The quarry is licensed to extract approximately 50 metres below ground surface over an area of 196.7 hectares.

Zone of influence: Consultants interpret that groundwater level drawdown associated with quarry dewatering currently extends approximately 400 metres to 500 metres from the quarry face (Golder Associates Ltd., June 2007). The area of influence was estimated to be approximately 300 metres in 1993 and was expected to increase as the quarry expanded in area and depth (Long Associates Consulting Ltd., May 1993).

Monitoring Program: Ongoing monitoring is conducted at on-site monitoring wells. The installation of additional monitoring wells is planned.

Miller Paving Ltd. Carden Quarry

Background: The site is licensed under the ARA and is currently active. The operator holds a valid PTTW.

Depth and area at full extraction: The quarry is licensed to extract to 27 metres below ground surface over an area of 338 hectares.

Zone of influence: The zone of influence is expected to extend in excess of 500 metres beyond the property boundary as operations progress (Gartner Lee, April 1995). It appears that water levels have been influenced at several on-site monitoring locations near the property boundary at a maximum distance of approximately 300 metres from the existing quarry face (Gartner Lee, March 2008).

Monitoring Program: Groundwater levels are monitored on an ongoing basis at on-site monitoring wells.

K.J. Beamish Construction Co. Ltd. Carden Quarry

Background: The site is licensed under the ARA however no aggregate has been extracted from the site. The operator does not hold a PTTW.

Depth and area at full extraction: The quarry is licensed to extract to approximately 45 metres below ground surface over an area of 89.6 hectares.

Zone of influence: An assessment including the predicted zone of influence from the quarry will be required to support a PTTW application for the site. The application is expected to be submitted in the near future.

Monitoring Program: A monitoring program will be required if a PTTW is issued for the site. Several monitoring wells are currently present at the site and could be included in the groundwater monitoring program (Gartner Lee Ltd., April 7, 2008).

Lafarge Canada Inc. Kirkfield Quarry

Background: The site is licensed under the ARA and is not currently active. The operator has recently submitted a PTTW application to allow ongoing extraction and dewatering at the site. This application is currently under review (November 2008).

Depth and area at full extraction: The quarry is licensed to extract to approximately 50 metres below ground surface over an area of 21.9 hectares.

Zone of influence: The predicted groundwater impact is limited to less than 300 metres from the active quarry face (Gartner Lee Ltd., December 1989). Groundwater levels have been influenced at a monitoring well approximately 350 metres northwest of the quarry face (Golder Associates Ltd., June 20, 2008).

Monitoring Program: Monitoring is conducted at on-site monitoring locations.

Ferma Aggregates Inc. Carden Quarry

Background: The quarry is licensed under the ARA and has been developed but is not currently operating. The operator holds a valid PTTW.

Depth and area at full extraction: The quarry is licensed to extract to approximately 32 metres below ground surface over an area of 205 hectares.

Zone of influence: The predicted drawdown at full quarry development in the upper aquifer is between 1 metre and 8 metres at approximately 1 kilometre of the site boundary (Oliver, Mangione, McCalla and Associates, 1995). The predicted 1 metre drawdown in the upper aquifer, associated with development of the north part of phase 1 of the quarry only, extends approximately 1.5 kilometres east / west from the excavation and approximately 450 metres north / south of the excavation (Trow, 2002).

Monitoring Program: Ongoing monitoring is conducted at on-site monitoring wells.

Lafarge Canada Inc. Brechin Quarry

Background: The site is licensed under the ARA and is currently active. The operator holds a valid PTTW that expires February 7, 2009. Permitted dewatering rate is 13,092,480 L/day for up to 365 days per year.

Depth and area at full extraction: The quarry is licensed to extract to 181 masl approximately 51 metres below ground surface over an area of 332 hectares.

Zone of influence: No predicted drawdown analyses have been completed at this time. Further information should be supplied with the PTTW renewal application in January 2009.

Monitoring Program: Ongoing monitoring is conducted at the 4 on-site monitoring wells that were installed in July 2008.

James Dick Quarry

Background: The site is licensed under the ARA # 3717 and is currently active. The operator holds a valid PTTW that expires March 31, 2014. Permitted dewatering rate is 3,410,000 L/day for up to 240 days per year.

Depth and area at full extraction: The quarry is licensed to extract to 222 masl approximately 15 metres below ground surface over an area of 90.23 hectares.

Zone of influence: The predicted drawdown at a quarry depth of 15 m (222 masl) is less than 1 metre at approximately 600 metres from the extraction face site. The final

extraction depth is planned for 27 m (210 masl) and the predicted 1 m zone of influence is predicted at 700 m from the extraction face site (Harden Environmental, 2004).

Monitoring Program: Ongoing monitoring is conducted at 8 on-site monitoring wells.

McCarthy Quarry

Background: The site ARA license has not been issued but is pending approval of a PTTW. A draft PTTW and cover letter, with conditions, were posted on EBR on December 9, 2008 for a comment period ending January 30, 2009. Proposed permitted dewatering rate is 6,544,800 L/day for up to 150 days per year.

Depth and area at full extraction: The proposed quarry will be licensed to extract to 233.8 masl approximately 20 metres below ground surface over an extraction area of 32 hectares.

Zone of influence: The predicted drawdown at a quarry depth of 20 m is 1 metre at approximately 500 metres from the property boundary (Azimuth Environmental Inc, 2008).

Monitoring Program: Ongoing monitoring is conducted at on-site monitoring wells and off-site residential wells.

Other Area Water Takers

The area is primarily privately serviced by residential water supply wells. Municipal water supply wells are located near the southern end of Canal Lake. Other area water takings include surface water takings for the purposes of golf course irrigation, agricultural irrigation and wildlife conservation.

Cumulative Impact Assessment Participants

Given the potential interaction and cumulative impact of observed or predicted zones of influence described above, the following quarry operations should participate in the Cumulative Impact Assessment:

R.W. Tomlinson Ltd. Brechin Quarry
St. Lawrence Cement Inc. Carden Quarry
K.J. Beamish Construction Co. Ltd. Carden Quarry
Miller Paving Ltd. Carden Quarry
Lafarge Canada Inc. Brechin Quarry
James Dick Quarry
McCarthy Quarry
Ferma Aggregates Carden Quarry
Lafarge Kirkfield Quarry

It appears that the zones of influence from the Ferma Aggregates Carden Quarry and the Lafarge Kirkfield Quarry may interact to create a cumulative effect over time. The effects of dewatering at these two quarries would not be expected to interact with the group of quarries listed above however the potential cumulative impact resulting from these two operations should be determined as part of the Cumulative Impact Assessment.

9.0 Report Structure

The results of the cumulative impact assessment should be presented to the Ministry in a draft report for review and comment. The report should also present the details of a monitoring program to be implemented on an ongoing basis. Following revisions based on Ministry review comments, a final report should be prepared.

Part A, Section 6 of the Hydrogeological Studies Guidance Document, and Part A, Section 5 of the Surface Water Studies Guidance Document provide a recommended report structure. This report structure should be applied to the cumulative impact assessment with additional sections included as necessary.

10.0 Stakeholder and Public Participation

The following groups will be invited to participate in the development of the cumulative impact assessment as stakeholders:

- Ontario Ministry of Natural Resources;
- Municipality of the City of Kawartha Lakes;
- Ramara Township;
- Conservation Authorities as represented by Source Protection Committee Representatives;
- The Trent Talbot River Ratepayers Association; and
- The Campbell's Beach Ratepayers Association.

Principle #6 of the PTTW Program states that the MOE will promote public and local agency involvement. It is expected that the results of the Cumulative Impact Assessment will be presented to the public and local agencies for their information once the final report is available. It is also expected that Annual Monitoring Reports will be presented and made available to the public and local agencies on a regular basis. Input from the public stakeholders should be obtained at some stage during the development of the cumulative impact assessment at a venue selected by the quarry operators (e.g. town hall meeting / open house).

11.0 Schedule

The ministry proposes the following schedule for completion of the main elements of the Cumulative Impact Assessment:

Milestone 1: Kick-off meeting with quarry operators and their consultants, MOE and stakeholders; completion date: April 2009

Milestone 2: Quarry operator group provides a detailed Project Schedule Document to the Ministry for review. The document should include milestones and proposed interim dates for meetings to discuss the progress and direction of the project with the Ministry; completion date: August 1, 2009

Milestone 3: Quarry operator group provides a draft document describing the Cumulative Impact Assessment and the proposed ongoing monitoring program for ministry review; completion date: 18 months following ministry acceptance of the Project Schedule Document

The ministry will provide comments on the draft document. It is expected that these comments would be incorporated into the final report.

In addition to the annual monitoring program described in Section 6.0, a detailed evaluation of the Cumulative Impact Assessment should be conducted on a regular basis. This evaluation would ensure that predictions are consistent with observations collected through the ongoing monitoring program and would allow for the assessment to be updated with new monitoring data. As a starting point for this regular evaluation, it is expected that the assessment would be evaluated every 5 years. This frequency may be modified as additional information is collected. The Cumulative Impact Assessment should also be evaluated if impacts observed through the ongoing monitoring program are not consistent with predicted impacts.

References

Hydrogeological and Hydrological Assessments in Support of a Category 2 Class "A" Quarry Below Water, R.W. Tomlinson Limited, Proposed Brechin Quarry, Former Township of Carden, City of Kawartha Lakes, Ontario, Golder Associates Ltd., April 2007

Hydrogeological Impact Assessment in Support of Amendment Application for PTTW 3325-5ZHJR4, Golder Associates Ltd., June 28, 2007

Gormley Aggregates Division, Essroc Canada Inc., Permit To Take Water Application, Township of Carden, Victoria County, EQA File Number 4284, Long Associates Consulting Ltd., 21 May 1993.

Hydrogeological Study for Permit To Take Water, Carden Quarry, Lots 8 to 11, Concession 2, Carden Township, Gartner Lee Limited, April 1995

Miller Aggregates Resources Carden Quarry Annual Monitoring Report for Permit To Take Water 97-P-4005 and Certificate of Approval Number 9412-6GWJM6, Gartner Lee Limited, March 2008

Application to Renew PTTW No. 92-P-3044, Lafarge Kirkfield Quarry, Township of Carden, City of Kawartha Lakes, Golder Associates Ltd., June 20, 2008

Preston Carden Township Quarry, Hydrogeologic Impact Assessment, Gartner Lee Limited, December, 1989

Hydrotechnical Report, Ferma – Carden Quarry, Ferma Crushed Stone Inc., Oliver, Mangione, McCalla and Associates, April 1995

Hydrotechnical Report Update, Ferma Aggregates Inc., Carden Quarry, Trow Consulting Engineers Ltd., May 22, 2002

Beamish Campbell Quarry, Preconsultation Meeting with MOE for PTTW and C of A for Discharge, Gartner Lee Ltd., April 7, 2008

Permit to Take Water Application, James Dick Construction Ltd. Gamebridge Quarry Lots 11 and 12 Concession A, Ramara Twp., Simcoe County. Harden Environmental, March 8, 2004.

McCarthy Quarry Hydrogeological Assessment, Azimuth Environmental Consulting, Inc. and EarthFX Incorporated. April 2008.

Appendix A

Technical Guidance Document for Hydrogeological Studies In Support of Category 3 Applications for PTTW, MOE, April 2008

Technical Guidance Document for Surface Water Studies In Support of Category 3 Applications for PTTW, MOE, April 2008

Figure 1. Study Area

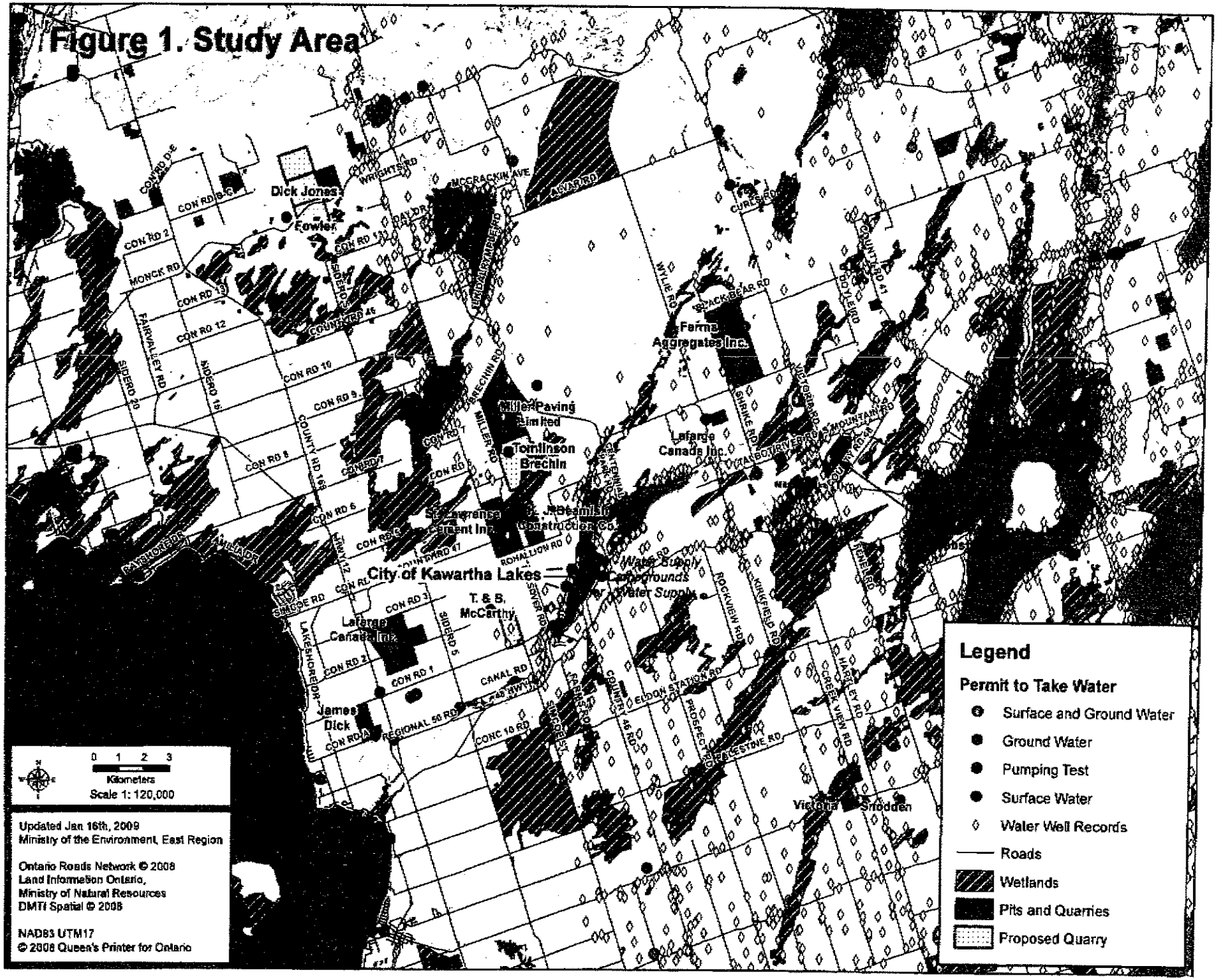
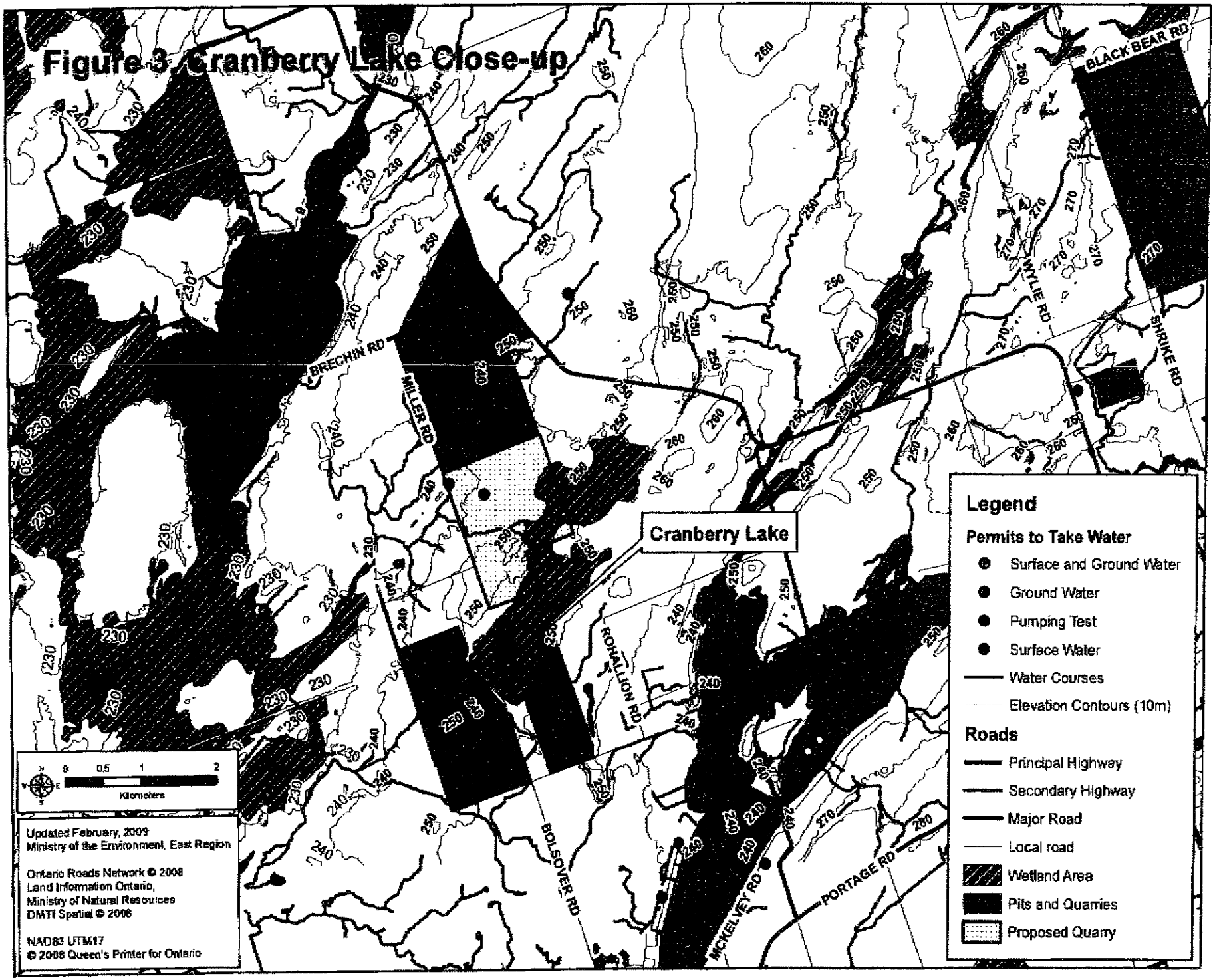


Figure 3 Cranberry Lake Close-up



Ferma Group Inc.
1 Steinway Blvd. Unit #11
Etobicoke, Ontario
M9W- 6H9

Facsimile Transmittal Cover

To: Dave Kennedy

Fax Number: 1-705-466-3385

Re: meeting in Peterborough

From: (Peter Taylor
his # 613-540-6884)

Phone # (416)679-9616 **Fax # (416)679-9618**

Number of Pages Faxed: 1

Notes: Dear Dave,

Peter Taylor from the Ministry of Environment in Kingston called + left a message regarding a meeting that will be held on April 14-2009 in Peterboro regarding the quarry. He asked if we can call him and wants to know if someone will attend this meeting. Da asked me to fax you this + see what you should d thanks.

I CALLED THURSDAY APRIL 9TH - TONY + I WILL BE ATTENDING

Ferma Aggregates Inc.

1 STEINWAY BLVD., UNIT 11, ETOBICOKE, ONTARIO M9W 6H9 TEL: (416) 679-9616 • FAX: (416) 679-9618

1 STEINWAY BLVD., UNIT 11, ETOBICOKE, ONTARIO M9W 6H9 TEL: (416) 679-9616 • FAX: (416) 679-9618

DAVES COPY

COPY

Ministry of the Environment
Eastern Region
Technical Support Section
Water Resources
133 Dalton Ave
Kingston ON K7L 4X6
Fax: (613)548-6908
Telephone: (613) 549-4000 Ext. 2624

Ministère de l'Environnement
Direction régionale de l'Est
Section du Soutien Technique
Ressource en eau
133 av Dalton
Kingston ON K7L 4X6
Télécopieur: (613)548-6908
Téléphone : (613) 549-4000 Ext. 2624

Ontario

September 27, 2004

Ferma Aggregates Inc.
2666 Rena Road
Mississauga, ON L4T 3C8

RE: Permit to Take Water No. 3745-648QTH
Lots 6, 7, 8, 9 and 10, Concession 9
Carden Township, City of Kawartha Lakes
Reference Number 2771-5XJQBJ

Dear Mr. Ferragine:

Please find attached Permit No. 3745-648QTH issued to Ferma Aggregates Inc. which authorizes the taking of water in accordance with the application and Schedule A for the Permit to Take Water from Quarry Sump A for quarry dewatering.

This permit expires September 27, 2014 and shall be kept available at all times for inspection by Ontario Ministry of the Environment staff.

Take notice that in issuing this Permit to Take Water, terms and conditions pertaining to the taking of water and to the results of the taking have been imposed. The terms and conditions have been designed to allow for the development of water resources, while providing reasonable protection to existing water uses and users.

Please note that it is the responsibility of the Permit Holder to ensure that all other approvals required by law are obtained for this project.

Yours truly,

Clyde Hammond

Clyde Hammond
Director, Section 34, Ontario Water Resources Act
Eastern Region

File Storage Number: 98-P-4050 / IDS # 2771-5XJQBJ

c: J.S. Gourley, P.Eng., Trow Associates Inc., 561 Bryne Drive, Unit D, Barrie, ON L4N 9Y3

3. Water Takings Authorized by This Permit

3.1 Expiry

This Permit expires on **September 27, 2014**. No water shall be taken under authority of this Permit after the expiry date.

3.2 Amounts of Taking Permitted

The Permit Holder shall only take water from the source, during the periods and at the rates and amounts of taking specified in Table A. Water takings are authorized only for the purposes specified in Table A.

Table A

	Source Name / Description:	Source: Type:	Taking Specific Purpose:	Taking Major Category:	Max. Taken per Minute (litres):	Max. Num. of Hrs Taken per Day:	Max. Taken per Day (litres):	Max. Num. of Days Taken per Year:	Zone/ Easting/ Northing:
1.	Carden Quarry Sump A	Pond Quarry	Pits and Quarries	Dewatering	1090.00	24.00	1569600.00	365.00	17 660650 4944490
						Total Taking:	1569600.00		

4. Monitoring

4.1 The Permit Holder shall maintain a record of all water takings. This record shall include the dates and times of water takings, and the total measured amounts of water pumped per day for each day that water is taken under the authorization of this Permit. A separate record shall be maintained for each source. The Permit Holder shall keep all required records up to date and available at or near the site of the taking and shall produce the records immediately for inspection by a Provincial Officer upon his or her request. The total amounts of water pumped shall be measured using a properly calibrated flow meter and flow totalizer.

4.2 The Permit Holder shall measure and record static water levels in each sump on a monthly basis during the period or season of operation.

4.3 The Permit Holder shall ensure that the sump is accessible for water level measurements by Ministry of the Environment staff as required.

Due Copy

Gary Matthie

From: Gary Matthie
Sent: Thursday, November 11, 2004 3:25 PM
To: 'Clyde.Hammond@ene.gov.on.ca'
Subject: RE: Permit to Take Water No. 3745-648QTH, Ferma Aggregates.

Mr. Hammond,

Following discussions with Mr. Frank Crossley of your Kingston office, and with our client, we have decided not to pursue permit re-issue/amendment at this time.

Thank you for you help with this matter.

Gary Matthie, P.Eng.
Trow Associates Inc.
561 Bryne Dr., Unit D
Barrie, Ontario, L4N 9Y3
tel. (705) 734-6222
fax. (705) 734-6224

-----Original Message-----
From: Clyde.Hammond@ene.gov.on.ca [mailto:Clyde.Hammond@ene.gov.on.ca]
Sent: Friday, October 15, 2004 10:48 AM
To: Gary Matthie
Subject: RE: Permit to Take Water No. 3745-648QTH, Ferma Aggregates.

Thanks Gary/

I will have our reviewers revisit your application and the reasons for their recommendations and get back to you ASAP.

/ Regards Clyde

-----Original Message-----
From: Gary Matthie [mailto:gary.matthie@trow.com]
Sent: October 14, 2004 4:24 PM
To: Hammond, Clyde (ENE)
Subject: Permit to Take Water No. 3745-648QTH, Ferma Aggregates.

Dear Mr. Hammond,

We received a copy of the above Permit on Thursday October 7, 2004 and have since reviewed it and would like to comment on one observation that we have made.

The issued Permit allows for a maximum taking of 1090 litres per minute, which agrees with the Average amounts we listed on the Application form, but does not take into consideration the stated maximum instantaneous discharge of 60 L/s (3600 L/min), which is required to discharge a design precipitation event of 25 mm in a reasonable time, 72hours, (larger events would require longer time periods at 3600 L/min) while allowing for adequate particulate settling.

Our intent was to limit the total amount of dewatering to that of the total Annual precipitation volume plus groundwater contributions, but to be able to dewater individual precipitation storm events within a reasonable period of time. In listing our requested amounts of taking on the Application, we tried to show the total annual amount as an Average daily amount (since actual day to day amounts would fluctuate depending on precipitation occurances) while also allowing for a maximum instantaneous discharge rate necessary for individual storm event discharge. We feel that the maximum amounts as listed in the issued Permit will prohibit the reasonable dewatering of individual storm events.

If the maximum instantaneous discharge rate of 3600 L/min was left out of the issued permit by omission, we would appreciate having the permit re-issued with this maximum rate included.

If the 3600 L/min discharge rate was left out for a particular reason, we would look forward to discussing the reason with you in the hopes of resolving the issue and having the permit re-issued.

Thank you,

Gary Matthie, P.Eng.
Trow Associates Inc.
561 Bryne Dr., Unit D
Barrie, Ontario, L4N 9Y3
tel. (705) 734-6222
fax. (705) 734-6224

Ontario

Ministry of the Environment

Application for Permit To Take Water

Information requested by this form is collected under the authority of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40 (OWRA) and the Environmental Bill of Rights, Statutes of Ontario, 1993, Chapter 28 (EBR). The purpose of the Permit is to regulate water takings in order to promote efficient development and equitable use of surface and ground waters.

☐ New Permit ☐ Permit Renewal ☒ Permit Amendment	Existing Permit No. 98-P-4050

Name of Applicant FERMA AGGREGATES INC.	Telephone No. 905-677-9241
Address 2666 RENA ROAD, MISSISSAUGA, ONTARIO	Postal Code L4T 3C8

Application Particulars

Please read instructions on the Guide for Applying for Approval of Permit to Take Water ("Guide") and ensure that all sections of the application are completed in full, especially the section of Request Amount of Taking from each Source and project/application description for purposes of EBR registry.

Submit a diagram of the area of this water taking. Diagram, instructions and example are shown in the "Guide". If the taking is from a groundwater source, then a diagram indicating any wells within 500 metres of the taking must be submitted.

If there are questions concerning the application, please contact the corresponding Ministry of Environment and Regional Office listed in the "Guide".

A Source of Water

① Well(s): How many? N/A Spring(s): How many? N/A	② Lake, Stream or River Name (s) N/A
③ Pond(s): How many? 1 Type: ☐ Dugout ☐ By-Pass ☐ On-Stream ☒ Pit or Quarry (60 m x 65 m x 3 m Sump)	
④ Other: Type of Source N/A	
⑤ Construction date of Source 05/01/04	⑥ Date of installation of Water Taking Equipment 05/01/04

B Location of Taking

Lot, Concession, Township or former Township and County or Region or District, or City, Town or Village with name of street and number

LOTS 8, 9, AND 10, CONCESSION IX, GEOGRAPHIC TOWNSHIP OF CARDEN

CITY OF KAWARTHA LAKES

Are the proposed works located in an area of development control as defined by the Niagara Escarpment Planning and Development Act (NEPDA)

☐ Yes ☒ No (If Yes, attach copy of NEPDA permit)

C Location of Water Use

☒ Same as B or

Lot Concession, Township or former Township and county or Region or District, or City, Town or Village with name of street and number

D Purpose of Taking

☐ Irrigation ☐ Commercial ☒ Industrial ☐ Municipal ☐ Public Supply ☐ Recreation

☐ Drinking Water ☐ Other (please describe)

E Period of Water Taking (complete either section 1 or 2 below)

① Taking to commence on May 2004 and to extend for a period of 10 ☐ days ☐ weeks ☐ months ☒ years

② Seasonal taking to extend from _____ to _____ each year for _____ (number of years)

* Ce formulaire est disponible en français

EQUAL TO 1,575 m³/day OR 574,762 m³/YR

F Request Amount of Taking from each Source (if the taking involves the taking of water into storage, please state the amount of water taken into storage as well as the amount of water withdrawn from storage).

Source Number	Name of source or Description	Maximum amount taken per minute	Maximum amount taken per day	Number of ours of taking per day-maximum	Number of hours taken per day-average	Maximum number of days taking per year
1.	Groundwater Seepage Discharge Sump A	120 L/min	172,800 L	24	24	365
2.	Ave daily Precip Discharge Sump A	970 L/min (1)	1,400,000 L (1)	24	24	365

(1) Total annual volume of precipitation taken into storage = +/- 510,000 cubic metres/yr, maximum instantaneous discharge = 60 L/s.

Indicate unit of measure ☒ Litres ☐ Imperial Gallons ☐ U.S. Gallons

G **Project/application description for purposes of EBR registry (brief description of proposal)**

Amendment to existing Permit for change of Applicant Name and to increase the water taking to account for precipitation collected within a quarry excavation.

See the Design Brief in the attached supporting information for a more detailed description.

H **Environmental Bill of Rights requirements**

Is this a proposal for a Prescribed Instrument under EBR? ☒ Yes ☐ No

If "Yes", is it excepted from public notification? ☒ Yes ☐ No

If it is excepted from public notification, provide reason ☐ Equivalent Public Participation ☐ Emergency ☒ Environmentally Insignificant ☐ EAA or Amendment or revocation

Tribunal Decision Refer to OMB Decision No. 1464

Documentation is support of the above noted exception must be provided (refer to "Guide").

I **Supporting information checklist. This is a list of supporting information attached to this application and is subject to the Freedom of Information and Protection of Privacy Act (FOIPOPA) and the Environmental Bill of Rights (EBR).**

SUPPORTING INFORMATION	ATTACHED?	REFERENCE	CAN BE DISCLOSED
Pre-application consultation with MOE	☒ yes ☐ no	See MOE documentation	
Documentation Provided			
Description of the proposed works	☒ yes ☐ no	Design Brief	☒ yes ☐ no
Environmental Study Report (ESR)	☐ yes ☒ no		☒ yes ☐ no
Preliminary Report	☒ yes ☐ no	Hydrotechnical Study	☐ yes ☐ no
Design Report/Brief	☒ yes ☐ no	Design Brief	☒ yes ☐ no
Hydraulic and Process Calculations	☒ yes ☐ no	Hydrotechnical Report and Update	☒ yes ☐ no
Final Plans and Specifications	☒ yes ☐ no	Site Plans & Dewatering Sys.Sketch	☒ yes ☐ no
Water Supply and			
Raw Water Quality Analysis	☒ yes ☐ no	Hydrotechnical Report	☒ yes ☐ no

Hydro geological Report	☒ yes ☐ no	Hydrotechnical Report	☒ yes ☐ no
Other Attached Information	☒ yes ☐ no	Existing Permit, Aggregate Licence	☒ yes ☐ no

J Statement of Applicant

I, the undersigned hereby declare that to the best of my knowledge, the information contained herein and the information submitted in support of this application is complete and accurate in every way. The applicant agrees to indemnify and save harmless the Crown in right of the Province of Ontario and its officers, employees, agents and contractors from and against all damages, loss, costs, claims, suits, injuries, demands, actions and proceedings resulting from or in any manner connected with act or omission of the applicant or any of its officers, employees, agents or contractors relating to this Application and any Permit, Renewal Permit or terms and conditions of a Permit issued in response to this Application.
I understand that it is the policy of the Director in issuing a Permit to Take Water to impose the General Terms and Conditions appearing on the Guide for Applying for Permit to take Water.

Name of Applicant or Agent/Official of Applicant (please print)	Signature of Applicant or Agent of Applicant	Date
ANTONIO FERRAGINE	Antonio Ferragine	3-12-04

Diagram of Location of Water Taking

SEE SITE PLANS IN ATTACHED SUPPORTING INFORMATION.

Ministry of the Environment
Ontario

Ministère de l'Environnement

Annual Record of Water Taking
Relevé annuel des prises d'eau

Personal Information contained on this form is collected under the authority of the Ontario Water Resources Act, Section 34. The purpose of the form is to record details and information about the taking of water annually. Questions should be directed to the Ministry of the Environment's Regional Office in your area.

Les renseignements personnels qui figurent dans le présent formulaire sont recueillis en vertu de l'article 34 de la Loi sur les ressources en eau de l'Ontario. La présente sert à consigner aux dossiers les détails et les renseignements concernant la prise d'eau annuelle. Prière d'adresser toute question au bureau régional du ministère de l'Environnement le plus proche.

See examples on the reverse side for instructions on completing form.
Voir les exemples au verso pour remplir la formule.

Year / Année: 2004

Permit No. / N° de permis: [redacted]

Source (Separate record to be kept for each source) / *(Faire un relevé distinct pour chaque source)*

PERMIT No. 98-P-4050

QUARRY LICENCE # 108268

Name of Permittee / *Nom du titulaire du permis*

FERMA AGGREGATES INC. (FORMERLY FERMA CRUSHED STONE INC.

Mailing Address / *Adresse postale*

2666 REGA RD. MISSISSAUGA, ONTARIO L4T 3C8

Location of Taking / *Lieu de la prise d'eau*	Twp. or Municipality / *Canton ou municipalité*	Concession	Lot
KAWARTHA LAKES/ CARDON TWSP.		CONC. 9	LOTS 6,7,8,9,10

(1) Date of Taking / *Date de la prise d'eau*	(2) Hours of Taking / *Heure*	(3) Rate of Taking / *Débit de prise d'eau* (☐ Imp. gpm Gal./mp./min; ☐ U.S. gpm Gal./amér./min; ☑ Litres/sec Litres/sec)	(4) Amount of Taking / *Volume des prises d'eau par* (☑ Day / jour; ☐ Week / semaine; ☐ Month / mois)	(5) Remarks / *Observations*
JULY 20/04	24	2	172,800	FIRST DAY OF PUMPING
JULY 21/04	24	2	172,800	
JULY 22/04	24	2	172,800	
JULY 23/04	24	2	172,800	
JULY 24/04	24	2	172,800	
JULY 25/04	24	2	172,800	
JULY 26/04	24	2	172,800	
JULY 27/04	24	2	172,800	
JULY 28/04	24	2	172,800	
JULY 29/04	24	2	172,800	
JULY 30/04	24	2	172,800	
JULY 31/04	24	2	172,800	
AUG 1/04	24	2	172,800	
AUG 2/04	24	2	172,800	

I certify that the above information is true, complete and acurate.
J'atteste que les renseignements ci-dessus sont vrais, complets et exacts.

Signature: [signature]

Date: AUG 2/04

Ministry of the Environment
Ontario

Ministère de l'Environnement

Annual Record of Water Taking
Relevé annuel des prises d'eau

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Voir les exemples au verso pour remplir la formule.

Year / Année

Permit No. / N° de permis 3745-648 QTH

Source (Separate record to be kept for each source)
(Faire un relevé distinct pour chaque source)

QUARRY LICENCE # 108268

Name of Permittee
Nom du titulaire du permis

FERMA AGGREGATES INC.

Mailing Address
Adresse postale

2666 REGA RD. MISSISSAUGA, ONTARIO L4T 3C8

Location of Taking
Lieu de la prise d'eau

Twp. or Municipality
Canton ou municipalité

KAWARTHA LAKES/CARDEN TWSP.

Concession

CONC. 9

Lot

LOTS 6, 7, 8, 9, 10

(1) Date of Taking / Date de la prise d'eau	(2) Hours of Taking / Heure	(3) Rate of Taking / Débit de prise d'eau (☐ Imp. gpm / Gal. /min./min ☐ U.S. gpm / Gal. américains/min ☑ Litres/sec / Litres/sec)	(4) Amount of Taking / Volume des prises d'eau par (☑ Day / jour ☐ Week / semaine ☐ Month / mois)	(5) Remarks / Observations
OCT 22/05	12	3	129,600	
OCT 23/05	6	3	64800	
OCT 24/05	NIL	NIL	NIL	SHUT DOWN
OCT 25/05	NIL	NIL	NIL	
OCT 26/05	6	3	64800	
OCT 27/05	6	3	64800	
OCT 28/05	6	3	64800	
OCT 29/05	NIL	NIL	NIL	SHUT DOWN
OCT 30/05	NIL	NIL	NIL	SHUT DOWN
OCT 31/05	NIL	NIL	NIL	SHUT DOWN
NOV 1/05	12	3	129600	
NOV 2/05	12	3	129,600	
NOV 3/05	NIL	NIL	NIL	
NOV 4/05	NIL	NIL	NIL	SHUT DOWN FOR THE WINTER

I certify that the above information is true, complete and accurate.
Je atteste que les renseignements ci-dessus sont vrais, complets et exacts.

Signature

Date NOV 4/05

Ministry of the Environment
Ontario

Ministère de l'Environnement

Annual Record of Water Taking
Relevé annuel des prises d'eau

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Year / Année

Permit No. / N° de permis 3745-648 QTH

Source (Separate record to be kept for each source)
(Faire un relevé distinct pour chaque source)

Name of Permittee / Nom du titulaire du permis
QUARRY LICENCE #108268

Mailing Address / Adresse postale
FERMA AGGREGATES INC.

Location of Taking / Lieu de la prise d'eau
2666 RENA RD. MISSISSAUGA, ONTARIO L4T 3C8

Twp. or Municipality / Canton ou municipalité
KAWARTHA LAKES/CARDON TWSP.

Concession
CONC. 9

Lot
LOTS 6,7,8,9,10

(1) Date of Taking / Date de la prise d'eau	(2) Hours of Taking / Heure	(3) Rate of Taking / Débit de prise d'eau (☐ Imp. gpm, Gal. /mn/min; ☐ U.S. gpm, Gal. américain/min; ☑ Litres/sec, Litres/sec)	(4) Amount of Taking / Volume des prises d'eau par (☑ Day / jour; ☐ Week / semaine; ☐ Month / mois)	(5) Remarks / Observations
JAN 13/06	12	6.0	259,200	START UP FOR YEAR - 12 NOON
JAN 14/06	24	6.0	259,200	
JAN 15/06	24	6.0	259,200	
JAN 16/06	24	6.0	259,200	
JAN 17/06	12	8.0	345,600	MANUSTING PUMP WEIGHT & FLOW RATE
JAN 18/06	24	8.0	691,200	
JAN 19/06	NIL	NIL	NIL	
JAN 20/06	NIL	NIL	NIL	RESET PUMP & BOOM
JAN 21/06	24	8.0	691,200	NIL
JAN 22/06	6	8.0	172,800	
JAN 23/06	24	10.3	889,920	BAD WEATHER, HYDRO DOWN FOR PART DAY
JAN 24/06	24	10.3	889,920	OPENED UP GATE VALVES INCREASE FLOW
JAN 25/06	24	10.3	889,920	
JAN 26/06	24	15.5	1,339,200	OPENED FLOW UP MORE

I certify that the above information is true, complete and accurate.
Je certifie que les renseignements ci-dessus sont vrais, complets et exacts.

Signature

Date

Ministry of the Environment / Ministère de l'Environnement

Ontario

Annual Record of Water Taking
Relevé annuel des prises d'eau

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Voir les exemples au verso pour remplir la formule.

Year / Année

Permit No. / N° de permis 3745-648 QTH

Source (Separate record to be kept for each source)
(Faire un relevé distinct pour chaque source)

QUARRY LICENCE #10826

Name of Permittee / Nom du titulaire du permis

FERMA AGGREGATES INC.

Mailing Address / Adresse postale

2666 REGA RD. MISSISSAUGA, ONTARIO L4T 3C8

Location of Taking / Lieu de la prise d'eau

KAWARTHA LAKES/CARDON TWSP.

Twp. or Municipality / Canton ou municipalité

CONC. 9

Concession

LOTS 6,7,8,9,10

Lot

(1) Date of Taking / Date de la prise d'eau	(2) Hours of Taking / Heure	(3) Rate of Taking / Débit de prise d'eau (☐ Imp. gpm / Can. Imp./min; ☐ U.S. gpm / Can. américain; ☑ Litres/sec / Litres/sec)	(4) Amount of Taking / Volume des prises d'eau par (☑ Day / jour; ☐ Week / semaine; ☐ Month / mois)	(5) Remarks / Observations
SEPT 17/06	NIL	NIL	NIL	BROKE DOWN DISCHARGE HOSE
SEPT 18/06	24	7.34	634,176	REROUTE WATER DISCHARGE TO CATTLE
SEPT 19/06	24	7.34	634,176	DUG OUT DUE TO EXTREMELY DRY SEASON
SEPT 20/06	24	7.34	634,176	
SEPT 21/06	24	7.34	634,176	LIGHTNING STRIKE
SEPT 22/06	6	7.34	158,544	RAINS CAME AND CONTINUED HELPING TO FILL CATTLE
SEPT 23/06	24	7.34	634,176	DUG OUTS AGAIN.
SEPT 24/06	24	7.34	634,176	
SEPT 25/06	24	7.34	634,176	
SEPT 26/06	NIL	NIL	NIL	SUCTION/INTAKE HOSE HAD TO BE REPLACED
SEPT 27/06				
SEPT 28/06	24	11.20	967,680	
SEPT 29/06	12½	11.20	504,000	SHUT DOWN 12:30AM
SEPT 30/06		SHUT DOWN INDEFFENTLY (DUE TO POLITICAL PROBLEMS)		

I certify that the above information is true, complete and accurate.
Je certifie que les renseignements ci-dessus sont vrais, complets et exacts.

Signature

Date

Ferma Aggregates Inc.

2666 RENA RD., MISSISSAUGA, ONTARIO L4T 3C8 TEL: (905) 677-9241 • FAX: (905) 677-9817

PERMITS TO TAKE WATER – ACTIVITY REPORT – October 21/2005

Location: City of Kawartha Lakes/Carden Township
Conc 9 Lots 6,7,8,9,10

Source: Limestone Quarry – Licence # 108268 – Phase 1 Lift 1

Permit # 98-P-4050 (issued in 1998 – formerly Ferma Crushed Stone Inc.)

Permit # 3745-648QTH (issued in Sept/2004)

Area blasted and extracted below existing elevation – 72 m x 72m x 6m deep

The newly licenced quarry was active in the fall of 2003, stripping and excavating the top ½ meter of limestone to build access roads, and upgrade a municipal road, with completion of the road bases in the spring of 2004. Drilling and blasting of the first section (the sink cut), took place in the middle of April/04. The second section of the sink-hole was drilled and blasted in early Aug/04, with a third section blasted at the beginning of Sept/04.
The amount of water to pump from the sink cut was minor, due to the depth and perimeter size of the first two sections. Once the third section was blasted, more water was noticeable. The season was late, with an abundance of precipitation up until the first part of Sept/04, after which, the season turned drier with warmer temperatures. Pumping requirements have stayed relatively consistent over the fall of 2004 and the spring of 2005, with the exception of breakdown time and catch up periods. But the majority of 2005 has been record breaking, hot and dry. Many areas have been experiencing lower water tables, and the effect has taken its toll on the cattle ranchers of the Carden Plain. Since the end of Aug/05, Ferma has assisted one neighboring rancher with water from the quarry, saving them from relocating the herd to other lands. Environment Canada is warning us that these hot dry summers are going to be the norm for the future. Farmers grazing any livestock are going to forced into putting the old existing wells and windmills back into service, to supply water, no different then generations ago.
No operational activity has taken place since Dec 03, 2004. Anticipated shipping activities in Nov/05, but no excavating activities anticipated until spring of 2006. The depth of extraction, and rate of pumping, will go unchanged for the year 2006.

2666 RENA RD., MISSISSAUGA, ONTARIO L4T 3C8 TEL: (905) 677-9241 • FAX: (905) 677-9817

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Ferma Aggregates Inc.

2666 RENA RD., MISSISSAUGA, ONTARIO L4T 3C8 TEL: (905) 677-9241 • FAX: (905) 677-9817

March 30, 2006

Ministry of the Environment
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

In response to the Technical Bulletin that was sent to us, is attached the Daily Water Taking Records for the period of July 1, 2005 to November 4, 2005 when pumping activities were discontinued for the balance of the year.

Trow Engineering is working on a broader report to meet the conditions of our site plan, which will be forwarded to the Ministry in the near future.

David W. Kennedy
General Manager

2666 RENA RD., MISSISSAUGA, ONTARIO L4T 3C8 TEL: (905) 677-9241 • FAX: (905) 677-9817

DAVE'S COPY

Ministry of the Environment

135 St. Clair Avenue West
Toronto ON M4V 1P5

Ministère de l'Environnement

135, avenue St. Clair ouest
Toronto ON M4V 1P5

Ontario

November 4, 2005

Attached is a Technical Bulletin to assist Phase 1 permit holders in understanding the monitoring and reporting requirements of the new Water Taking and Transfer Regulation (O. Reg. 387/04). Phase I applies to permit holders with permits for water takings for large and small municipal residential systems, uses that remove water from the watershed and MISA facilities.

The new Water Taking and Transfer Regulation that took effect January 1, 2005, introduced improvements to the Permit to Take Water Program, including requirements for mandatory monitoring and reporting of water takings by all permit holders. These requirements will be implemented in three phases over the period July 1, 2005 through January 1, 2007.

Permit holders covered under Phase 1 are required to collect and record the data on the volume of water taken daily beginning July 1, 2005, and must submit their first set of data covering the period July 1 through December 31, 2005 to the ministry by no later than March 31, 2006.

This bulletin is provided for general guidance purposes only. To determine specific legal responsibilities, please refer directly to the Ontario Water Resources Act, the Water Taking and Transfer Regulation and the conditions set in the permit. A copy of the Water Taking and Transfer Regulation is accessible through the ministry's web site at **http://www.e-laws.gov.on.ca/DBLaws/Source/Regs/English/2004/R04387_e.htm**.

If you have any questions or concerns, please contact the ministry's Public Information Centre at 1-800-565-4923 or (416) 325-4000, or the ministry Regional Offices listed on the bulletin.

A copy of the Technical Bulletin is accessible through the ministry's web site at **http://www.ene.gov.on.ca/envision/water/pttw.htm**.

October 2005

Technical Bulletin

Permit to Take Water – Phase 1 Monitoring and Reporting

This bulletin is to assist Phase 1 permit holders in understanding the monitoring and reporting requirements of the Water Taking and Transfer Regulation (O. Reg. 387/04).

In Ontario, water takings are governed by the Ontario Water Resources Act (OWRA) and the Water Taking and Transfer Regulation. Section 34 of the OWRA requires anyone taking more than 50,000 litres of water a day, with some limited exceptions, to obtain a Permit to Take Water (PTTW) from the Ministry of the Environment (ministry).

The new regulation, that took effect January 1, 2005, introduced improvements to the Permit to Take Water Program, including strengthening the factors to be considered by the ministry when assessing water taking applications. As well, the regulation introduced mandatory monitoring and reporting of water takings by all permit holders.

The data base will support improved water management in the province, including the sustainable management of water takings, water conservation, development of water budgets, and reporting of water use under the Great Lakes Charter. Summaries of the data on water takings will be made available to the public.

Tracking water takings can provide valuable information to help promote water conservation. By using water more efficiently every permit holder helps ensure a sustainable supply of water for the future.

Section 9 of the Water Taking and Transfer Regulation requires all permit holders to collect and record data on the volume of water taken daily and report this data annually to the ministry. These requirements will be implemented in three phases over the period July 1, 2005 through January 1, 2007. The data on the volume of water taken daily must be measured by a flow meter or calculated using a method acceptable to the ministry..

Permit holders covered under Phase 1 are required to collect and record the data on the volumes of water taken daily beginning July 1, 2005, and must submit their first set of data covering the period July 1 through December 31, 2005 to the ministry by no later than March 31, 2006. Beginning January 1, 2006, the data is required to be collected and recorded annually from January 1 to December 31 and submitted by no later than March 31 of the next year.

Phase 1 permit holders

Phase 1 applies to permit holders taking water for any of the following purposes:

- Large and small municipal residential systems as defined in the Drinking-Water Systems Regulation (O. Reg. 170/03);
- beverage manufacturing, including the manufacturing or production of bottled water or water in other containers;
- fruit or vegetable canning or pickling;
- ready-mix concrete manufacturing, not

including concrete manufactured at a portable ready-mix concrete manufacturing facility;
- aggregate processing, if the aggregate and the water that is taken are incorporated into a product in the form of a slurry;
- product manufacturing or production if, in the normal course of the manufacturing or production, more than 50,000 litres of the water taken may be incorporated in a single day into the products being manufactured or produced; and
- the operation of a facility governed by any of the following regulations, made under the Environmental Protection Act:
  - O. Reg. 560/94 (Effluent Monitoring and Effluent Limits – Metal Mining Sector)
  - O. Reg. 215/95 (Effluent Monitoring and Effluent Limits – Electric Power Generation Sector)
  - O. Reg. 561/94 (Effluent Monitoring and Effluent Limits – Industrial Minerals Sector)
  - O. Reg. 64/95 (Effluent Monitoring and Effluent Limits – Inorganic Chemicals Sector)
  - O. Reg. 214/95 (Effluent Monitoring and Effluent Limits – Iron and Steel Manufacturing Sector)
  - O. Reg. 562/94 (Effluent Monitoring and Effluent Limits – Metal Casting Sector)
  - O. Reg. 63/95 (Effluent Monitoring and Effluent Limits – Organic Chemical Manufacturing Sector)
  - O. Reg. 537/93 (Effluent Monitoring and Effluent Limits – Petroleum Sector)
  - O. Reg. 760/93 (Effluent Monitoring and Effluent Limits – Pulp and Paper Sector)

Phase 2 and Phase 3 permit holders

Information for permit holders covered in Phases 2 and 3 will be sent out in separate bulletins.

Phase 2 applies to permit holders taking water for any industrial or commercial purpose not described in Phase 1, and to permit holders taking water for wildlife and conservation purposes. Phase 3 applies to permit holders taking water for large and small municipal non-residential systems; large and small non-municipal non-residential systems; non-municipal seasonal residential systems and non-municipal year-round residential systems; as well as agricultural and all other remaining permit holders not described in Phases 1 or 2.

Monitoring of water takings by using a meter

Continuous metering at the point of water taking is the normally accepted, most accurate, and easy-to-use method of monitoring the volume of water taken daily (in litres per day).

It is expected that most Phase 1 permit holders, in particular, MISA sector companies and large and small municipal residential systems, are already using water meters to monitor water use. Consequently, these permit holders may need only to establish a daily monitoring schedule to collect and record the necessary water taking data. A standard criterion for approval of a large and small municipal residential system is that a sufficient number of flow measuring devices within the drinking-water system are installed to permit continuous measurement and recording of the flow rate and daily volume of water conveyed into the treatment system.

Each water taking source should be monitored. However, where multiple water taking sources are listed on a permit, the ministry will generally accept a single daily total volume of these takings provided all the sources are from the same hydrologic unit (for example a surface water stream or a groundwater aquifer).

For large and small municipal residential systems with permitted water takings from multiple sources, flow measurement at the point where water is conveyed into the treatment system is also acceptable and meets the regulatory requirements for permit holders.

For MISA facilities governed by the Ontario Regulations 560/94, 215/95, 561/94, 64/95, 214/95, 562/94, 63/95, 537/93 and 760/93, the ministry will accept, in place of metering at the point of water taking, a calculation that aggregates metered daily total volume discharged from all discharge points and includes all estimated losses between the point of taking of raw water at source and the discharge of effluent from the facility (for example, evaporation or other losses). The calculation should be prepared by a qualified person, such as a professional engineer.

Selecting the right water meter

There are several types of water meters available for use in either closed conduit or open channel

water systems. In closed systems, water flows in enclosed pressure conduits (pipes) and the water flow is often measured by inserting a meter into the line. In an open channel, water flows through a channel with an open or exposed surface.

It is best to consult with a water meter supplier or metering contractor to select the right meter for the facility or operation. A list of some types of water meters for both closed conduit and open channel systems can be found in the resource section of this bulletin.

Maintenance and calibration of water meters and record keeping requirements

To ensure the continued accuracy of the meter, it should be maintained on a regular basis and calibrated annually.
Permit holders should maintain an on-site log of daily water takings. Maintenance and calibration records for water meters used for monitoring daily water takings and for the pump or pumps used to extract the water should also be kept on site for inspection by the ministry.

Monitoring of water takings by a calculation method acceptable to the Director

Where the use of a flow or a volumetric meter is not feasible or practical, the ministry allows manual calculation of daily water takings using acceptable methods. Acceptable methods for both closed conduit and open channel systems are discussed in the resource section of this bulletin.

The calculated volume of water taken daily is required to be within 20% accuracy or better. To ensure the calculation accuracy is 20% or better, it is recommended that at least once a year a spot meter be used to cross-check the calculated daily volume of water taken.

Annual reporting requirements

Phase 1 permit holders must submit the data on the total volumes of water taken daily for the period

Table 1 – Closed conduit water meters

Meter Type	Pipe Diameter	Accuracy	Intrusive	Remote Reading	External Power Source	Worth Noting
Differential Pressure	Typically > 300 mm	±2% – ±5%	Yes	Yes	No	Commonly used in larger applications and includes venturi–style, orifice plate and V-cone type meters. Long life-span with average maintenance and calibration requirements.
Magnetic	100 – 900 mm	±2%	Yes	Yes	Yes*	Commonly used in municipal and industrial applications. Long life-span with low maintenance and calibration requirements.
Propeller & Turbine	50 – 600 mm	±2% - ±5%	Yes	Yes	No	Commonly used in municipal and industrial applications. Offer a lower cost solution to metering, but due to moving parts, higher calibration and maintenance requirements.
Ultrasonic	> 150 mm	±2% - ±5%	No	Yes	Yes	Good for temporary metering and for flow metering in locations where isolating the flow is impossible or very costly. Average maintenance requirements.
Vortex	100 – 400 mm	±2%	Yes	Yes	Yes	Commonly used in industrial applications. Low maintenance and calibration requirements, but proper installation critical.
Velocity Jet	25 – 150 mm (for single jet) 15 – 50 mm (for multi-jet)	±2%	Yes	Yes	No	Lower cost solution to metering smaller sized conduits with varying flow rates. More frequent calibration and maintenance requirements.
Insertion	150 – 1500 mm	±5%	Yes	Yes	Yes*	For use in difficult installation situations or for temporary flow monitoring. Due to moving parts, higher maintenance and calibration requirements.
Positive Displacement	15 – 60 mm	±2%	Yes	Yes	No	Commonly used in residential and small commercial applications and in industrial applications for accurate volumetric metering. Long life-span with low maintenance requirements.

** External power source not required for some models*

covering July 1, 2005 through December 31, 2005, to the Ministry of the Environment on or before March 31, 2006.

Annual reports of the data on the total volume of water taken daily (in litres per day) for each subsequent year must be submitted on or before March 31 each year thereafter.

The new monitoring and reporting requirements contained in O. Reg. 387/04 work in conjunction with conditions imposed in a permit.Where a permit requires the permit holder to collect information at a greater frequency or to collect additional information (for example, recording daily maximum flow and/or a requirement that all water taking information be analyzed by a qualified professional and reported annually), the permit holder must comply with these conditions. In addition, the data on the total volume of water taken daily must be submitted to the ministry annually, notwithstanding any contrary conditions in the permit that only require the permit holder to retain the data on site.

Information on the specific form and manner for annual reporting will be made available to permit holders in a separate technical bulletin.

Monitoring and reporting resources

There are numerous types of water meters available on the market for both closed conduit and open channel systems. Below is a description of some types of available water meters for volumetric measurement.

Closed conduit metering systems

Water meters for closed conduits or pipes are typically inserted directly into the line, but there are non-intrusive models available. Table 1 provides a brief description of some types of available water meters for volumetric measurement for use in closed conduit systems.

Open channel metering systems

Open channel metering systems are used on gravity-fed applications and are normally metered by one of the following methods:

1. **Area / Velocity water meters:** A water flow velocity sensor and depth sensor is placed at the bottom of an open channel of known configuration. Flow and volumetric readings are obtained by determining the cross-sectional area of the water flow and multiplying it by the sensed velocity.

2. **Weir flow measurement:** A weir is a calibrated structure used to relate water level to flow. Water flow over a weir will create a unique head-to-discharge relationship, thus by measuring the head above the weir crest; an accurate flow-rate can be established.

3. **Flume flow measurement:** A flume is a specially shaped open channel flow section that restricts the channel area in such a way that the depth of flow in the channel restrictions is directly proportional to the flow of water.

To obtain daily volumetric measurements for Weir-flow and Flume-flow metering systems, an instrument to measure the water level (depth of flow) and recording device (such as a data logger) are required. A calculation must be made manually or automatically to convert the flow rate measurement and daily taking times into a daily volumetric measurement.

Calculation method for closed conduit systems

In order to demonstrate that the calculation method used for the daily volume of water taken in closed conduit systems is acceptable, a permit holder is required to keep on site the following information (at a minimum) for inspection:

Daily pump run-time – Daily pump run-time is the amount of time each day (24 hour period) the pump is in operation. The pump run-time can be recorded with an automatic recording device, such as an hour meter, affixed directly to the pump.

Pump discharge pressure head – Pump discharge pressure head is the total water pressure expressed in elevation at the point the water is discharged from the pump itself. Pump discharge pressure head is obtained by monitoring the pump with a pressure head transducer and recording device, such as a data logger.

Suction head – Suction head is the vertical distance between the pumped water (at the point of taking) and the pump (the lift). If the water

source and pump are both located at the same level or height then the suction head would be zero. If the water is taken from a well or a surface source located down-hill from the pump, it will be necessary to determine the suction head by determining the elevation difference between the water source and the pump.

Total Dynamic Head (TDH) – TDH is the pump discharge pressure head plus the difference in head between the pumped water extraction point and the pump discharge point. TDH is calculated by adding the total pump discharge pressure head and the suction head.

TDH = pump discharge pressure head + suction head

Pump curve – A pump curve is a graph showing the range of head-discharge performance for a specific pump. The pump curve specific to the type of pump should be included with the literature supplied by the pump manufacturer or installer. Pump curves from the manufacturer have at least an accuracy of 20%. The accuracy of the pump curve can be improved to within 10% if a site-specific pump curve is developed at the actual pump installation point. If a pump curve cannot be located, identify the model number on the pump and contact the manufacturer to request a pump curve.

Average pump flow rate – The average pump flow rate is obtained from the pump curve using the Total Dynamic Head (TDH) measurement.

To calculate the daily volume of water taken, multiply the average pump flow rate by the Daily pump run-time:

Daily volume = average pump flow rate X daily pump run-time

It is strongly recommended that the pump be calibrated at minimum annually, or after any maintenance or part replacement and routinely run pump curve tests to ensure the accuracy of the daily water taking volume calculations.

Calculation method for open channel systems

Open channel systems involve the use of a canal, ditch, stream or other constructed infrastructure to divert water from its source. In order to demonstrate that the calculation method used for daily volume of water taken from open channel systems is acceptable, a permit holder is required to keep on site the following information:

Stage-discharge Rating Curve – A stage-discharge rating curve depicts an average flow rate for a certain depth of water (stage) in an open channel. In order to develop a stage-discharge rating curve, detailed recording of actual discharge at several stages (depths of water) must be taken. Once the stage-discharge curve is established, volume measurements can be calculated based on the depth of water recorded at set intervals (normally every 15 minutes) over a day.

Open channel discharge – The open channel discharge needed for the development of a stage-discharge rating curve can be recorded using a temporary open channel metering system as described above in the section titled "Open channel metering systems". In addition, discharge can be measured using standard river gauging techniques. Stream or river gauging is a graphic integration of the velocity distribution over the cross-sectional area of the open channel. The process can be difficult for streams and ditches as the cross-sectional area at the measurement location must be established. It is much easier to undertake this process in canals of constant geometry. Velocity measurements are taken using, current, magnetic, acoustic or Doppler velocity meters.

Open channel stage (water level) – The open channel stage is measured using a depth transducer or level transducer and recorded using either a chart or data recorder. This provides a constant level or stage indication from which an average flow rate can be established from the stage-discharge rating curve.

To calculate the daily volume of water taken, the average daily open channel flow rate (calculated from the stage-discharge rating curve and average stage depth), is multiplied by the total daily taking time (24 hours in systems with no control gates).

Daily Volume = average open channel flow rate X daily taking time

It should be noted that volumetric calculations using the stage-discharge rating curve method require frequent verification of the stage-discharge rating curve for streams and ditches as channel geometry may change rapidly. It is recommended

that the stage-discharge rating curve be calibrated on an annual basis.

Where to obtain more information on water metering

For general information on the types and use of water meters and methods of metering, please refer to the following publications:

- "Establishing a Metering Plan to Account for Water Use and Loss", available at www.infraguide.ca or by contacting Infraguide at 1-866/330-3350
- "Water meters – Selection, Installation, Testing and Maintenance" (M6 manual), available at www.awwa.org or by contacting the American Water Works Association (AWWA) at 1-800/926-7337
- "Water Metering Trade Sector Review", available at the Measurement Canada web site at www.strategis.ic.gc.ca/engdoc/main.html or by phone at 613/952-5405
- "Water Measurement Manual: A Water Resources Technical Publication", available at the U.S. Department of Interior web site at www.usbr.gov (follow link to Publications and Reports)
- "Integrated Water Metering Management", by F. Arregui, E. Cabrera Jr., R. Cobacho, available at www.iwapublishing.com or by contacting the publisher at +44 1206 796351

Where to obtain general information on monitoring and reporting requirements

General information on the monitoring and reporting requirements is available at the ministry's Public Information Centre at 1-800/565-4923 (within the Toronto calling area at 416/325-4000) or on-line at the ministry web site at www.ene.gov.on.ca

Where to obtain information regarding a permit

Information specific to the permit requirements and conditions is available at the Ministry of Environment Regional Offices:

Eastern Region (Kingston)
Tel. 613/549-4000 or 1-800/267-0974

Central Region (Toronto)
Tel. 416/326-6700 or 1-800/810-8048

Northern Region (Thunder Bay)
Tel. 807/475-1205 or 1-800/875-7772

Northern Region (Sudbury)
Tel. 705/564-3237 or 1-800/890-8516

West Central Region (Hamilton)
Tel. 905/521-7640 or 1-800/668-4557

Southwest Region (London)
Tel. 519/873-5000 or 1-800/265-7672

This bulletin is provided for general guidance purposes only. To determine specific legal responsibilities, please refer directly to the Ontario Water Resources Act, Water Taking and Transfer Regulation (O. Reg. 387/04) and the conditions set in the permit.

Disponible en français

FILE

Ferma Aggregates Inc.

2666 RENA RD., MISSISSAUGA, ONTARIO L4T 3C8 TEL: (905) 677-9241 • FAX: (905) 677-9817

September 06, 2005

Ministry of Natural Resources
1st Floor, South Tower
300 Water Street
Peterborough, Ontario
K9J 8M5

Attention: Paul Cutmore – Aggregate Resources Inspector

Re: Ferma – Carden/Kirkfield Quarry

Thankyou for the reply on August 24th.

For your records, the land adjacent (east) to the quarry has experienced a lack of water for the cattle that graze there. The Ferma Group owns this land, and allows one of the local ranchers the use of it. As you know, this summer has been extremely hot, with very few days of rain, causing low water tables all over the country. To help the rancher, I utilized the water from the quarry excavation, and started pumping by way of fire hoses over to this location, eliminating the crisis. I felt you should be aware of this, because some were along the line the story will expand into "How the quarry operation dried up the neighbors water source", and you will be one of the first to receive the complaint.

David W. Kennedy
General Manager

2666 RENA RD., MISSISSAUGA, ONTARIO L4T 3C8 TEL: (905) 677-9241 • FAX: (905) 677-9817

BAIF0008977E

Laboratory Analysis
2230 Victoria Road

Parameter		ODWS	Sample Date						
			Spring 26-Apr-04	Summer 29-Jul-04	Fall 26-Oct-04	Winter 27-Jan-05	Spring 21-Apr-05	Fall 25-Oct-05	Average
General Chemistry									
Alkalinity (CaCO3)	mg/L	30-500	249	268	314		238	253	264
Ammonia (N)	mg/L		<0.03	<0.05	<0.05		<0.02	<0.05	0
Chloride	mg/L	250*(250)	77.9	32.2	66.1		204	77.5	91.5
Conductivity (Field)	µmho/cm		570				1100	1000	890
Conductivity (Lab)	µmho/cm		695	626	869	N	1090	843	825
Hardness (CaCO3)	mg/L	500*(+500)	271	239	392	O	339	325	313
Nitrate (N)	mg/L	10	0.80	0.43	4.24		0.86	0.71	1.41
Nitrite (N)	mg/L	1	<0.2	<0.05	<0.05	A	<0.05	<0.05	0
Phosphate	mg/L				<0.10	C			0
Orthophosphate (as P)	mg/L		<0.3	<0.05		C	<0.05	<0.10	0
TKN	mg/L		0.12	0.15	0.1	E	0.08	0.14	0.12
pH (Field)	units		8.0		7.6	S	7.3	7.7	7.7
pH (Lab)	units	6.5-8.5	7.72	7.40	7.37	S	7.56	8.01	7.61
Sulphate	mg/L	500*(500)	12.00	7.49	53.30		14.10	102.00	37.78
Temperature	°C		9.6		13.1		9.3	10.0	10.5
Total dissolved solids (TDS)	mg/L	500*	358	332	546		306	566	422
Turbidity (lab)	NTU	5	<0.2	<0.5	<0.5		<0.5	<0.5	0
Aluminum	mg/L	0.1	<0.05				0.004		0.002
Calcium	mg/L		100				125		113
Iron	mg/L	0.3*(5)	0.020				0.283		0.152
Magnesium	mg/L		4.96				6.49		5.73
Manganese	mg/L	0.05*(1)	<0.005				<0.002		0
Potassium	mg/L		1.00				0.71		0.86
Sodium	mg/L		50.4				83.0		66.7
Strontium	mg/L		0.163				0.214		0.189

ODWS - Ontario Drinking Water Standards (June 2003)

- not within ODWS

( ) - concentration limit considered treatable by conventional methods

* - maximum desirable concentrations (parameters relating to aesthetic quality)

BAIF0008977E

Laboratory Analysis
2206 Victoria Road

Parameter		ODWS	Sample Date						
			Spring 26-Apr-04	Summer 29-Jul-04	Fall 26-Oct-04	Winter 27-Jan-05	Spring 21-Apr-05	Fall 25-Oct-05	Average
General Chemistry									
Alkalinity (CaCO3)	mg/L	30-500	251	266	278	268	236		260
Ammonia (N)	mg/L		<0.03	<0.05	<0.05	<0.02	<0.02		0
Chloride	mg/L	250*(250)	39.2	30.2	31.1	27.2	63.2		38.2
Conductivity (Field)	µmho/cm		450			700	700		617
Conductivity (Lab)	µmho/cm		582	631	633	601	693	N	628
Hardness (CaCO3)	mg/L	500*(+500)	270	254	282	253	272	O	266
Nitrate (N)	mg/L	10	2.10	1.68	1.89	2.63	2.01		2.06
Nitrite (N)	mg/L	1	<0.2	<0.05	<0.05	<0.05	<0.05	A	0
Phosphate					<0.10			C	0
Orthophosphate (as P)	mg/L		<0.3	<0.05		<0.05	<0.05	C	0
TKN	mg/L		0.16	0.32	0.14	0.24	0.16	E	0.20
pH (Field)	units		8.0		7.8	7.4	7.7	S	7.7
pH (Lab)	units	6.5-8.5	7.66	7.46	7.28	7.67	7.36	S	7.49
Sulphate	mg/L	500*(500)	9.60	9.38	12.00	9.52	9.78		10.06
Temperature	°C		8.9		13.5	8.1	10.4		10.2
Total dissolved solids (TDS)	mg/L	500*	304	342	354	328	366		338.8
Turbidity (lab)	NTU	5	<0.2	<0.5	<0.5	<0.5	<0.5		0
Aluminum	mg/L	0.1	<0.05				<0.004		0
Calcium	mg/L		99.3				99.7		99.5
Iron	mg/L	0.3*(5)	0.03				0.225		0.128
Magnesium	mg/L		5.28				5.54		5.41
Manganese	mg/L	0.05*(1)	0.01				<0.002		0.005
Potassium	mg/L		2				2.22		2.11
Sodium	mg/L		30.4				34.8		32.6
Strontium	mg/L		0.165				0.214		0.190

ODWS - Ontario Drinking Water Standards (June 2003)

- not within ODWS

( ) - concentration limit considered treatable by conventional methods

* - maximum desirable concentrations (parameters relating to aesthetic quality)

BAIF0008977E

Laboratory Analysis
2195 Victoria Road

Parameter		ODWS	Sample Date						
			Spring 20-Apr-04	Summer 29-Jul-04	Fall 26-Oct-04	Winter 27-Jan-05	Spring 21-Apr-05	Fall 25-Oct-05	Average
General Chemistry									
Alkalinity (CaCO3)	mg/L	30-500	297		314	310	284	85	258
Ammonia (N)	mg/L		<0.03		<0.05	<0.02	<0.02	<0.05	0
Chloride	mg/L	250*(250)	31.4		66.1	29.9	32.6	126.0	57.2
Conductivity (Field)	µmho/cm		600			800	600	1200	800
Conductivity (Lab)	µmho/cm		643	N	869	773	740	948	795
Hardness (CaCO3)	mg/L	500*(+500)	313	O	392	336	322	417	356
Nitrate (N)	mg/L	10	3.4		4.24	6.54	6.06	2.86	4.62
Nitrite (N)	mg/L	1	<0.2	A	<0.05	<0.05	<0.05	<0.05	0
Phosphate	mg/L			C	<0.10				0
Orthophosphate (as P)	mg/L		<0.3	C		<0.05	<0.05	<0.10	0
TKN	mg/L		0.20	E	0.28	0.29	0.25	0.26	0.26
pH (Field)	units		7.6	S	7.8	7.2	7.2	7.2	7.4
pH (Lab)	units	6.5-8.5	7.56	S	7.37	7.49	7.14	8.01	7.51
Sulphate	mg/L	500*(500)	13.2		53.3	34.4	26.2	54.5	36.3
Temperature	°C		7.7		12.7	10.6	8.9	12.7	10.5
Total dissolved solids (TDS)	mg/L	500*	366		546	446	430	666	491
Turbidity (lab)	NTU	5	0.3		<0.5	<0.5	<0.5	<0.5	0
Aluminum	mg/L	0.1	<0.05				<0.004		0
Calcium	mg/L		107				112		110
Iron	mg/L	0.3*(5)	<0.01				0.262		0.131
Magnesium	mg/L		11.2				10.4		10.8
Manganese	mg/L	0.05*(1)	<0.005				<0.002		0
Potassium	mg/L		6.00				7.52		6.76
Sodium	mg/L		18.3				24.1		21.2
Strontium	mg/L		0.28				0.262		0.271

ODWS - Ontario Drinking Water Standards (June 2003)

- not within ODWS

( ) - concentration limit considered treatable by conventional methods

* - maximum desirable concentrations (parameters relating to aesthetic quality)

BAIF0008977E

Laboratory Analysis
2136 Victoria Road

Parameter		ODWS	Sample Date						
			Spring 26-Apr-04	Summer 29-Jul-04	Fall 28-Oct-04	Winter 27-Jan-05	Spring 21-Apr-05	Fall 26-Oct-05	Average
General Chemistry									
Alkalinity (CaCO3)	mg/L	30-500	236		268	214	210	217	229
Ammonia (N)	mg/L		<0.03		<0.05	<0.02	<0.02	<0.05	0
Chloride	mg/L	250*(250)	46.2		20.6	53.4	73.6	12.5	41.3
Conductivity (Field)	µmho/cm		450			800	600	500	588
Conductivity (Lab)	µmho/cm		584	N	589	606	680	441	580
Hardness (CaCO3)	mg/L	500*(+500)	252	O	293	240	224	218	245
Nitrate (N)	mg/L	10	1.40		1.44	1.36	1.24	0.61	1.36
Nitrite (N)	mg/L	1	<0.2	A	<0.05	<0.05	0.51	<0.05	0.10
Phosphate	mg/L			C					
Orthophosphate (as P)	mg/L		<0.3	C	<0.05	<0.05	<0.05	<0.10	0
TKN	mg/L		0.17	E	0.20	0.26	0.08	0.15	0.17
pH (Field)	units		8.0	S	7.7	7.8	7.5	7.5	7.7
pH (Lab)	units	6.5-8.5	7.71	S	7.10	7.63	7.46	7.93	7.57
Sulphate	mg/L	500*(500)	8.30		10.40	8.32	7.89	10.90	9.16
Temperature	°C		6.6		9.7	11.7	8.6	10.4	9.4
Total dissolved solids (TDS)	mg/L	500*	314		342	328	398	246	326
Turbidity (lab)	NTU	5	<0.2		<0.5	<0.5	<0.5	<0.5	0
Aluminum	mg/L	0.1	<0.05				<0.004		0
Calcium	mg/L		94.3				97.4		95.9
Iron	mg/L	0.3*(5)	<0.01				0.228		0.114
Magnesium	mg/L		4.06				4.34		4.20
Manganese	mg/L	0.05*(1)	<0.005				<0.002		0
Potassium	mg/L		<1				1		0.5
Sodium	mg/L		27.2				35.1		31.2
Strontium	mg/L		0.169				0.184		0.177

ODWS - Ontario Drinking Water Standards (June 2003)
( ) - concentration limit considered treatable by conventional methods
* - maximum desirable concentrations (parameters relating to aesthetic quality)

- not within ODWS

Laboratory Analysis
163 McNamee Road

Parameter		ODWS	Sample Date						
			Spring 20-Apr-04	Summer 29-Jun-04	Fall 26-Oct-04	Winter 27-Jan-05	Spring 21-Apr-05	Fall 25-Oct-05	Average
General Chemistry									
Alkalinity (CaCO3)	mg/L	30-500	199	242		168	182		198
Ammonia (N)	mg/L		<0.03	<0.05		<0.02	0.03		0.01
Chloride	mg/L	250*(250)	7.50	5.29		11.90	9.65		8.59
Conductivity (Field)	µmho/cm		340			600	300		413
Conductivity (Lab)	µmho/cm		368	473	N	414	413	N	417
Hardness (CaCO3)	mg/L	500*(+500)	216	241	O	210	209	O	219
Nitrate (N)	mg/L	10	<0.2	0.3		0.06	<0.05		0.09
Nitrite (N)	mg/L	1	<0.2	<0.05	A	<0.05	<0.05	A	0
Phosphate	mg/L				C			C	
Orthophosphate (as P)	mg/L		<0.3	<0.05	C	<0.05	<0.05	C	0
TKN	mg/L		0.14	0.31	E	0.22	0.08	E	0.19
pH (Field)	units		8.0		S	7.5	8.0	S	7.8
pH (Lab)	units	6.5-8.5	7.66	7.32	S	7.64	7.38	S	7.50
Sulphate	mg/L	500*(500)	9.90	7.47		25.20	14.60		14.29
Temperature (Field)	°C		6.6			8.8	8.5		8.0
Total dissolved solids (TDS)	mg/L	500*	226	272		236	338		268
Turbidity (lab)	NTU	5	1.3	2.8		0.8	<0.5		1.2
Aluminum	mg/L	0.1	<0.05				0.006		0.003
Calcium	mg/L		81.1				77.7		79.4
Iron	mg/L	0.3*(5)	0.03				0.611		0.321
Magnesium	mg/L		3.26				3.69		3.48
Manganese	mg/L	0.05*(1)	<0.005				0.006		0.003
Potassium	mg/L		<1				0.44		0.22
Sodium	mg/L		2.90				2.55		2.73
Strontium	mg/L		0.143				0.147		0.145

ODWS - Ontario Drinking Water Standards (June 2003)
( ) - concentration limit considered treatable by conventional methods
* - maximum desirable concentrations (parameters relating to aesthetic quality)
- not within ODWS

BAIF0008977E

Laboratory Analysis
485 Shrike Road

Parameter		ODWS	Sample Date						
			Spring 20-Apr-04	Summer 29-Jul-04	Fall 26-Oct-04	Winter 27-Jan-05	Spring 21-Apr-05	Fall 25-Oct-05	Average
General Chemistry									
Alkalinity (CaCO3)	mg/L	30-500	259	260	252		240	244	251
Ammonia (N)	mg/L		0.1	0.09	0.05		<0.02	<0.05	0.0
Chloride	mg/L	250*(250)	5.70	4.89	10.30		6.14	14.80	8.37
Conductivity (Field)	µmho/cm		470				600	600	557
Conductivity (Lab)	µmho/cm		486	541	523	N	512	491	511
Hardness (CaCO3)	mg/L	500*(+500)	268	263	269	O	259	236	259
Nitrate (N)	mg/L	10	<0.2	<0.05	<0.05		<0.05	<0.05	0
Nitrite (N)	mg/L	1	<0.2	<0.05	<0.05	A	<0.05	<0.05	0
Phosphate	mg/L				<0.10	C			0
Orthophosphate (as P)	mg/L		<0.3	<0.05		C	<0.05	<0.10	0
TKN	mg/L		0.34	0.44	0.44	E	0.40	0.40	0.40
pH (Field)	units		8.0		7.7	S	7.2	7.7	7.7
pH (Lab)	units	6.5-8.5	7.61	7.31	7.34	S	7.35	7.95	7.51
Sulphate	mg/L	500*(500)	17.2	13.5	14.7		18.3	12.2	15.2
Temperature	°C		7.2		13.1		9.1	11.1	10.1
Total dissolved solids (TDS)	mg/L	500*	280	286	296		284	378	305
Turbidity (lab)	NTU	5	1.6	2.1	2.0		1.4	2.6	1.9
Aluminum	mg/L	0.1	<0.05				0.006		0.003
Calcium	mg/L		95.2				92.9		94.1
Iron	mg/L	0.3*(5)	<0.01				0.686		0.343
Magnesium	mg/L		7.34				6.66		7.00
Manganese	mg/L	0.05*(1)	0.102				0.101		0.102
Potassium	mg/L		5.00				6.24		5.62
Sodium	mg/L		4.20				4.01		4.11
Strontium	mg/L		0.395				0.358		0.377

ODWS - Ontario Drinking Water Standards (June 2003)

( ) - concentration limit considered treatable by conventional methods

* - maximum desirable concentrations (parameters relating to aesthetic quality)

- not within ODWS

BAIF0008977E
MW WaterLevelSummary 2003-2005 (revised)

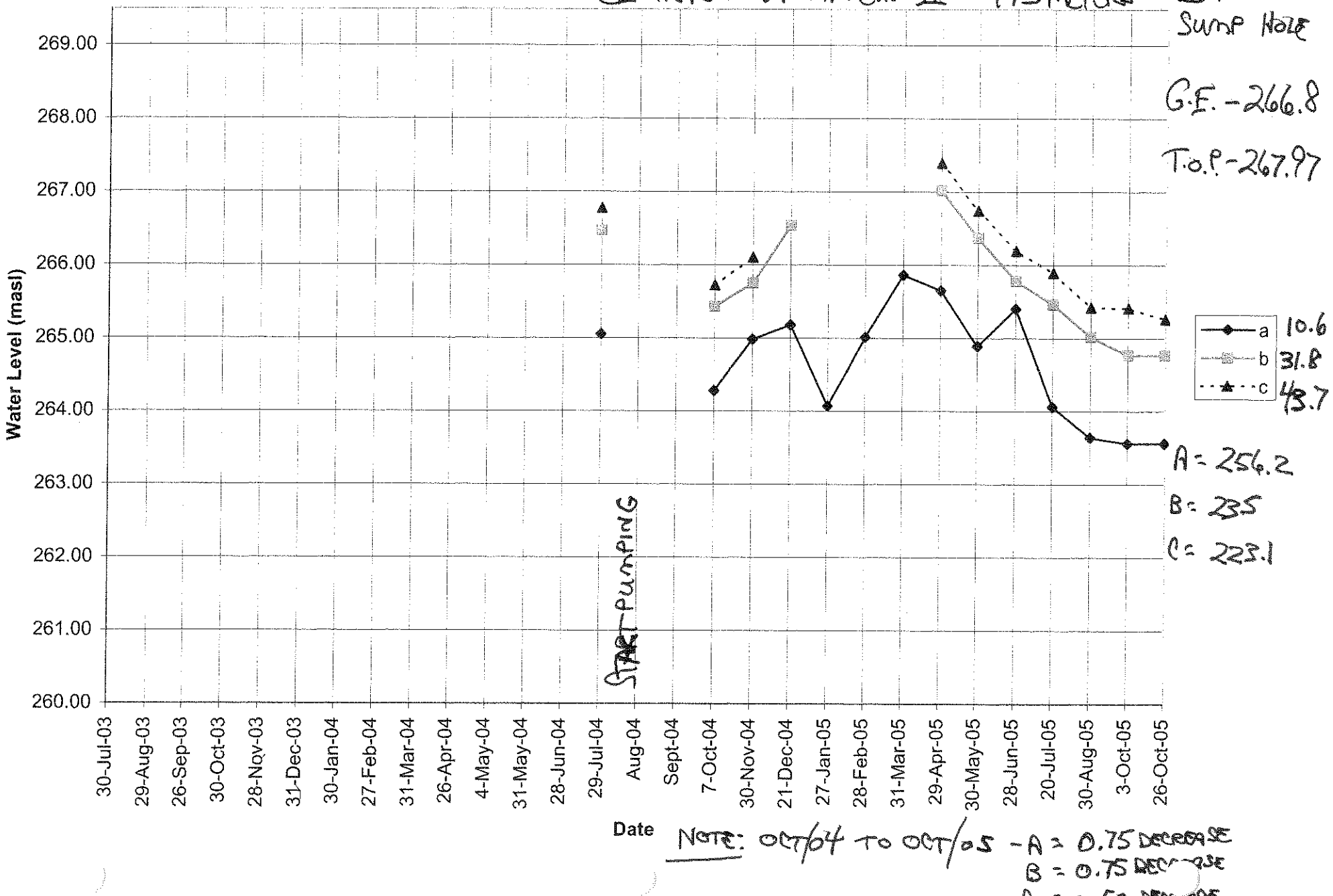
Water Level Monitoring Location
Borehole WD

11/9/2005
8:57 AM

CENTRAL AREA PHASE I & II - 785 METERS - NORTH/WEST OF SUMP HOLE

G.E. - 266.8

T.O.P. - 267.97



10.6
31.8
43.7

A = 256.2
B = 235
C = 223.1

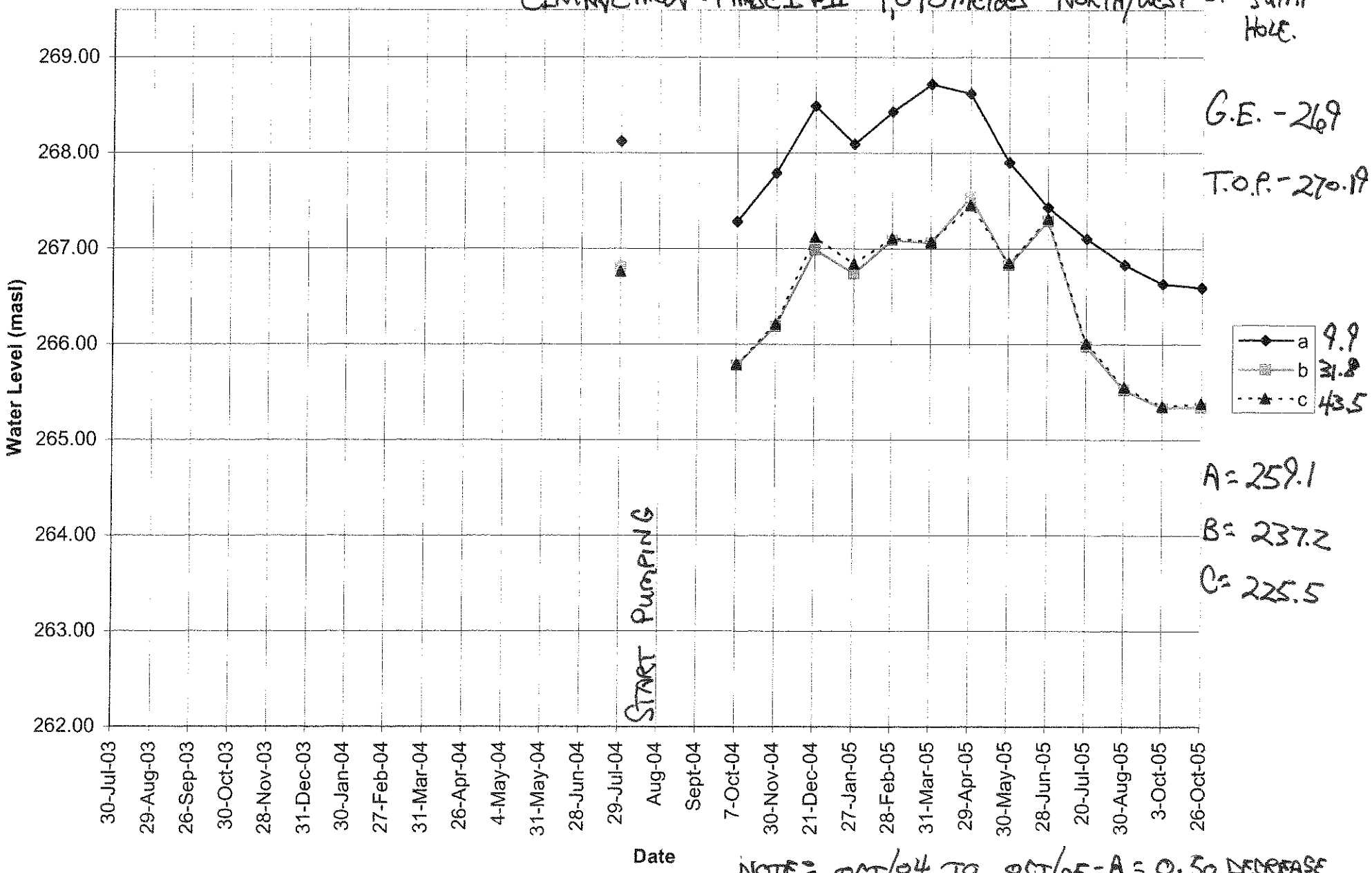
NOTE: OCT/04 TO OCT/05 - A = 0.75 DECREASE
B = 0.75 DECREASE
C = 0.50 DECREASE

BAIF0008977E
MW WaterLevelSummary 2003-2005 (revised)

Water Level Monitoring Location
Borehole WE

11/9/2005
8:57 AM

CENTRAL AREA - PHASE I + II - 1,040 METRES NORTH/WEST OF SUMP HOLE.



G.E. - 269

T.O.P. - 270.19

9.9
31.8
43.5

A = 259.1

B = 237.2

C = 225.5

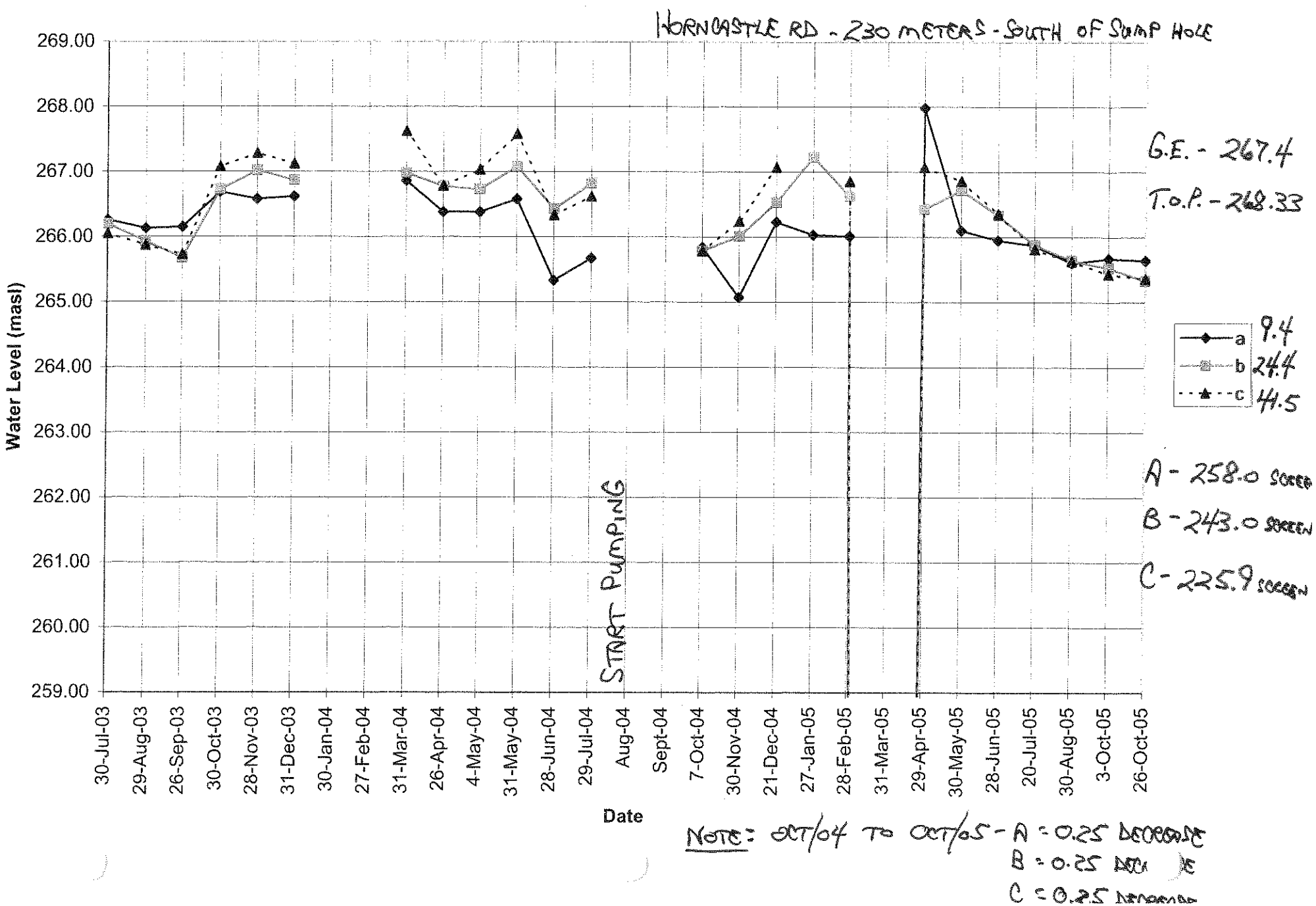
NOTE: OCT/04 TO OCT/05 - A = 0.50 DECREASE
B = 0.5' INCREASE
C = 0.50 DECREASE

BAIF0008977E
MW WaterLevelSummary 2003-2005 (revised)

Water Level Monitoring Location

Borehole 4

11/9/2005
8:57 AM



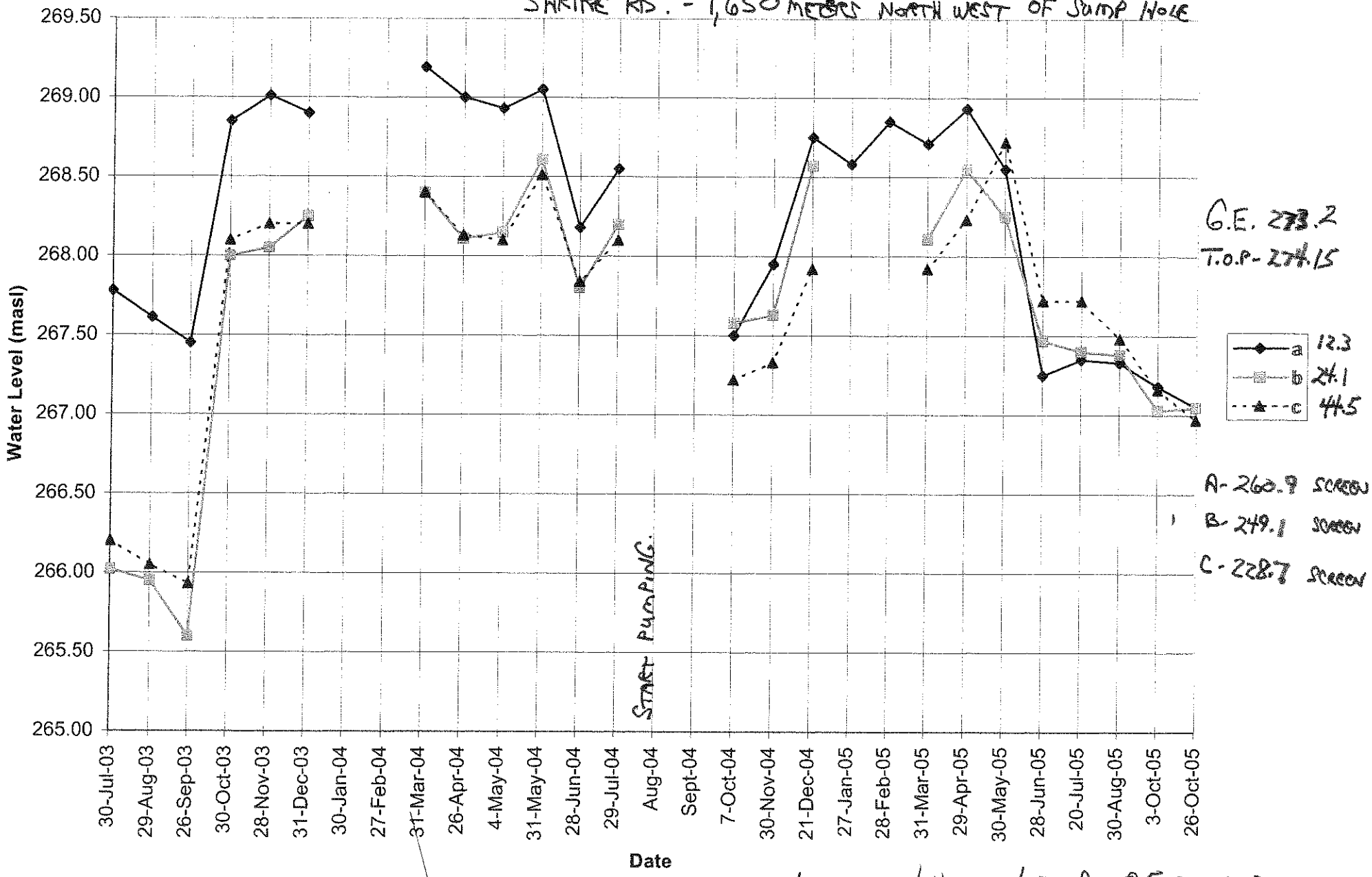
NOTE: OCT/04 TO OCT/05 - A = 0.25 DECREASE
B = 0.25 INCREASE
C = 0.25 INCREASE

BAIF0008977E
MW WaterLevelSummary 2003-2005 (revised)

Water Level Monitoring Location
Borehole 1

11/9/2005
8:58 AM

SHRIKE RD. - 1,650 METERS NORTH WEST OF SUMP HOLE



G.E. 273.2
T.O.P - 274.15

a 12.3
b 24.1
c 44.5

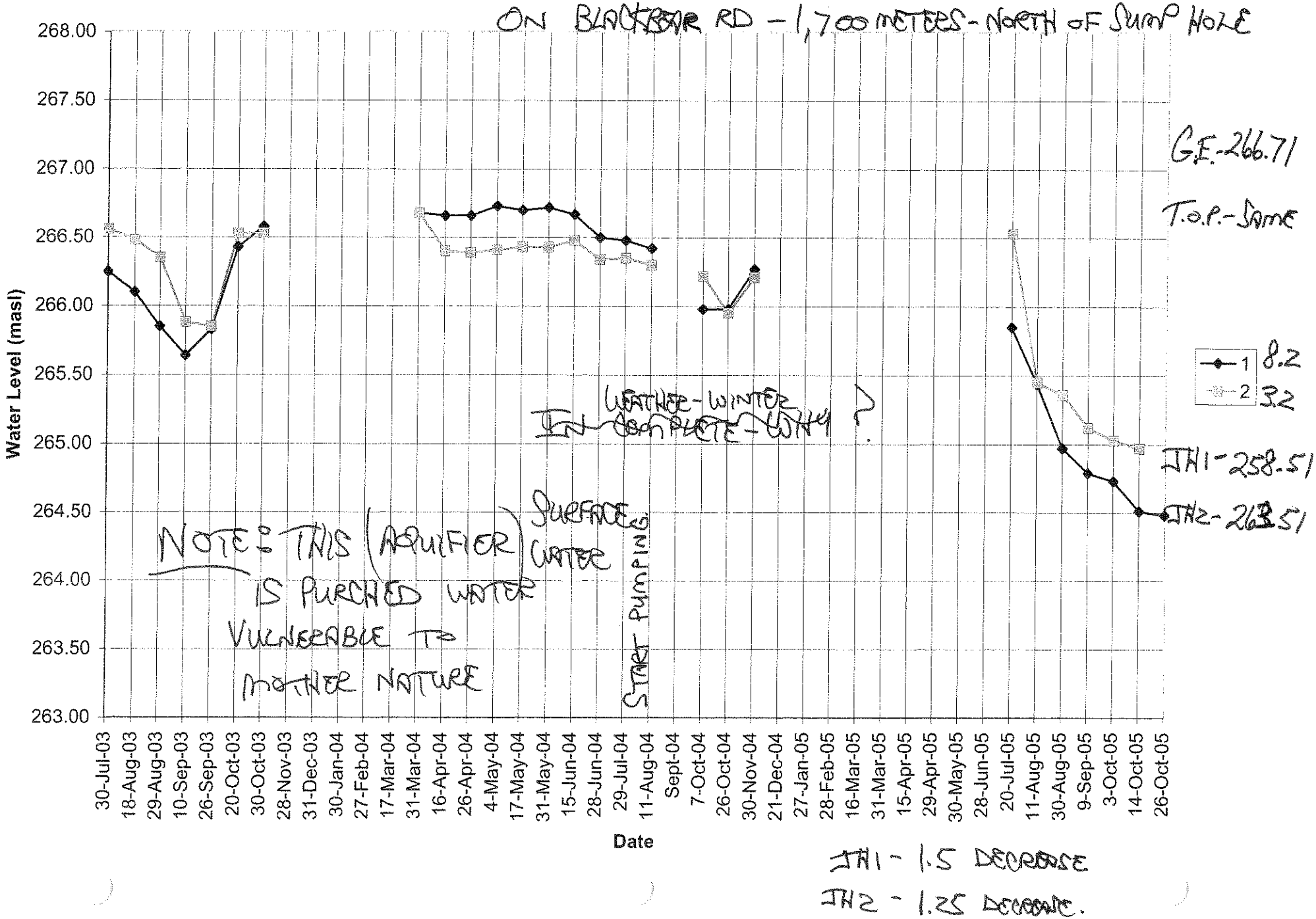
A - 260.9 SCREEN
B - 249.1 SCREEN
C - 228.7 SCREEN

NOTE: OCT/04 TO OCT/05 - A = 0.5 METER DROP
B = 0.5 "
C = 0.25 "

BAIF0008977E
MW WaterLevelSummary 2003-2005 (revised)

Water Level Monitoring Location
JH

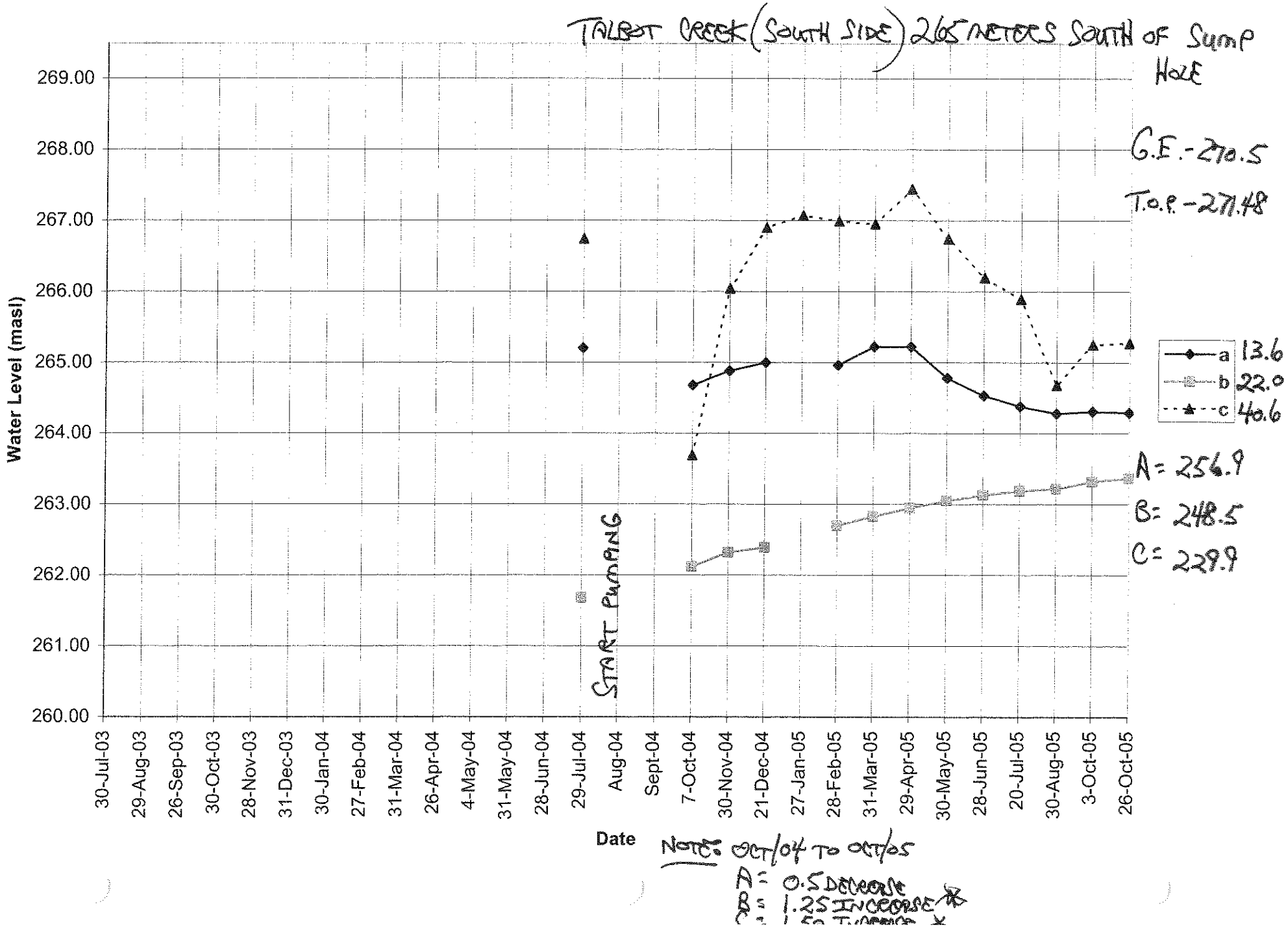
11/9/2005
8:56 AM



BAIF0008977E
MW WaterLevelSummary 2003-2005 (revised)

Water Level Monitoring Location
Borehole WC

11/9/2005
8:57 AM

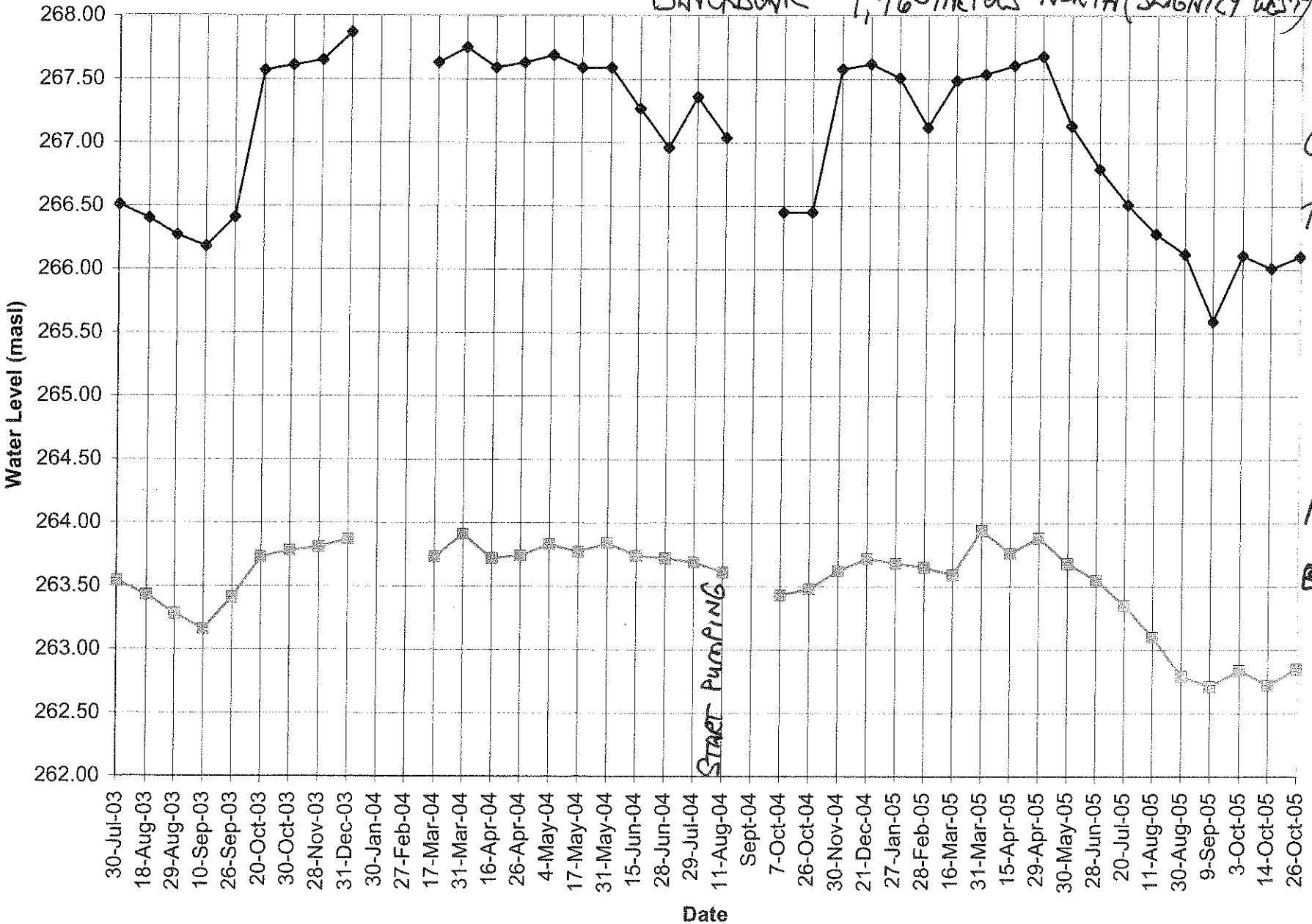


BAIF0008977E
MW WaterLevelSummary 2003-2005 (revised)

Water Level Monitoring Location
OH1

11/9/2005
8:57 AM

BLACKBEAR - 1,460 METERS NORTH (SLIGHTLY WEST) OF SUMP N2E.



G.E-268.3

T.O.P.-269.11

a 5.1
b 12.1

A-263.2

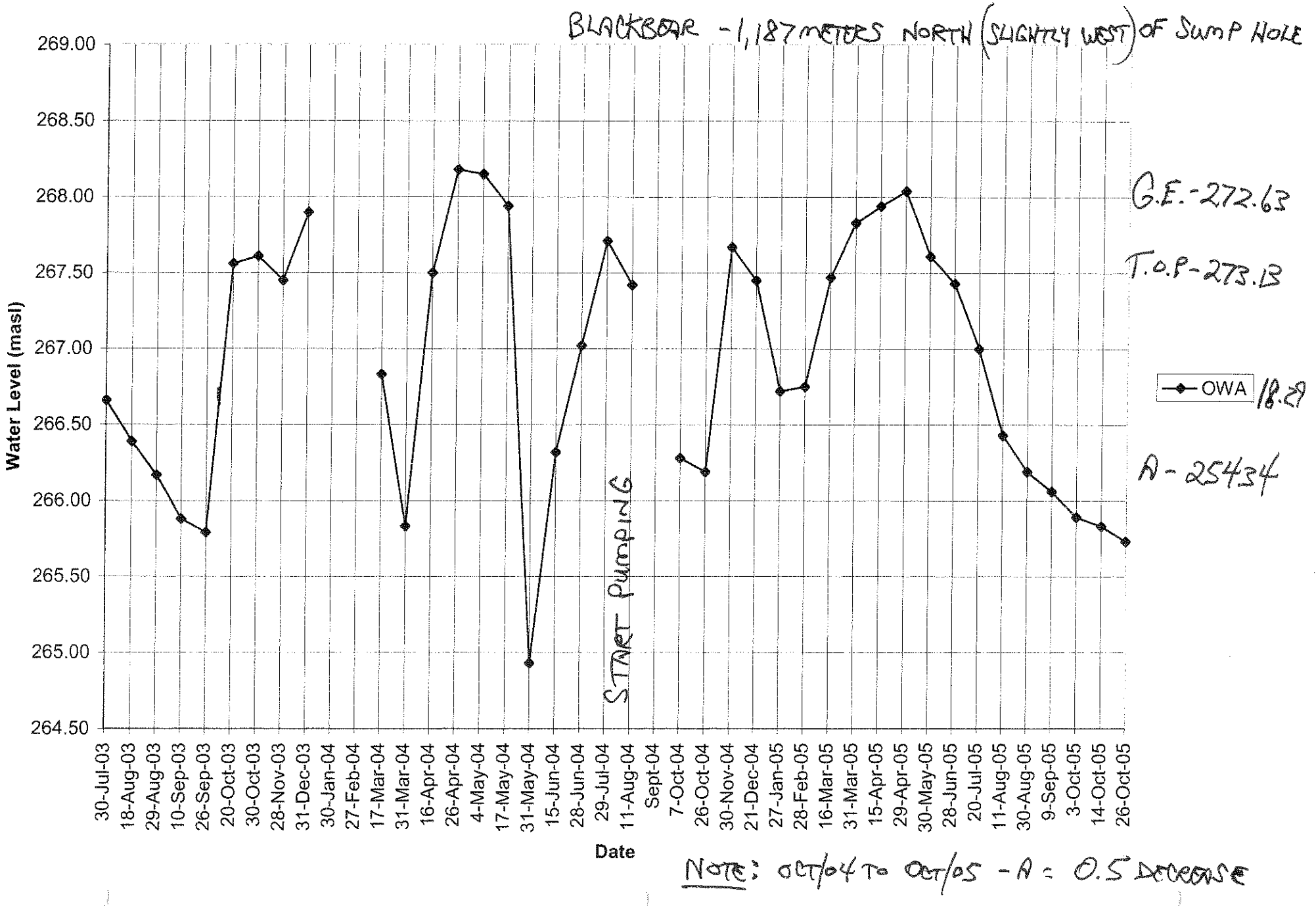
B-256.2

NOTE: OCT 4/04 TO OCT/05 - A - 0.5' INCREASE
B - 0.7' DECREASE

BAIF0008977E
MW WaterLevelSummary 2003-2005 (revised)

Water Level Monitoring Location
OWA

11/9/2005
8:57 AM



SPILLS

A Spill Control Plan following the guidelines established by the Aggregate Producers Association of Ontario will be prepared prior to commencement of quarry operations.

WASTE DISPOSAL

Stumps, branches, brush, roots etc. must be transported and disposed of in accordance with Ministry of Environment Regulations, or reused as product".

DEWATERING

Condition 1 - Water Taking
The Permit to Take Water applies to dewatering the first lift of Phase 1, North Part, Ferma-Carden Quarry which is defined as a limestone excavation limited to a depth elevation of 255.0 masl over the east half of Lots 8 and 9, Concession IX, Carden Township. Subsequent lifts or Phases, or greater pumping volumes, will require a new Permit to Take Water.

Condition 2A - Monitoring Wells
Monitoring wells containing tri-level piezometers at the following locations are to be constructed one year prior to commencing dewatering: WA (mid north part of east limit of Phase 1), WB (mid south part of east limit of Phase 1), WC (mid south limit of Phase 1), WD (mid south part of west limit of Phase 1), WE (mid north part of west limit of Phase 1), WF (opposite side of road from domestic well W2), WG (southwest corner of site), WH (mid north limit of E1/2 Lot 10, Con. 9), and WI (50 metres north of Phase 1 north limit). Subject to the property owner's consent, monitoring wells WA and WB are to be located 50 to 100 metres west of Horncastle Road. Shallow overburden, upper and lower bedrock aquifer piezometers are to have base elevations at approximately 260 - 264 masl, 250 - 255 masl and 230 masl, respectively.

Each tri-level monitoring well will have three 50 mm diameter piezometers each having a 1.0 metre long slotted screen section located within the water bearing zone of respective aquifers. The annulus surrounding the screens and casings are to be backfilled with silica sand with upper and lower aquifers isolated by a 3.0 metre thick bentonite seal placed using a tremie pipe or by pumping. Surface protection is also required per Regulation 901. In addition to the above, well BH2A will be replaced one year prior to dewatering.

With permission of the landowner, the Operator will monitor water levels in supply wells and dug-outs within a 500 metre circumference of the Licence boundary. Monitoring will also be carried out at those wells and dug-outs falling within a 500 to 1,500 metre circumference of the Licence Boundary subject to the request of the landowner.

Condition 2B - Groundwater and Dug-Out Water Level Measurements
On a monthly basis commencing one year prior to dewatering, static water levels are to be recorded within the above monitors, all domestic wells, dug-outs and at existing monitoring locations which include: BH 1A, 1B, 1C; BH 2B, 2C; BH 3A, 3B, 3C; BH 4A, 4B, 4C; BH 5A, 5C; W8; W9; W11; W21; W22; OWA; OH1A, 1B; OH2A, 2B; and, boreholes JH-BH1 (BH02-1-i), JH-BH2 (BH02-1-iii) and JH-BH3 (BH02-1-ii). All piezometers or monitoring wells destroyed by quarry operations are to be replaced. Monitoring wells proposed in Condition 2A will be subject to the same frequency of monitoring.

In addition, twice monthly measurements of static water levels during March, April, August, September and October shall be measured at: OWA; W1; BH 2A, OH1A, 1B; OH2A, 2B; and, boreholes JH-BH1 (BH02-1-i), JH-BH2 (BH02-1-iii) and JH-BH3 (BH02-1-ii).

Condition 2C - Water Quality Monitoring - Domestic Wells
Water quality monitoring will be carried out on a quarterly basis one year prior to dewatering in order to establish baseline conditions one year prior to dewatering and then bi-annually thereafter. The monitoring results shall be provided to the property owner and the City of Kawartha Lakes.

Condition 3 - Monitoring and Reporting
Within 90 days following the first anniversary and annually thereafter of commencing dewatering activities, the Operator will submit a report to the Ministries of Environment and Natural Resources, and the Liaison Committee, summarizing for the previous year: static water level and water quality observations; daily pumping rates; water budget calculations; the extent of drawdown; anticipated pumping rates and corresponding drawdown within the next operating year; well logs of constructed wells; a sketch showing well locations, extent of excavation and equipotential contours of the upper and lower aquifer; water supply complaints received and steps taken to resolve same; recommended changes to monitoring frequency, monitoring locations and triggering criteria; contingency measures implemented; and, any out of the ordinary observations made.

Condition 4A - Trigger Mechanism and Contingency Measures - Domestic Wells
A drop in minimum static level at BH1A by 2.0 metres (to approximately 270 masl), and a corresponding drop of greater than 2.0 metres in static water level at proposed observation wells WD and/or WE, shall initiate contingency measures for water supply at domestic well W1 upon confirmation that W1 supply is inadequate. Similarly, a drop in minimum static water level at proposed monitoring well WF of 2.0 metres (to approximately 265 masl), and a corresponding drop in static level at proposed monitoring well WD and/or WE of greater than 2.0 metres, shall initiate contingency measures for water supply at domestic well W2 upon confirmation that W2 supply is inadequate.

The Operator will maintain a potable water supply source to surrounding wells adversely affected by dewatering operations. Contingency measures include, but are not limited to, the use of holding tanks, the construction of a new well(s) within the upper bedrock aquifer at a locations(s) unaffected by quarry dewatering and the delivery of water from the new well(s) by pressurized piped system to each affected residence. Dewatering mechanisms will be shut down failing the resolution of water supply problems caused by quarry dewatering.

Condition 4B - Trigger Mechanism and Contingency Measures - N.E. Wetland
A drop below the minimum monthly baseline static water level of 0.25 metres within the unconfined overburden aquifer measured at wetland piezometers OH1A, OH2A, JH-BH1, JH-BH2 and JH-BH3 and a corresponding drop of a greater amount at intermediate monitoring well locations, consistently in March, April, May, or August, September and October, shall initiate a detailed investigation as to the cause of the observed decline.

A drop below the minimum monthly baseline static water level of 0.5 metres within the unconfined overburden aquifer measured at wetland piezometers OH1A, OH2A, JH-BH1, JH-BH2 and JH-BH3 and a corresponding drop of a greater amount at intermediate monitoring wells, consistantly in March, April, May, or August, September and October shall initiate the implementation of contingency measures to restore the observed decline in water levels.

The contingency measures to be implemented will vary depending on the cause of the observed decline and may include, but are not limited to, one or more of the following: 1) Diversion of dewatering activities to the northeast with re-introduction of same into the unconfined overburden aquifer or upper bedrock aquifer via re-injection wells, exfiltration trenches, or directly by ditching, whichever is most appropriate; 2) Grouting (sealing) fissures that are causing excessive draining; and, 3) Termination of active dewatering attributed to the cause of observed drawdown.

Condition 5 - Monitoring Wells, Trigger Mechanism and Contingency Measures - Cattle Water Supply
Cattle in range rely on several sources of water supply including dug-outs and wetland areas which surround the area to be Licensed.

The supply of surface and groundwater recharge to the various sources of livestock water supply may be vulnerable as a result of quarry dewatering activities.

Upon quarry extraction occurring within 1,000 metres of an adjacent source of livestock water supply, the Operator will undertake the following:
i) Establish, in consultation with the owner of the subject source of water supply, the location of new monitoring wells nearby the water source and at intermediate locations between the source and quarry activities if not already in place; and,
ii) Provide emergency contacts and details of temporary sources of water supply should the source be adversely affected by quarry dewatering.

Each monitoring well will consist of bi-level monitors completed in the upper bedrock aquifer and unconfined aquifer, if encountered.

Monthly measurements of static water levels at the above locations, shall occur commencing with establishing monitoring wells.

A drop below the minimum monthly baseline static water level of 0.25 metres measured at the water source monitoring well, and a corresponding drop of greater amount measured at the intermediate monitoring well, consistently over a one month period during the June to October period shall initiate a detailed investigation as to the cause of the observed decline.

The contingency measures to be implemented will vary depending on the cause of the observed decline and may include, but are not limited to, one or more of the following: 1) Diversion of dewatering activities to the affected water source through re-introduction of same into the aquifer(s) via re-injection wells, exfiltration trenches, or by overland ditching or piping, whichever is most appropriate: 2) Grouting (sealing) fissures that are causing excessive draining of the aquifer supporting the water source; and, 3) Termination of active dewatering attributed to the cause of observed drawdown.

Condition 6 - Complaint Resolution

Should a complaint by an affected landowner with respect to loss of water in a well or cattle dugout remain unresolved by the Operator, the complaint will be settled by arbitration at the cost of the Operator. (Ultimately, an unresolved complaint could result in Licence suspension.) Interim potable water supply and storage will be provided by the Operator for loss of domestic water source, and similarly a water supply and storage suitable for livestock watering will be provided by the Operator until such time the complaint or dispute is resolved.

Condition 7 - Other

i) 72 hour detention of the 25 mm rainfall event shall be provided.
ii) Mobile fuel and chemical storage facilities are to be employed and located adjacent to the garage/shop area of respective parts. Storage units are to be located on concrete pads curbed to contain an equivalent volume of stored substance.
iii) Temporary erosion control measures such as rock check dams and siltation control fencing shall be constructed during stripping and berm construction and maintained until berms are stabilized with plantings.
iv) The refueling and maintenance of haulage vehicles is to occur off-site except in emergency situations.
v) Restoration of water supply per the Permit to Take Water applies to both surface and groundwater supplies.

Ferma Aggregates Inc.

1 STEINWAY BLVD., UNIT 11, ETOBICOKE, ONTARIO M9W 6H9 TEL: (416) 679-9616 • FAX: (416) 679-9618

1 STEINWAY BLVD., UNIT 11, ETOBICOKE, ONTARIO M9W 6H9 TEL: (416) 679-9616 • FAX: (416) 679-9618

DAVES Copy

Ministry of the Environment / Ministère de l'Environnement

Ontario

CERTIFICATE OF APPROVAL
INDUSTRIAL SEWAGE WORKS
NUMBER 9123-5WAQUT

Ferma Aggregates Inc.
2666 Rena Road
Mississauga, Ontario
L4T 3C8

Site Location: Ferma-Carden Quarry
Lot 7-9Pt.6&10, Concession 9
Kawartha Lakes City

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

the establishment of sewage works for the collection, transmission, treatment and disposal of up to 63 litres per second of groundwater and surface water that accumulates in the quarry, consisting of the following:

- one (1) collection sump (Sump A), initially located in the south east corner of the quarry and moved northerly as extraction operations process, measuring 65 metres long, 60 metres wide and 3 metres deep, equipped with a submersible pump operating at 2.0 litres per second (daily seepage) and a second submersible pump operating at 58 litres per second (precipitation), discharging to an interceptor ditch;

- one (1) interceptor ditch, located on the east side of the quarry, along the west side of Horncastle Road, extending from Sump A to the Main Branch of the Tributary to the Talbot River;

- one (1) temporary siltation basin, to be in operation until the collection sump is completed and made operational, to be located at the former location of the scale house (as shown on Figure 1 of the letter dated September 28, 2004) and constructed in bedrock, measuring 10 metres long, 5 metres wide and 1.5 metres deep, discharging to the west ditch on Horncastle Road via perforated pipe riser control structure;

- all other controls, electrical equipment, instrumentation, valves and appurtenances essential for the proper operation of the aforementioned sewage works;

all in accordance with the following submitted supporting documents:

1. Application for Approval of Industrial Sewage Works submitted by Antonio Ferragine of Ferma Aggregates Inc. dated January 29, 2004;

2. Ferma-Carden Quarry, Design Brief, OWRA Section 53 - Approval for Quarry Dewatering Discharge, prepared by Trow Associates Inc., dated February 4, 2004;

Dave's Copy

Trow

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561 Bryne Drive, Unit D.
Barrie, ON
L4N 9Y3

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September 28, 2004

Mr. Randy Chin, P.Eng.
Senior Water Engineer
Water and Wastewater Unit
Environmental Approvals and Assessment Branch
2 St. Clair Avenue
Toronto, ON M4V 1L5

Reference :BAIF0008977B
Via Facsimile & Mail: 416-314-8452

Section 53 OWRA – Draft Certificate of Approval
Ferma – Carden Quarry
Lots 7 to 9, Part Lots 6 & 10, Concession 9, Carden
City of Kawartha Lakes

Dear Mr. Chin:

Thank you for your comments per your e-mail of September 23, 2004. We agree with the revised certificate and provide additional details with respect to temporary sediment controls as requested.

The temporary sediment controls proposed consist of the following:

- a 5.0 metre wide, 10.0 metre long, 1.5 metre deep basin excavated in bedrock
- a 200 mm perforated discharge pipe wrapped in filter cloth and crushed limestone jacket discharging to a 200 mm solid PVC storm drain to the existing west ditch on Horncastle Road
- related erosion control/soil stabilization work

The attached Figures 1, 2, and 3 provide further design details.

The detention period within the siltation trap is approximately ten hours, which will allow for the removal of particles up to approximately 80 µm. The outlet control structure will provide for the removal of the balance of material.

The proposed temporary sediment controls are located where the scale house, garage, and shop etc. are shown on the Site Plans for the quarry for Phase 1. The scale house, garage, and shop etc. have since been relocated to where same are proposed per future Phase 4 of the South Part.

We look forward to receiving the Certificate of Approval at your earliest convenience.

Yours truly,

Trow Associates Inc.

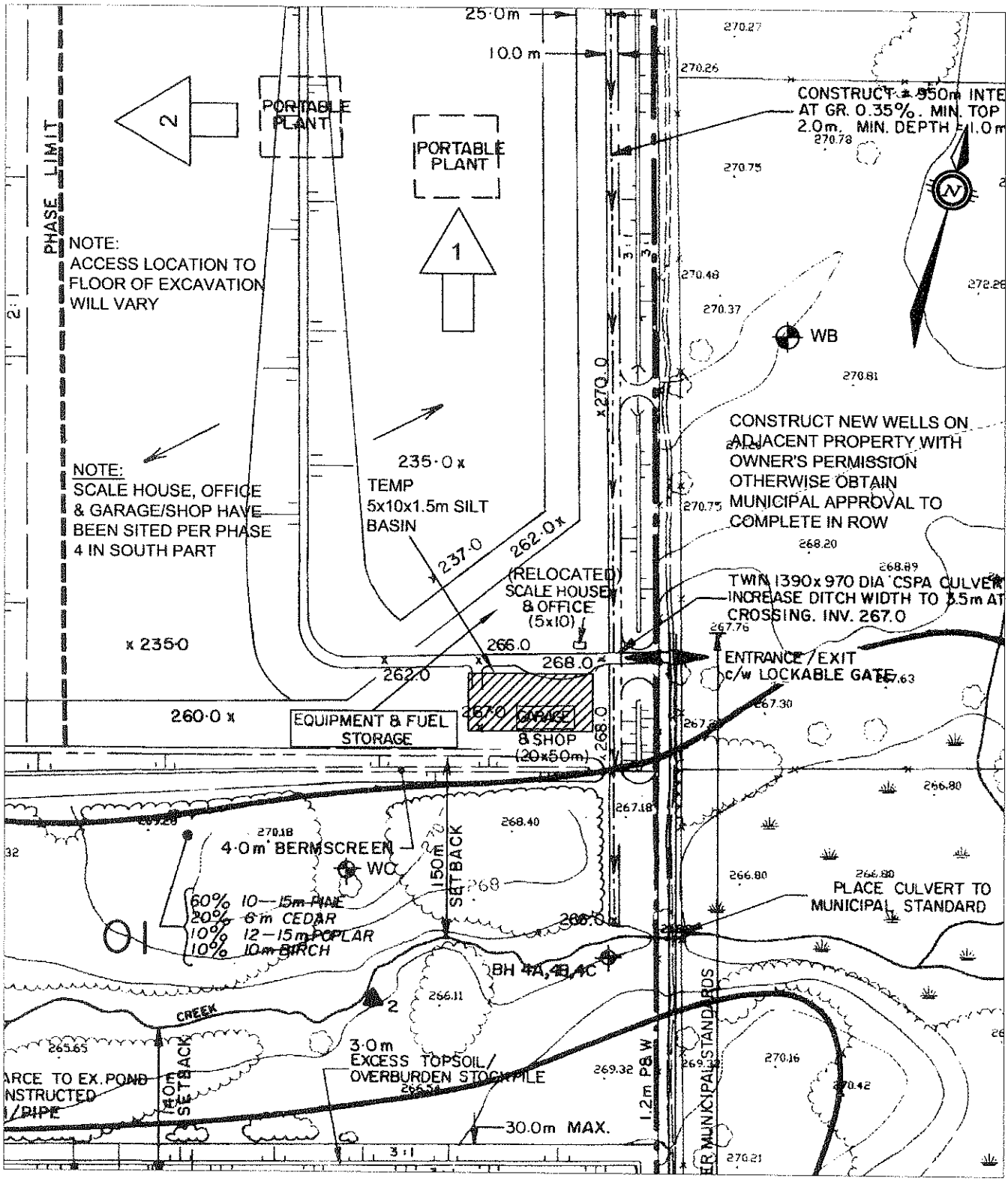
Gary Matthie, P.Eng.
Project Engineer
Barrie Branch

Jamieson S. Gourley, P.Eng.
Senior Engineer
Barrie Branch

JSG:amg

Attach.

cc. Mr. Tony Ferragine, Ferma Group (by facsimile: 905-677-9817)
Mr. Dave Kennedy (hand delivered)

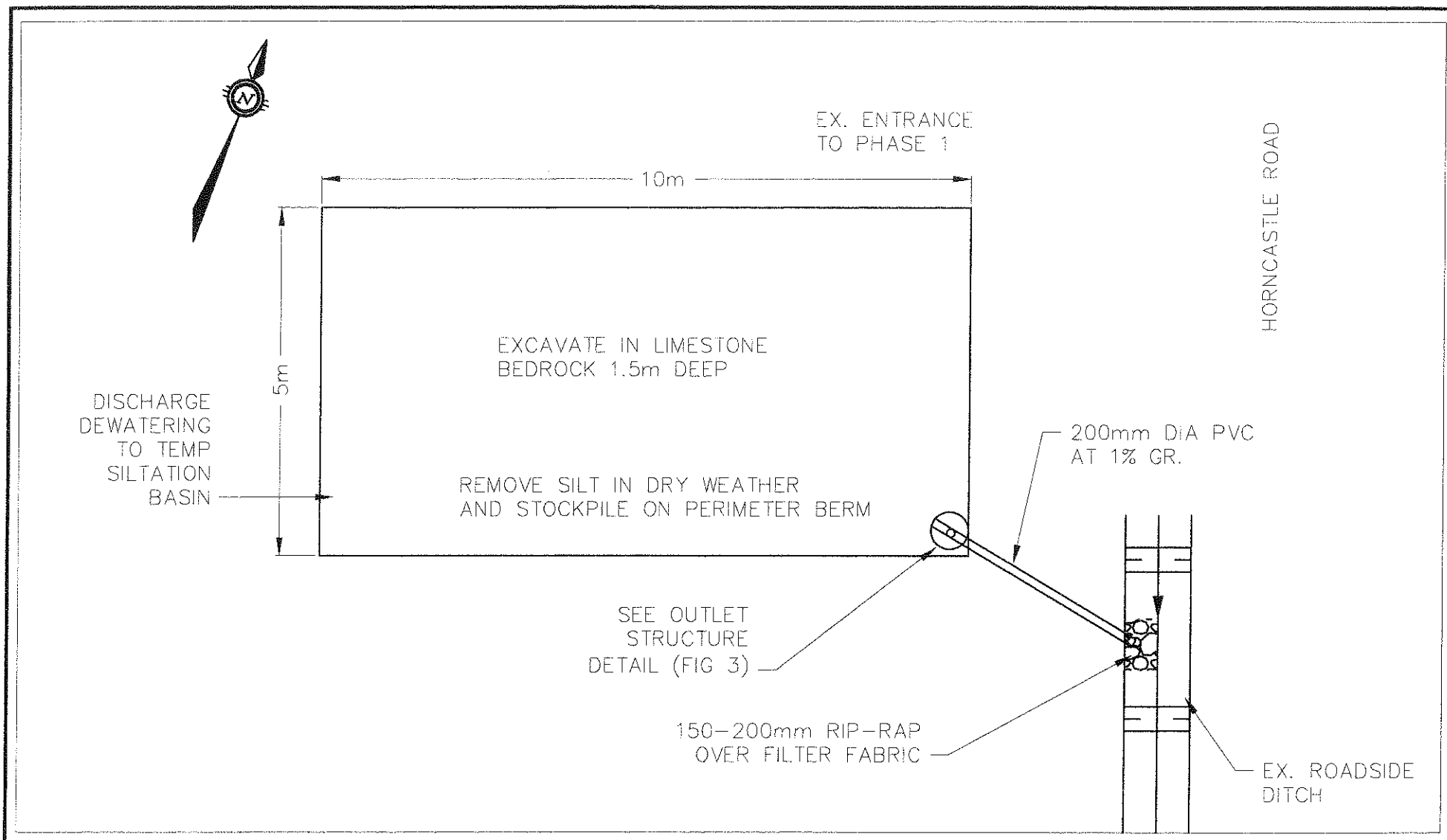


Trow Associates Inc.

561 Bryne Drive, Unit D
Barrie, Ontario L4N 9Y3

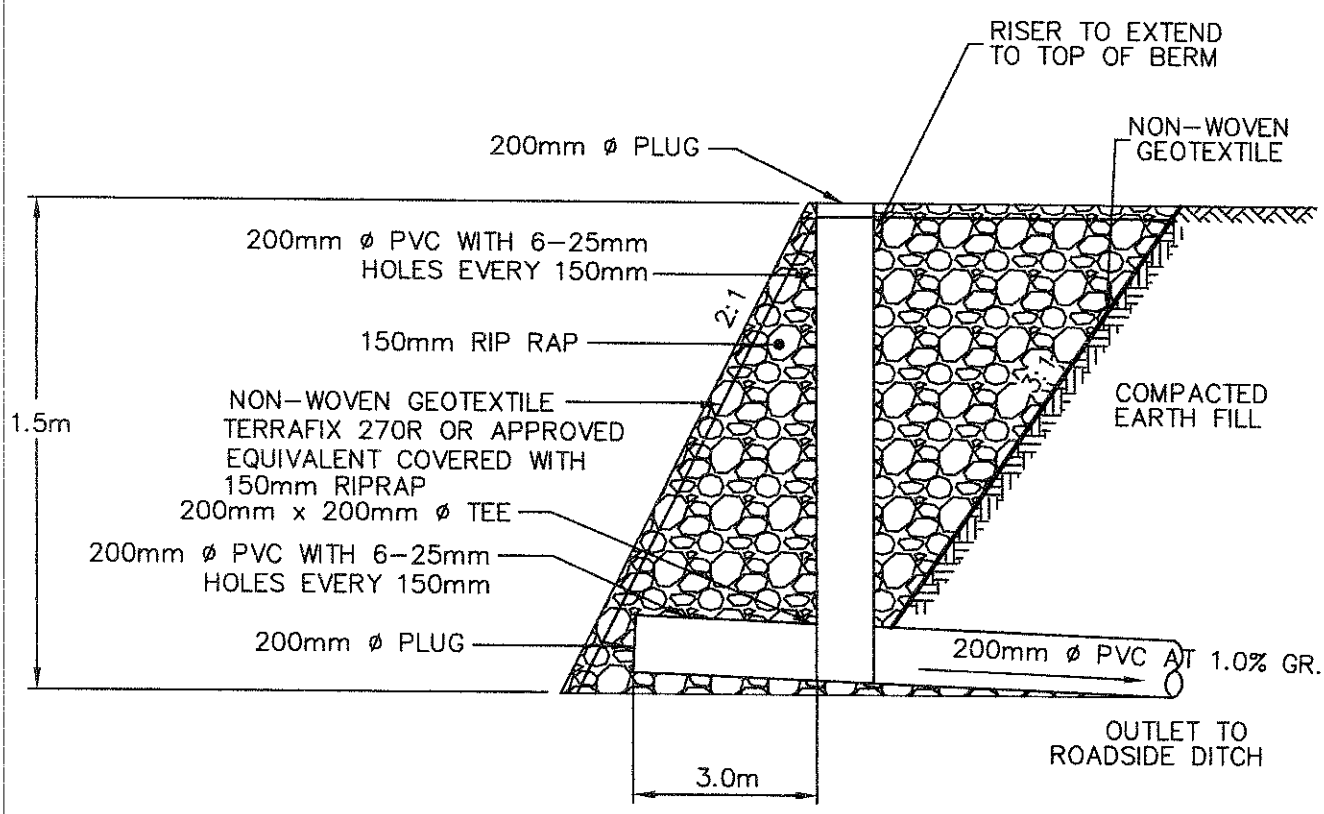
Tel: (705) 734-6222
Fax: (705) 734-6224

scale: NTS	CLIENT: FERMA – CARDEN QUARRY	project no.: BAIF0008977B
date: SEPT 2004	TITLE: TEMPORARY SILTATION BASIN LOCATION	FIG 1
drawn by: LLC		



Trow Associates Inc.
Trow
561 BRYNE DRIVE UNIT D
BARRIE, ONTARIO L4N 9Y3
Tel: (705) 734-6222
Fax: (705) 734-6224

SCALE: NTS	CLIENT: **FERMA - CARDEN QUARRY**	JOB NO. BAIF0008977B
DATE: SEPT 2004	TITLE: **TEMPORARY SILTATION BASIN**	FIG 2
DRAWN: LLC		



TEMPORARY SILTATION BASIN OUTLET DETAIL

Trow Associates Inc.

561 Bryne Drive, Unit D
Barrie, Ontario L4N 9Y3

Tel: (705) 734-6222
Fax: (705) 734-6224

scale: NTS	CLIENT: FERMA	project no.: BAIF0008977B
date: SEPT. 2004	TITLE: TEMPORARY SILTATION BASIN OUTLET DETAIL	FIG 3
drawn by: LLC		

Ferma Aggregates Inc.

1 STEINWAY BLVD., UNIT 11, ETOBICOKE, ONTARIO M9W 6H9 TEL: (416) 679-9616 • FAX: (416) 679-9618

1 STEINWAY BLVD., UNIT 11, ETOBICOKE, ONTARIO M9W 6H9 TEL: (416) 679-9616 • FAX: (416) 679-9618

FILE

Ontario

Ministry of the Environment | Ministère de l'Environnement

CERTIFICATE OF APPROVAL
AIR
NUMBER 7871-6S8QLV
Issue Date: June 25, 2007

Ferma Aggregates Inc.
1 Steinway Blvd. Unit 11
Etobicoke, Ontario
M9W 6H9

Site Location: Ferma-Carden Quarry
Lots 6,7,8,9,10 Conc. 9, Carden Township
Kawartha Lakes City,

You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:

- one (1) crushing plant used to crush limestone, processing at a rate of maximum 450 tonnes per hour including the following equipment:

- two (2) crushers (either jaw, cone or roll type);
- one (1) screening unit with a bin feeder;
- conveyors,

all in accordance with the application for a Certificate of Approval (Air) submitted by Ferma Aggregates Inc. dated September 20, 2004 signed by Antonio Ferragine, the revised documentation dated March 12, 2007 prepared by Ron Taylor of Trow Associates Inc., the acoustic report prepared by Valcoustics Engineering Limited, dated February 16, 1995 and all supporting information associated with the application.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "Act" means the Environmental Protection Act;

(2) "Best Management Practices Plan" means a document or a set of documents which describe measures to minimize dust emissions from the Facility and/or Equipment;

(3) "Certificate" means this Certificate of Approval (Air) issued in accordance with Section 9 of the Act;

(4) "Company" means Ferma Aggregates Inc.;

(5) "District Manager" means the District Manager, Peterborough District Office, Eastern Region of the Ministry;