

December 2, 2025

Rob Stovel
Stovel and Associates Inc.
651 Orangeville Road
Fergus, Ontario
N1M 1T9

sent via email to: stovel.associates@outlook.com

Dear Mr. Stovel:

**RE: Cox Construction Ltd Puslinch West Estate Subdivision Development Proposal
Preliminary Nitrate Impact and Water Supply Feasibility Study**

As requested, we are providing a preliminary feasibility study regarding potential nitrate impacts and water supply for the proposed 39 lot Puslinch West Estate Subdivision. This study was prepared on behalf of Cox Construction Ltd.

The proposal Puslinch West Estate Subdivision represents a redevelopment of the former Nigro Pit property. This report was prepared in support of an Official Plan Amendment (OPA) application that will be filed with the County of Wellington. The OPA is needed to support a change in land use from Secondary Agriculture to Country Residential.

The development area is within Part Lots 11 and 12, Concession 4, Township of Puslinch, Wellington County. The proposed development is shown on **Figure 1** (attached). The site is bounded by Sideroad 10 North to the west, Forestell Road to the north, and, Sideroad 12 North to the east. Existing and former gravel pit operations, including a major below water extraction site, are located to the west, north and east of proposed Puslinch West Estate Subdivision. Rural residential properties, developed through land severance, occur to the east/southeast and west/southwest of the site.

The former Nigro Pit was in operation from approximately 1999 to 2012. As shown in **Figure 1** the site has been rehabilitated to include a small internal pond surrounded by agricultural land. A groundwater monitoring program was undertaken as a condition of the aggregate extraction licence, this current study incorporates the monitoring program results (up to 2012). A copy of the available monitoring result summary is included in **Appendix A**.

The proposed development area is approximately 20.9 hectares (ha) in size. Note that the northeast corner of the former pit a residential lot was previously severed. In addition, the southwest corner of the site is excluded from the actual lot development area.

Under the current development concept approximately 16.9 ha would be developed as 39 residential lots. The remaining area (4 ha) would consist of the internal pond and roadways. The minimum and maximum lot sizes would be approximately 0.41 ha and 0.74 ha respectively. Each lot would be serviced by a private well and individual (expected tertiary treatment level) septic system

This feasibility study is based on a desktop review of available information to provide an initial assessment of the potential nitrate impacts related to the proposal, and, examine water supply potential

in this area. Specific recommendations are made for future more detailed groundwater assessments that are expected to be required for planning approvals, including the Ministry of Environment Conservation and Parks (MECP) Procedure D-5-4 (*Technical Guideline For Individual On-Site Sewage Systems: Water Quality Impact Risk Assessment*, August 1996), and, MECP Procedure D-5-5 (*Technical Guideline for Private Wells: Water Supply Assessment*, August 1996).

In addition, it is also our expectation that development design and control studies are to be undertaken as part of the planning application process, including geotechnical assessments to further characterize soils and groundwater conditions, ensure vertical separation distances are maintained (e.g. between the water table and septic systems or building foundations), and, site specific stormwater management studies/planning. At this time we would expect the internal pond could be incorporated into the stormwater management system and based on our understanding of the hydrogeologic setting this feature would continue to infiltrate (recharge) water.

Hydrogeologic Conditions

Extensive hydrogeological analysis has been completed for the site and surrounding area. The current summary is based on a review of available data, including published geological mapping and publicly available water well record information, in addition to our knowledge of previous site characterization and impact assessments as undertaken by the author for the former Nigro Pit.

Geologic Setting

The study site is located at the northern edge of the Paris Moraine. Surficial geology mapping, as available from the Ontario Geological Survey OGSEarth mapping (viewed on Google Earth), for the area is shown on **Figure 2**. The surficial soils over most of the site are described as (Wentworth) Till, consisting of stone-poor, sandy silt to silty sand-textured till. The northeast corner of the site is shown to include Glaciofluvial (outwash) deposits of gravel. Based on the depositional sequence and our knowledge of the area, the surficial sand/gravel deposit is expected to overlie either the till (as mapped at surface) or a sequence of fining sand/silt/clay that extends to depth.

As the site was historically a gravel pit we expect most of the surficial sand/gravel has been extracted and the remaining surficial soils at the site consists of finer grained material. Site conditions will be confirmed though additional assessments to be undertaken at the site.

A review of water well records (further discussed below) indicates that in the immediate area of the site the total overburden thickness (depth to bedrock) varies between 21 and 35 m. An observation well (WWR#7417706) constructed near the site in 2022 for the City of Guelph reports the overburden sequence consists of clay to 1.8 m depth, followed by gravel to 10.4 m depth, then clay stones/silt to a depth of 27.4 m (where bedrock was encountered).

Bedrock in the area of the site is reported to consist of Guelph Formation dolostone, which is generally represented within the water well record database using “brown rock” or “brown limestone” descriptors.

Topography, Drainage and Natural Heritage

For this review the Ontario Lidar Derived Digital Terrain Model, as available from Land Information Ontario, was examined to assess site topography of the overall area. Detailed local topography can also be examined at the Grand River Conservation Authority (GRCA) online general mapping/GIS application (available at: <https://data.grandriver.ca/applications.html>). Detailed site topography is shown on the development plans.

The existing site elevations represent the rehabilitated former pit excavation, which has a bowl-like form. The current (former dry pit floor) elevation within the eastern portion of the site is approximately 325 to 326 metres above sea level (mASL). The lowest elevations occur at the internal pond area (western portion of the site) at approximately 321 mASL. From this area the topography rises up to approximately 327 mASL along most of the site perimeter. Based on the topography of the site all internal runoff would move to the former pit floor and/or pond, and is expected to infiltrate. No significant volume of runoff is expected to enter or exit the site under current conditions.

The expected future stormwater management study and plan will provide a more detailed analysis of overland flow at the site and provide recommendations as needed to maintain on-site recharge. We note that the maintenance of site recharge is an expected stormwater management plan target, which may be achieved using the on-site internal pond as an LID style enhanced recharge feature.

Properties to the immediate west, northwest, north and east of the site are also currently operating or former gravel pits, with similar enclosed drainage patterns and internal ground surface elevations.

Natural Heritage feature mapping in the area of the site, as available from the Ministry of Natural Resource (MNR) and Grand River Conservation Authority (GRCA) online mapping applications, is shown on **Figure 3** and **Figure 4** respectively.

As shown, the Cranberry Oil Well Bog Wetland Complex Provincially Significant Wetland (PSW) occurs southwest, south and southeast of the site. The closest portion of the mapped PSW is shown approximately 120 m from the nearest proposed development lot. This wetland area occurs at elevations generally between 326 and 327 mASL, and is shown as an enclosed drainage feature. In addition, a small unevaluated wetland occurs near the southern site boundary at an elevation of between approximately 324 to 325 mASL, and is also mapped as an enclosed drainage feature.

Based on the extensive monitoring program undertaken during pit extraction (see **Appendix A**), no groundwater related impacts, or changes in groundwater conditions, due to pit operations were identified at the PSW system near the site.

A headwaters portion of Irish Creek is mapped as beginning in the PSW south of the site, at a (wetland) elevation between approximately 322 to 324 mASL. The creek drains this wetland area and flows west across Sideroad 10 North, with the closest reach of the creek at a distance of approximately 320 m. The closest portion of the PSW drained directly by Irish Creek is shown at distances of 200 m or more.

The mapping also shows the Oil Well Bog Little Tract Area of Natural Scientific Interest (ANSI), associated with the wetland complex, at a distance to the southeast and southwest of the site.

Well Record Review

Reported water well records within 500 m of the site, as available through the MECP online mapping application and database (available at: <https://www.ontario.ca/page/map-well-records>), were reviewed to examine overburden conditions and local water supply potential. A map illustrating reported water well locations and well record summary table is included in **Appendix B** (attached).

As shown a total of 48 well records are mapped within, and just beyond, 500 m of the site. According to the well record information 8 of those records are associated with well decommissioning, including 5 former observation wells at the site. An additional 7 records are for observation wells constructed in the area (including adjacent pit sites and the multi-level bedrock monitoring well nest completed for the City of Guelph within the road right-of-way at the northeast corner of the site).

The remaining 33 wells are reported to be used for water supply, primarily for domestic (single household) purposes, but also including some stock (farm) use and one industrial supply well. Most of the reported pumping rates for the water supply wells range from 19 to 57 litres per minute (L/min), however rates up to 125 L/min are reported. Although 1 record reported a marginal capacity (9.5 L/min), the remaining wells reported production capacities at or exceeding typical residential demand (19 L/min).

Reported water supply wells in the area of the site are completed primarily in the bedrock aquifer or deep overburden (sand/gravel units at depth), at depths ranging from 30 to 57 m. Only 4 wells are reported to be completed at depths less than 20 m.

The well record review clearly indicates that domestic water supplies are available within the bedrock aquifer in the area of, and therefore likely at, the site. Water wells completed in the bedrock would be “protected” from surficial or shallow groundwater influences (e.g. due to the wetlands occurring in the area or aggregate extraction) by the confining sequence of silt and clay intervals within the overburden observed in this area. Therefore, we recommend that any water supply well constructed for the proposed development be completed in the bedrock aquifer.

As noted previously, we recommend water supply potential be investigated further at the site through the MECP Procedure D-5-5, which would include on-site water well installation, capacity testing, interference assessments, and, water quality sampling.

Hydrogeologic Setting

For this assessment groundwater elevation and flow direction mapping was developed based on the results of the 15 year long Nigro Pit monitoring program. Although this water level data is not current, the long-term record is useful on a preliminary basis to help establish conditions at the site. The derived high and low water table mapping is shown on **Figure 5** and **Figure 6** respectively. We note that expected future work would update and refine this understanding at the site.

As shown, the shallow groundwater flow direction under both high and low water table conditions is generally east to west across the site, then southwest toward the Irish Creek system. The PSW area at the southeast corner of the site represents a local water table high, driven by local runoff retention and infiltration recharge at the wetland.

Shallow groundwater elevations within the site range from approximately 322 to 325 mASL under high water table conditions, to 320 to 323 mASL under low water table conditions. Comparing water table elevations as observed from 1997 to 2012 to the wetland and creek elevations, it appears that groundwater discharge to the wetland/creek system to the south and southwest occurs seasonally (i.e. during high water table conditions only).

Based on the site characteristics the development area will have a groundwater recharge function, supporting the west/southwest shallow groundwater flow system that can contribute seasonally to the PSW and creek system. It is expected that recharge maintenance would be a development design target in order to continue to support this flow system.

GRCA online mapping indicates the average annual recharge rate at the site is on the order of 344 mm/yr and runoff rate is 0 mm/yr, which is considered reasonable given the surficial soils, vegetative cover and topography. In addition, a downward gradient potential is mapped at the site, with potentiometric (bedrock aquifer) head values of between approximately 304.7 to 314 mASL reported. The difference in water levels between the water table and bedrock aquifers supports the interpreted system separation that is associated with the confining overburden sequence.

Source Protection

Source Protection mapping, based on the GRCA online mapping application, is shown on **Figure 7**. As shown, the site is located within the (combined) WHPA-D (travel time 5 to 25 years) of municipal wells located in both Guelph and Cambridge, and the WHPA-C (travel time of 2 to 5 years) of a well (or wells) in Guelph (likely Downey Road). We note that the WHPA delineation will be primarily related to time of travel within the bedrock aquifer, and does not represent connection or travel times to surface.

Regarding Source Protection considerations, it will likely be an important objective to maintain groundwater recharge. Also, that any new water wells are constructed by licenced water well contractors and in accordance with all applicable regulations and standards to eliminate the potential for preferential pathway creation. In addition, we expect, as per MECP Procedure D-5-4, that potential nitrate impacts should be minimized.

Nitrate Impact Analysis

MECP Procedure D-5-4 (*Technical Guideline For Individual On-Site Sewage Systems: Water Quality Impact Risk Assessment*, August 1996) indicates that for the proposed site development a 3-step process is appropriate, consisting generally of:

1. Determination of lot size.
2. System isolation identification.
3. Contaminant attenuation (risk) assessment.

We note that this procedure is a risk assessment, and not a predictor of actual nitrate concentrations in the groundwater system. This type of methodology acknowledges that it does not account for all dilution and denitrification processes, and therefore we can consider the method as an approximation that allows for relative risk to be determined. If the nitrate loading calculation has a result of 10 mg/L (drinking water limit) or less, the “risk” of associated environmental impact to groundwater systems associated with the proposed development is considered relatively low.

Lot Size

The proposed 31 residential lots range in size from 0.41 hectares (ha) to 0.74 ha. The site is approximately 20.9 ha and total proposed development area is approximately 16.9 ha.

A summary, as provided by Stovel and Associates, is provided in **Table 1**.

Lot #	Size (ha)	Lot #	Size (ha)	Lot #	Size (ha)
1-15	0.41	26	0.47	33-34	0.44
16	0.44	27	0.46	35	0.41
17	0.41	28	0.50	36	0.74
18-21	0.42	29	0.42	37-38	0.44
22	0.46	30	0.48	39	0.45
23	0.47	31	0.41	-	-
24-25	0.42	32	0.42	Total:	16.9

Table 1: Proposed Lot Areas

Based on the proposed lot sizes system isolation and/or contaminant attenuation should be considered.

System Isolation

System isolation can be considered in the context of the hydrogeologic setting.

The shallow water table system is the primary “receiver” for septic system impacts. The water table system flows west to southwest, and is expected to discharge to the surface water system. That discharge can occur locally on a seasonal (high water table) basis, or potentially further downstream/downgradient on an annual basis.

Overall vertical flow through the fine-grained deposits to the bedrock system will be limited due to the geologic setting. The confining sequence will promote horizontal flow within the shallow (water table) flow system. Based on an initial review, the primary water source in this area is the bedrock system. This should be confirmed through a door-to-door survey in the area, as per MECP Procedure D-5-5. The bedrock aquifer is protected by the overlying till sequence. Therefore, the water supply aquifer in use in the area, and proposed to be used at the site, is relatively isolated from septic system impacts.

Water quality sampling of the bedrock aquifer should be completed to assess existing conditions and confirm system isolation, this would be expected through the implementation of MECP Procedure D-5-5 for the proposed development.

Based on system isolation considerations, and assuming well construction meets applicable provincial regulations and standards, local bedrock water supplies are interpreted to be at relatively low “risk” from septic loading impacts within the overburden system due to the proposed development. However, for completeness a contaminant attenuation assessment is also provided.

Contaminant Attenuation Assessment

The following nitrate loading calculation (predictive assessment) is provided as part of an initial preliminary risk assessment. It is our understanding that tertiary treatment septic systems are proposed as part of this development. As noted above, the shallow water table system is the primary receptor of septic loading impacts, however consideration is also given to any potential vertical migration to the deeper bedrock aquifer system.

Based on the proposed 39 residential lot subdivision, each with individual tertiary treatment septic systems (1,000 L/day) achieving 10 mg/L nitrate concentration at the septic bed, the daily nitrate loading would be expected to be 390,000 mg/day. Assuming 0.344 m/yr recharge (to be maintained post development) over 20.9 ha, and incorporating septic volumes, total site recharge would be 235,975 L/day. Therefore, expected nitrate loading due to the proposed development would result in nitrate concentrations of 1.65 mg/L reaching the water table.

The nitrate concentration loading related to the proposed septic systems would be well below 10 mg/L reaching the shallow water table system, and likely well below any agricultural or residential fertilizer inputs that could occur in the area. We note that shallow groundwater sampling should occur at the site (per D-5-4) to establish background nitrate levels.

The results indicate that according to an initial predictive assessment the proposal would be expected to satisfy the MECP Procedure D-5-4 septic loading risk assessment criteria. Given that additional dilution and can be expected if groundwater does move vertically to depth, both within the overburden aquitard and due to aquifer flow, potential impact to the bedrock water supply aquifer supplying both existing and planned new wells is also projected to be low.

Water Supply Assessment

Available well records show that the existing wells within the overall area of the site have a typical capacity of 20 L/min (or more). Similar well capacities can be expected within the development site, and a minimum capacity of 20 L/min can be set as a water supply target for residential wells at the site. Assuming a peak demand rate of 3.75 L/min for each person (as per D-5-5), each well would then theoretically support a 5+ person household.

The local bedrock aquifer in this area is well known source of good quality water capable of providing adequate water quantity to residences. As far as we are aware, mutual interference is not a current issue in the area and is not expected to be an issue in the future based on typical household demand.

We recommend that the bedrock aquifer be used for residential water supply at the proposed development. Future water wells at the site should be constructed by licenced water well contractors and the construction should meet all applicable standards. Further, MECP Procedure D-5-5 should be followed at the site, which specifies that for development areas between 15 and 25 ha at least 4 water wells should be constructed and tested. Based on our understanding of the Township of Puslinch initiative to reduce potential vertical connection between the Guelph Formation and Goat Island Formation aquifers we recommend that, if possible, the wells be constructed in the Guelph Formation.

We are aware that Cox Construction Limited operates a wash plant at the existing Puslinch Pit northwest of the development site, and takes water from a dug pond for washing purposes according to a current Permit To Take Water (PTTW) for that source and purpose. Groundwater Science Corp. completes the water level monitoring required as a condition of the PTTW, and we can confirm that no significant drawdown is observed in the shallow groundwater system surrounding the washing operation. Therefore, we can also confirm that no interference is expected at the proposed development (or at other wells in the area) due to the wash water taking at the Puslinch Pit.

Wellington County Official Plan Paris and Galt Moraine Policy Area

The Wellington County Official Plan (updated January 8, 2021) Section 4.9.7 states:

The Paris and Galt Moraines are unique landforms. With their combination of soil types, numerous land surface depressions, and higher elevations relative to surrounding lands, they function as a support for hydrologic processes and features that influence groundwater and surface water resources at regional and local scales. These processes and features include:

- *groundwater recharge;*
- *groundwater storage;*
- *surface water detention;*
- *groundwater potential;*
- *baseflow to streams;*
- *springs; and*
- *watershed divides for groundwater and surface water*

On the moraines, and in catchment areas influenced by the moraines, there are cold-water fisheries, wetlands, private wells, farms, industrial and commercial businesses, mineral aggregate operations, and municipal water supplies that rely, either directly or indirectly, on these moraine processes and features. Notwithstanding the policies of this Section, portions of the Paris Galt Moraine Policy Area

within the Town of Erin are located within a WHPA-Q1/Q2 vulnerable area as identified on Schedule B2 of this Plan, and shall be subject to the applicable policies of the CTC Source Protection Plan and Section 4.9.5 of this Plan.

4.9.7.1 Objectives

The Paris and Galt Moraine policies are intended to:

- protect moraine processes and features in order to maintain and where possible restore and enhance groundwater and surface water resources; and*
- promote stewardship activities on the moraines that maintain, restore or enhance groundwater and surface water resources.*

4.9.7.2 Policy Direction

On lands in the Paris and Galt Moraines Policy Area on Schedule 'B' that lie outside of Wellhead Protection Areas, the following shall apply:

- a) Large scale development proposals including intensive recreation, mineral aggregate operations, new rural employment area designations, and urban boundary expansions will be required to demonstrate that ground and surface water functions will be maintained, and where possible, restored and enhanced;*
- b) Small scale developments that do not rely on significant site alterations will not normally be required to demonstrate protection of the moraines. Where planning approvals for small scale developments are needed, best practices for alteration will be required to reduce or eliminate cut and fill activities that would fill in land surface depressions.*
- c) Agriculture is a major activity on the moraines and is an accepted and supported use of land. The County will encourage best practices for agriculture by developing and supporting stewardship programs.*

Although the subject development is relatively small in scale and does not include: intensive recreation; (new) mineral aggregate operations; new rural employment area designations; or urban boundary expansions, this preliminary assessment also examines the potential for development related impacts related to the Paris and Galt Moraine Policy Area groundwater protection objectives. The objectives are assessed, as related to potential groundwater impact, in the following section.

Potential For Groundwater Impact

Based on the current development proposal and this review:

- the development is not expected to include significant landform alterations, more specifically landform alterations within the site have already occurred due to past approved activities (extraction and rehabilitation), this proposal has the potential to restore site conditions further;
- the proposed development will remain 120 m or more from PSW's and other natural heritage features that may rely on groundwater;
- the proposed development will remove agricultural uses and the associated potential for large-scale fertilizer applications to the site, which will reduce overall nutrient loading;
- construction activities are not expected to directly impinge on the water table or groundwater system (e.g. excavations and foundations are expected remain above the water table);

- future stormwater management targets are expected to include the maintenance of site recharge volumes and distribution (i.e. no significant water balance changes are expected);
- subject to the findings of complete MECP Procedure D-5-4 and D-5-5 assessments at the site, normal individual residential water taking and water return through individual septic systems is not expected to result in any significant water quantity impacts on the overburden or bedrock aquifers; and,
- the proposed tertiary treatment septic systems are expected to reduce potential nitrate loading at the site, and therefore maintain or enhance local groundwater quality.

Therefore, on an initial basis we can expect that the proposed development will not significantly alter local groundwater conditions on-site. In addition, we would also not anticipate any potential off-site effects to either the local groundwater systems, or features in the area that rely on groundwater (such as wetlands, creeks, springs, discharge areas, or, private water wells). Therefore, Paris and Galt Moraine Policy Area groundwater protection objectives would be met.

Conclusions and Recommendations


Based on this review and: the expected implementation of standard development controls; use of tertiary treatment septic systems; water well construction within the bedrock aquifer by licenced water well contractors according to all applicable standards (including standard separation distances); and, the recommended implementation of MECP Procedure D-5-4 and D-5-5, at this time the potential for groundwater system impacts is considered low.

We recommend the following:

1. Current shallow soils and groundwater conditions be confirmed through the expected geotechnical assessment(s).
2. The expected stormwater management assessment and planning at the site include recharge maintenance as a target to minimize potential groundwater impacts.
3. All residential water supply wells to be constructed at the site be completed by MECP licenced water well contractors according to all applicable regulations and standards and be drilled into the bedrock, with the Guelph Formation as the preferred aquifer source. Target water supply rates should be 20 L/min or more.
4. MECP Procedure D-5-5 be followed to confirm private water supplies can be provided using the bedrock aquifer system, and to assess potential mutual inference, or interference with existing water wells and/or Natural Heritage features.
5. MECP Procedure D-5-4 be followed to confirm individual septic system use at the site would not result in unacceptable groundwater impacts.
6. An updated hydrogeologic assessment be completed, incorporating the findings of the recommended study components.

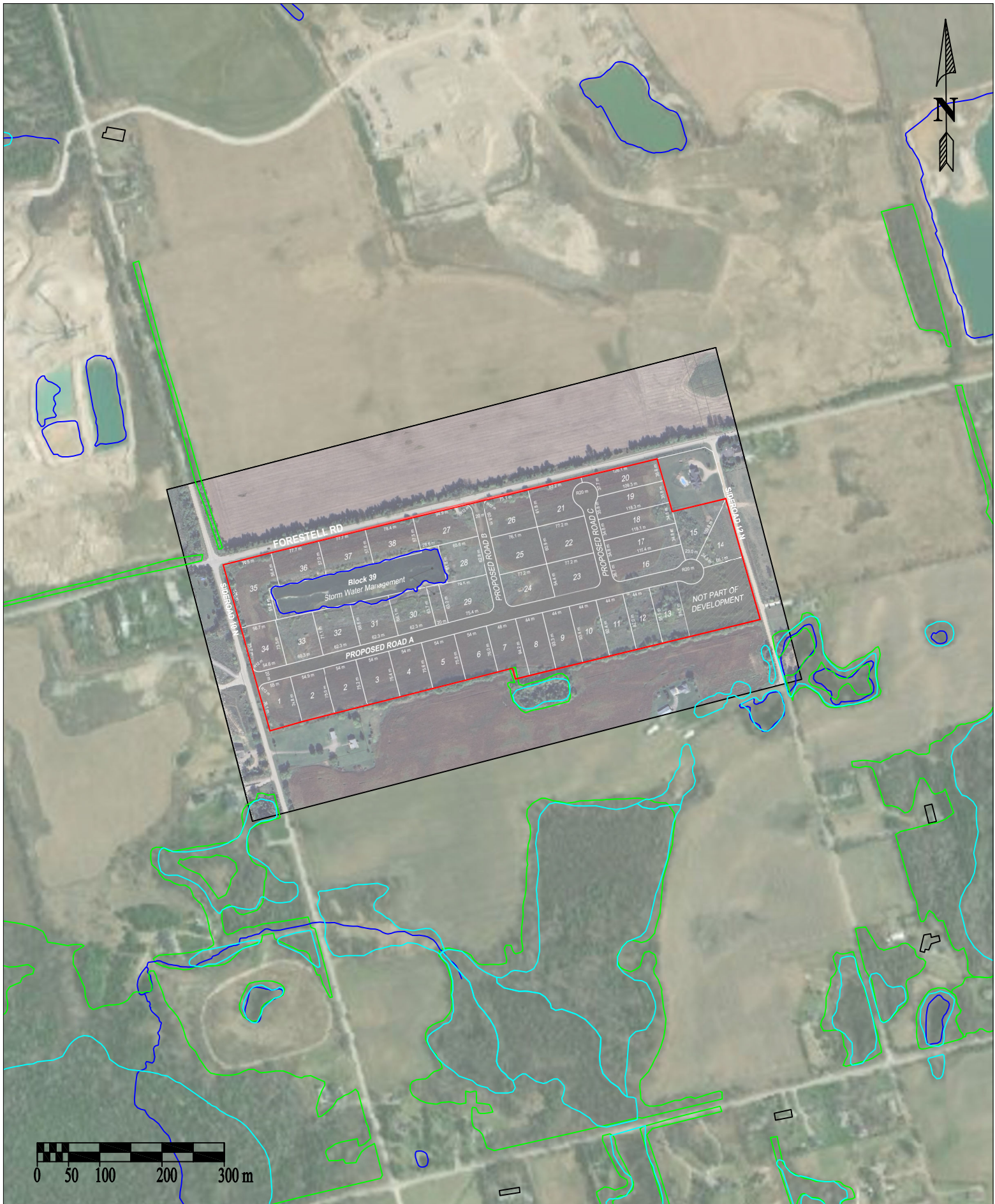
If you have any questions, or require further information, please do not hesitate to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew Pentney". The signature is fluid and cursive, with the first name "Andrew" written in a larger, more prominent script than the last name "Pentney".

Andrew Pentney, P.Geol.
Hydrogeologist

- Attached:
- Figure 1: Site Location
 - Figure 2: Surficial Geology
 - Figure 3: MNR Natural Heritage Mapping
 - Figure 4: GRCA Natural Heritage Mapping
 - Figure 5: High Water Table Conditions
 - Figure 6: Low Water Table Conditions
 - Figure 7: Source Protection Mapping
 - Appendix A: Nigro Pit 2012 Monitoring Summary
 - Appendix B: Water Well Record Review



Site (approx.)
development concept plan: Stovel and Associates Inc.

vegetation lines, wetlands, water bodies & watercourses,
roads, etc. as shown

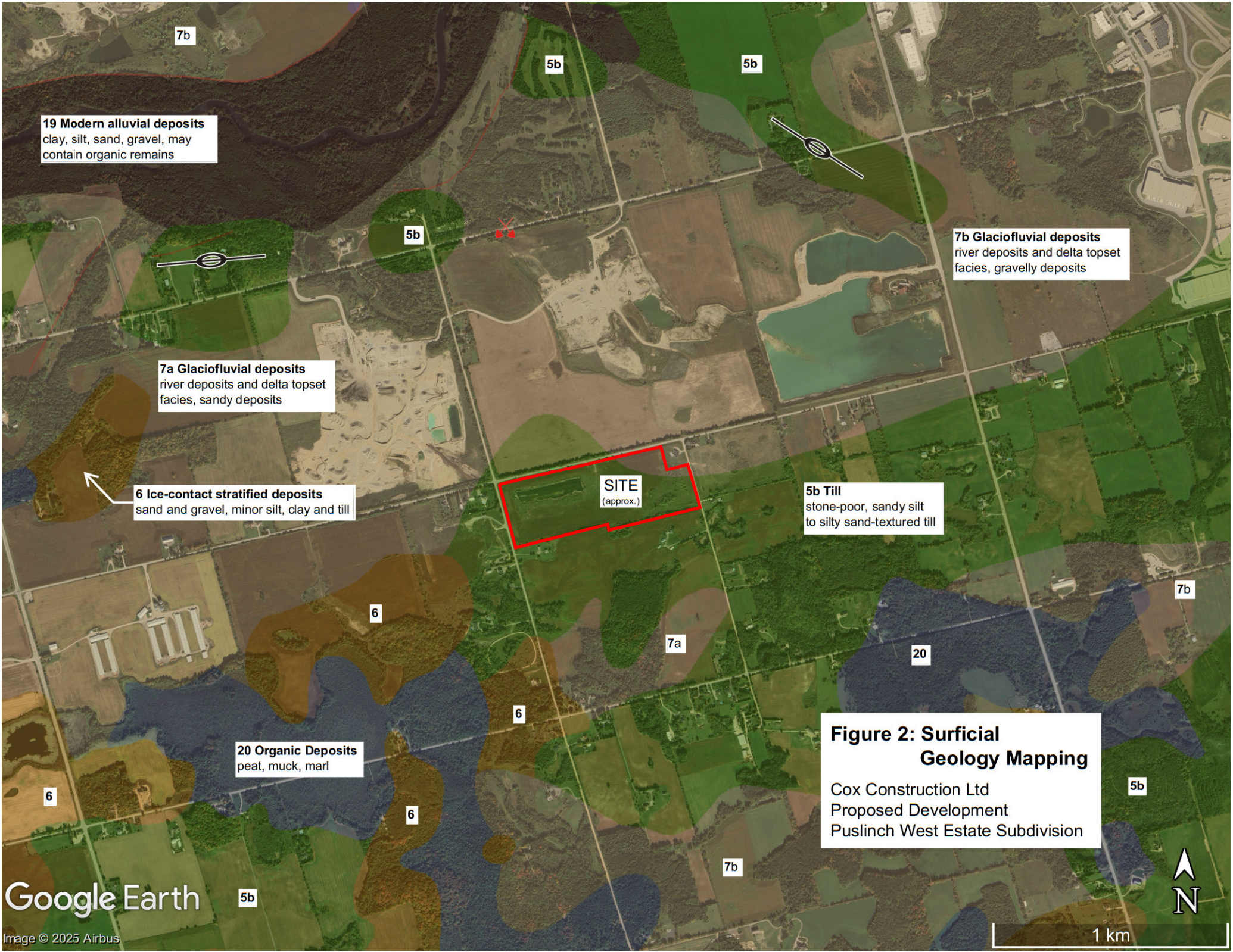
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December 2025
Scale: as shown



Figure 1: Site Location

Puslinch West Estate Subdivision
Cox Construction Ltd.



19 Modern alluvial deposits
 clay, silt, sand, gravel, may
 contain organic remains

7b Glaciofluvial deposits
 river deposits and delta topset
 facies, gravelly deposits

7a Glaciofluvial deposits
 river deposits and delta topset
 facies, sandy deposits

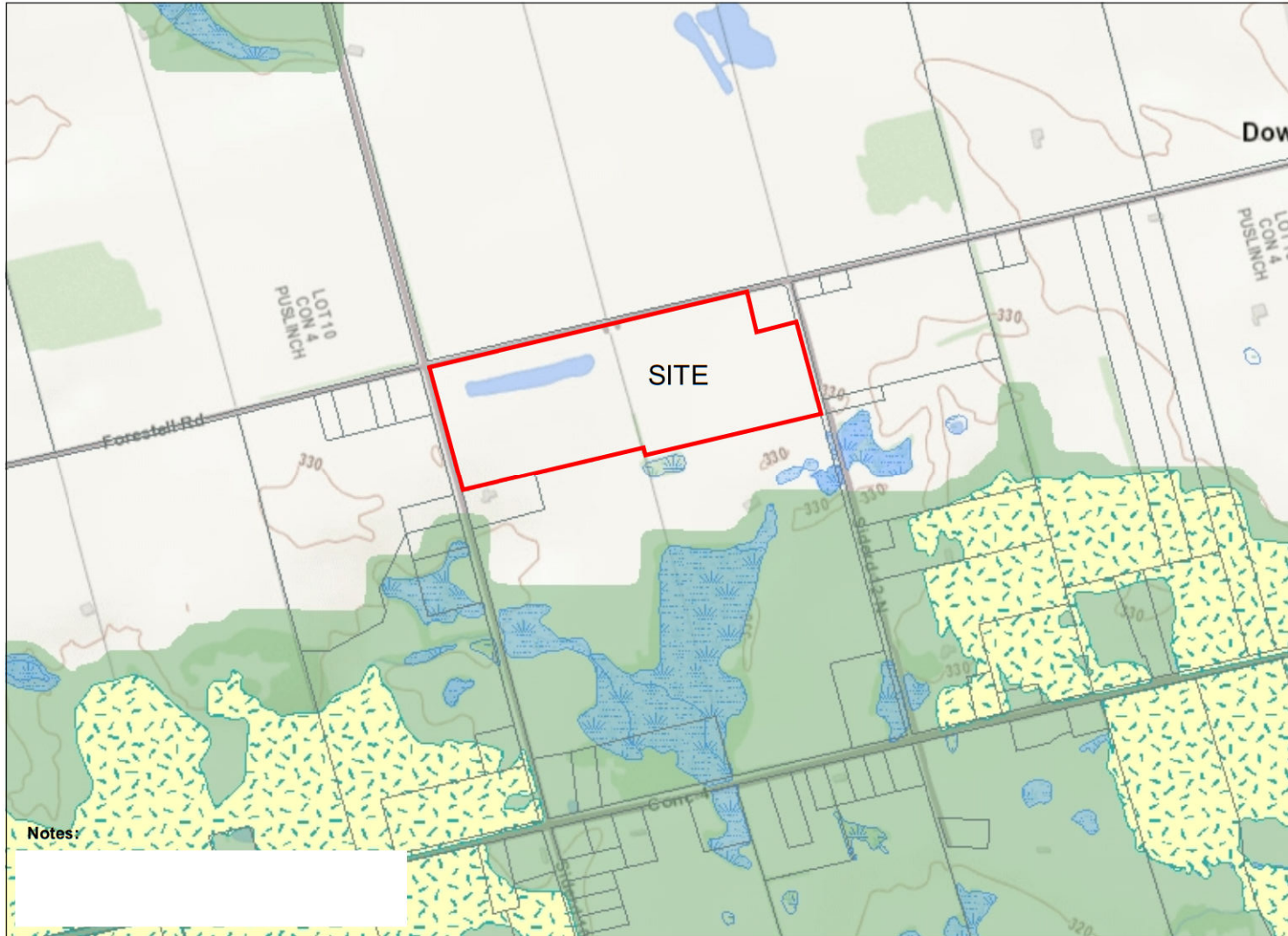
6 Ice-contact stratified deposits
 sand and gravel, minor silt, clay and till

5b Till
 stone-poor, sandy silt
 to silty sand-textured till

20 Organic Deposits
 peat, muck, marl

**Figure 2: Surficial
 Geology Mapping**
 Cox Construction Ltd
 Proposed Development
 Puslinch West Estate Subdivision





Legend











-  Assessment Parcel
- ANSI**
-  Earth Science Provincially Significant/sciences de la terre d'importance provinciale
-  Earth Science Regionally Significant/sciences de la terre d'importance régionale
-  Life Science Provincially Significant/sciences de la vie d'importance provinciale
-  Life Science Regionally Significant/sciences de la vie d'importance régionale
-  Evaluated Wetland
-  Provincially Significant/considérée d'importance provinciale
-  Non-Provincially Significant/non considérée d'importance provinciale
-  Unevaluated Wetland
-  Natural Heritage System

Figure 3: MNR Natural Heritage Mapping

Cox Construction Ltd
Proposed Development
Puslinch West Estate Subdivision

0.7 0 0.33 0.7 Kilometres Absence of a feature in the map does not mean they do not exist in this area.

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources(OMNR) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

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GRCA Natural Heritage Mapping

Legend

-  Municipal Boundary (GRCA)
-  Wetland (GRCA)
-  ANSI (ON)
-  Parcel - Assessment(MPAC /MNRF)
-  Watercourse(GRCA)
-  Waterbody (GRCA)
-  ConservationArea Boundary (GRCA)

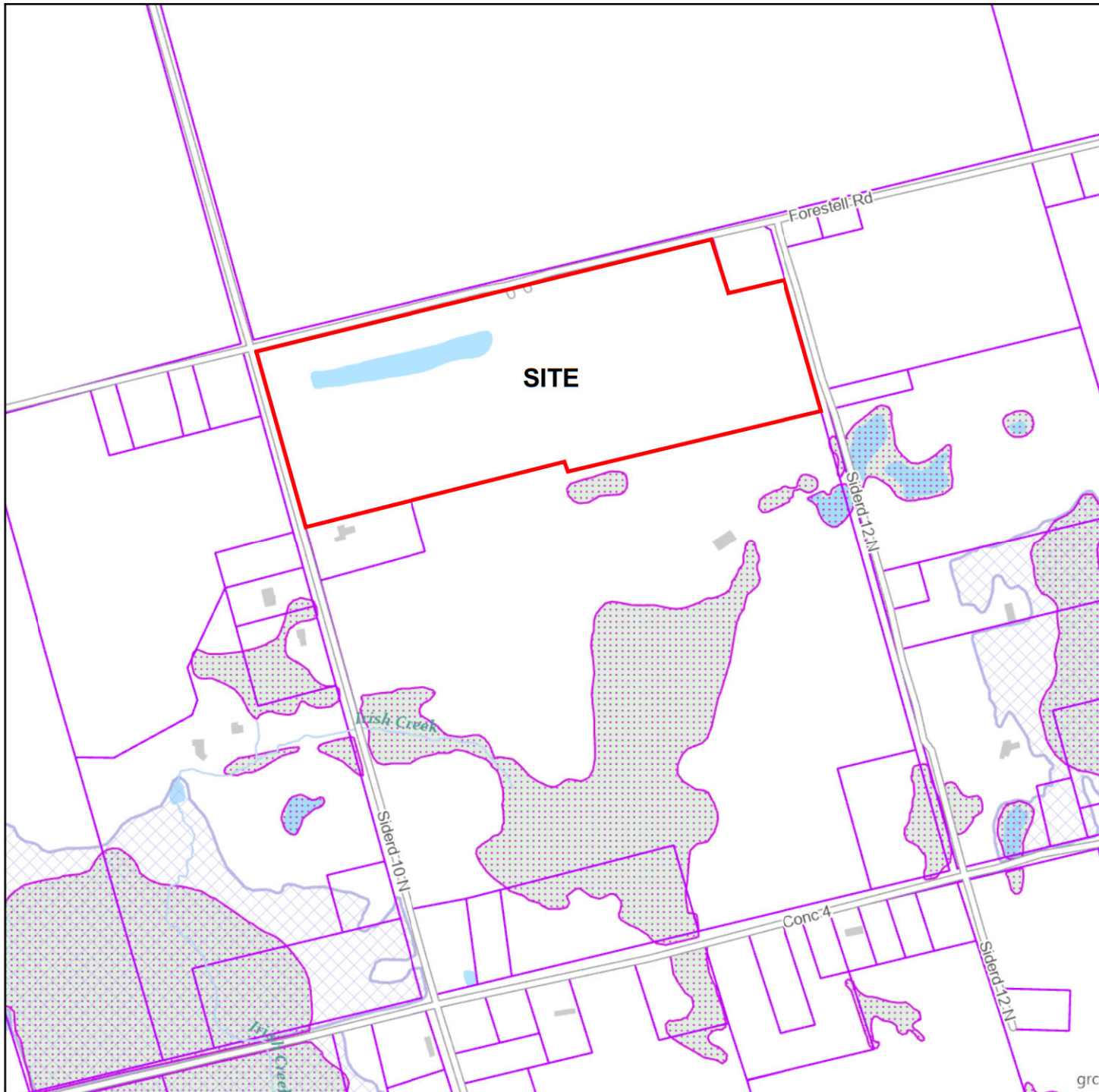


Figure 4: GRCA Natural Heritage Mapping

Cox Construction Ltd
Proposed Development
Puslinch West Estate Subdivision

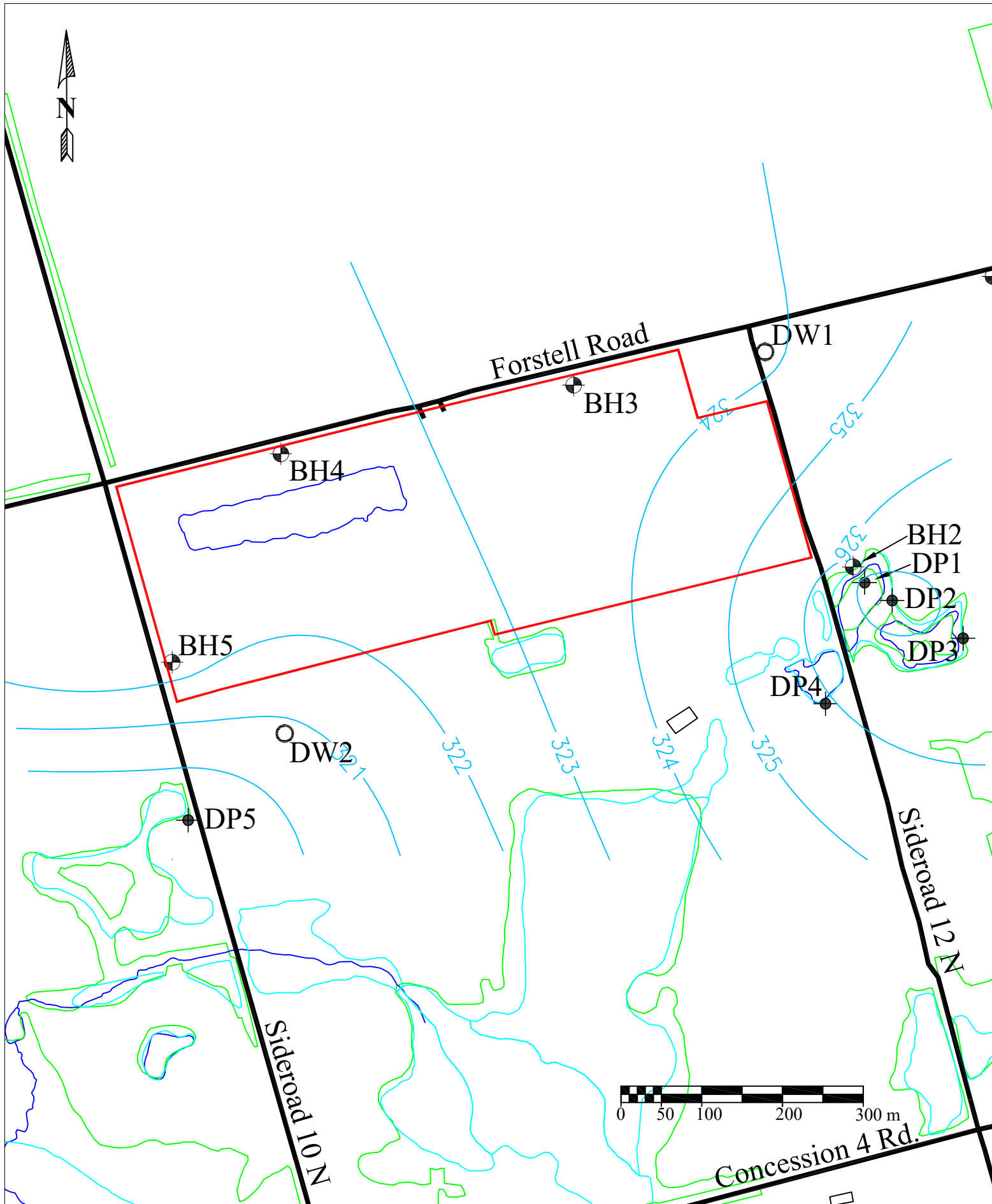
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Disclaimer: This map is for illustrative purposes only. Information contained herein is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user. The source for each data layer is shown in parentheses in the map legend. See [Sources and Citations](#) for details.

grca

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NAD83 UTM zone 17 (EPSG:26917)





Site (approx.)
 projected water table contours as shown (mASL)

vegetation lines, wetlands, water bodies & watercourses,
 roads, etc. as shown

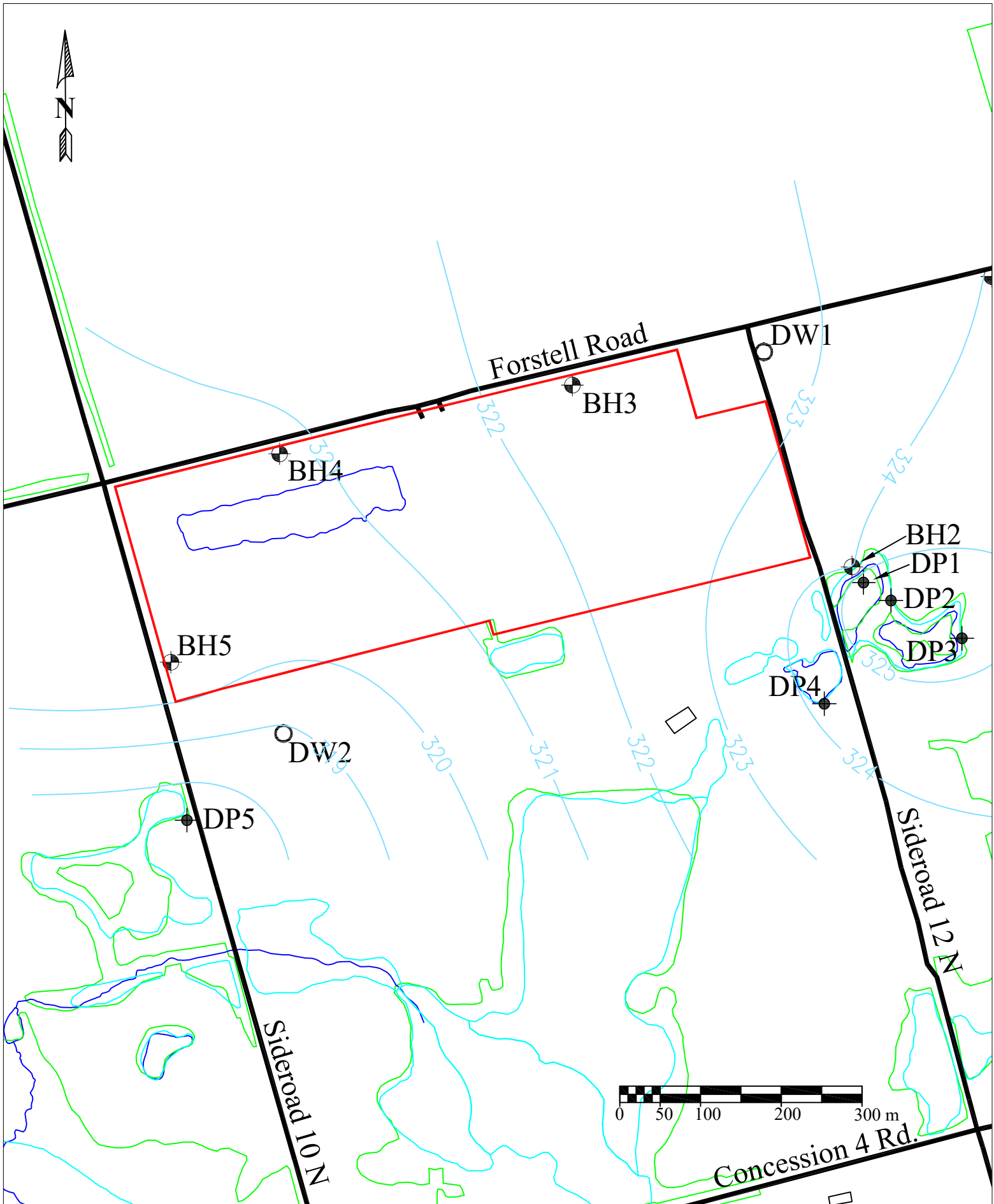
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GROUNDWATER
 SCIENCE CORP.

Figure 5: High Water Table

Puslinch West Estate Subdivision
 Cox Construction Ltd



— Site (approx.)
 projected water table contours as shown (mASL)
— vegetation lines, — wetlands, — water bodies & — watercourses,
 roads, etc. as shown

Modified from: geographic data obtained
 through Land Information Ontario
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 Scale: as shown



Figure 6: Low Water Table

Puslinch West Estate Subdivision
 Cox Construction Ltd



GRCA WHPA Mapping

Legend

- Municipal Boundary (GRCA)
- WHPA-Wellhead Protection Area (GRCA)
 - WHPA-A
 - WHPA-B
 - WHPA-C
 - WHPA-D
- Municipal Well (GRCA)
- Watercourse (GRCA)
- Waterbody (GRCA)
- Conservation Area Boundary (GRCA)

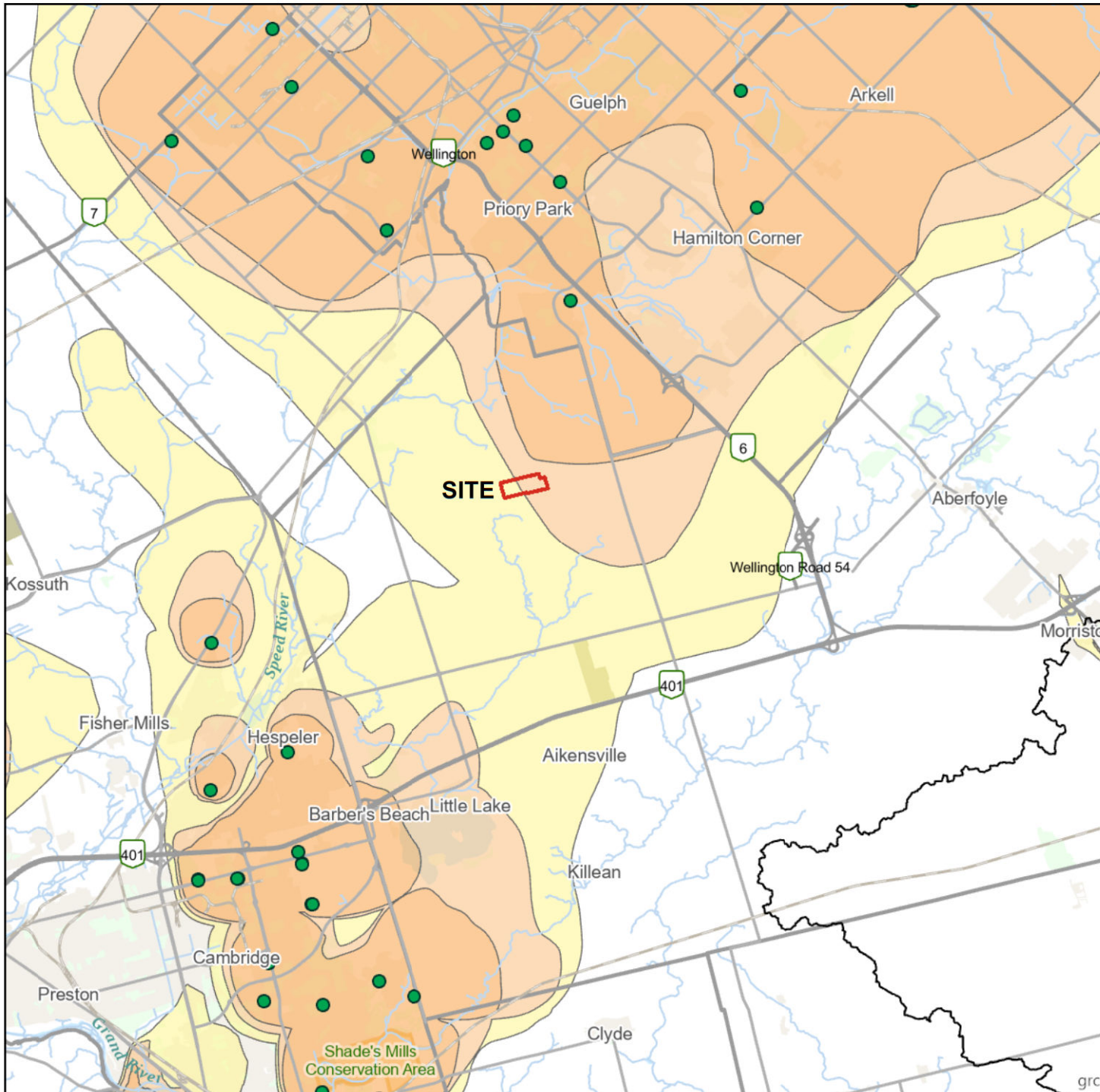


Figure 7: GRCA WHPA Mapping

Cox Construction Ltd
Proposed Development
Puslinch West Estate Subdivision

Copyright Grand River Conservation Authority, 2025.

Disclaimer: This map is for illustrative purposes only. Information contained herein is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user. The source for each data layer is shown in parentheses in the map legend. See [Sources and Citations](#) for details.

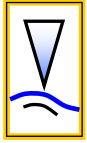
grca

Scale 1:101,265
NAD83 UTM zone 17 (EPSG:26917)



December 2, 2025

**Appendix A: Nigro Pit 2012
Groundwater Monitoring Summary**



January 15, 2013

Colin Evans
Lands Manager,
CBM Aggregates
55 Industrial Street
Toronto, ON
M4G 3W9

Dear Mr. Evans:

**RE: 2012 Groundwater Monitoring Summary,
CBM Nigro Pit, Licence No. 20749
Part Lots 11 and 12, Concession 4A, Puslinch Township**

This letter is a summary of the results of the 2012 groundwater monitoring program completed for the above reference property.

The original pit Licence was issued on May 28, 1999. The Licence conditions include quarterly groundwater monitoring at established locations and annual reporting (to be submitted by January 30th). The monitoring report is submitted to the MNR, the MOE and the Township of Puslinch.

1.0 Water Level Monitoring Program

The overall site setting and monitoring locations are shown on Figure 1. The current groundwater monitoring locations include boreholes BH1, BH2-S, BH2-D, BH3, BH4 and BH5, private dug well DW2, drive-point piezometers DP1, DP2, DP3, DP4, DP5 and DP6. Note that private well DW1 has been abandoned (removed) by the owner, and is no longer monitored. At each of these locations a groundwater level is obtained on a routine basis as conditions allow. At drive-point locations within natural ponds a surface water measurement is also obtained (if possible). In addition, surface water flow is monitored at a culvert across Concession 4 Sideroad (SW1).

The monitoring well and drive-point installation details are shown in Table 1. The water level monitoring data is presented in Tables 2 and 3. Hydrographs of the water level data are also presented. Water level data has been collected at the site since October 1997.

2.0 Discussion of Monitoring Results

Water level measurements and surface water flow observations for the year 2012 program were obtained on five occasions (January, February, June, September and December). Extraction at the site occurs intermittently, however no extraction was reported in 2012.

For comparison to the hydrographs, a plot of the monthly precipitation and 30-year monthly precipitation normal reported for the Waterloo-Wellington Airport (and overall area) for the years 1994 to 2012 is attached to this report. Missing or incomplete 2007, 2008 and 2010 (November) data for the station was augmented using data reported for the University of Waterloo weather station (<http://weather.uwaterloo.ca/>). In 2012 the estimated total reported precipitation of 655.5 mm is approximately 252.6 mm below the current 30-yr mean value of 908.1 mm. As indicated by the graph, below normal precipitation occurred over most months of the year (with the exception of June, September and October).

The data gathered to date indicates that groundwater elevations at the site have been maintained within in similar range under varying climate conditions since 1997 (prior to extraction). To date there is no indication that extraction at the site has affected the local water table. Theoretically the reduction in runoff associated with the extraction to date has likely led to additional recharge as compared to the original condition, which would tend to slightly increase local seasonal water table fluctuation and average annual groundwater levels. As illustrated by the hydrographs however, it is likely that the on-going seasonal and annual variation in recharge has a larger influence on local water table elevations, and masks any potential small-scale effect related to the extraction.

The ponds (at DP1, DP2, DP3, or DP4) were dry in the fall of 1998; summer and fall of 1999; fall/winter of 2000; summer/fall/winter of 2001; summer/fall/winter of 2002; summer 2003; fall of 2004; summer/fall of 2005; summer/fall of 2006; and summer/fall of 2007. Although, with the exception of DP2, these ponds held water for all of 2008 due to above normal precipitation that year, in the summer/fall of 2009, 2010, 2011 and 2012 the ponds were again dry. Water levels at the ponds and in the till unit fluctuate according to precipitation inputs, and have generally remained within expected ranges based on pre-extraction (1997/1998) data. There has been no disenable change in water levels at the ponds associated with extraction at the Nigro Pit. In addition, the pond and shallow groundwater levels at DP1 are up to 6 m higher than the water table in the sand and gravel aquifer within the extraction area at BH2-D. Overall, the ponds represent perched systems within the till unit (and with respect to the sand and gravel aquifer at the site) that infiltrate water and contribute to the underlying groundwater system.

Surface water has been observed at SW1 on only 34 (generally spring or fall/winter) of the 137 occasions that measurements have been made at that location since monitoring began in 1999. High flow measurements obtained in March 2004 corresponds to a snowmelt event and does not represent baseflow conditions.

3.0 Proposed Thresholds

The intent of the program is to measure seasonal variation in groundwater levels at the site. The Licence conditions indicate that "after a minimum of two years of data is obtained the seasonal water table variations should be determined and a seasonal low water table recommended for each monitoring location ...". Based on the minimum water table elevations observed the following "thresholds" were proposed in the 2001 Monitoring Report:

<u>Monitor</u>	<u>Threshold (mAMSL)</u>
BH1	323.8
BH2-S	dry and BH2-D is lower than threshold
BH2-D	323.5
BH3	322.5
BH4	320.5
BH5	320.9
DP1	dry and DP2 is lower than threshold
DP2	325.5
DP3	325.4
DP4	329.2
DP5	dry and BH5 is lower than threshold
DP6	324.0
DW2	318.4 at static level (non-use conditions)
SW1	not applicable

In addition, the following comments regarding the threshold values and the "action response plan" were included with the 2001 report recommendations:

Note that no specific season is specified, the lowest water levels observed have occurred either during the fall or winter period of each year monitored. Due to the variability in precipitation during the monitoring period to date, other seasonal norms are not as definable as the minimum observed "natural" water table elevations listed above. Please also note that if seasonal or annual precipitation continues to be low, or decreases, the water table may naturally fall below the thresholds listed above. These thresholds are "indicators", once water levels reach threshold levels more detailed monitoring should be implemented (as per the Licence conditions) and the overall situation should be assessed.

If water table elevations drop below these minimum values, then further investigation will be necessary to determine the cause of the low water levels (as per the Licence conditions). If the cause is determined to be natural then no further action would be necessary. If the cause is determined to be a result of the excavation then mitigation options would be developed at that time in conjunction with the appropriate agencies.

To date no final comment has been received from the review agencies regarding the proposed thresholds and action response plan, and therefore it is unknown if the proposed thresholds and plan (as outlined above) have been accepted by MNR. However, for the purposes of this report, and in order to meet the intent of the monitoring program, the 2012 monitoring results have been compared to the proposed thresholds and action plan.

4.0 Discussion

As indicated by the water level hydrographs and the precipitation graph, the local water table fluctuates in response to monthly and annual rainfall. The lowest water level elevations were observed in January and February 2003, after the extremely dry fall of 2002. Below normal precipitation continued through the winter of 2002/2003. Between 2004 and 2007, with increased precipitation and recharge, groundwater level elevations generally recovered. Very low water table conditions were again observed at some locations during fall 2007 as a result of the extremely dry summer conditions. However the typical "seasonal" water level recovery also occurred during late fall and early winter 2007 and groundwater levels were within seasonal norms by the end of 2007. Although higher water levels observed through 2008 due to above average precipitation, by early summer 2009 water levels at the site were within the "normal" seasonal range and remained so in 2010 and 2011 due to more typical precipitation input patterns. Dry conditions in 2012 resulted in lower recharge volumes and a more moderate spring "peak", however the water table remained within historical ranges despite the lack of precipitation.

The overall water level trends at the site indicate that the extraction activities at the site to date have had no significant influence on groundwater levels. Average groundwater levels at the site remain consistent with historical results. Seasonal maximum groundwater elevations on-site appear to be generally higher from 2001 to 2011, likely due to an overall increase in annual precipitation and on-site recharge due to increased runoff capture. The pattern of groundwater levels across the site has remained consistent over the monitoring period, indicating that local groundwater flow directions and patterns have been maintained.

The monitoring results indicate that the measured water level and water level fluctuation at the ponds adjacent to the site is dependent on precipitation patterns and is not related to groundwater levels or groundwater recharge within the extraction area. In addition, the measured water level elevations indicate that these ponds are perched above the water table within the extraction area and consistent downward gradients exists between the ponds and the underlying sand and gravel aquifer.

The water level at the dug well southwest of the Licenced area has not been adversely affected by the extraction. Groundwater levels and seasonal fluctuation at the dug well is generally consistent with historical values and patterns observed over the entire site.

The monitoring results indicate that groundwater levels were above the proposed thresholds at all locations in 2012. Based on the conclusions of the review no threshold response action was recommended.

5.0 Recommendations

Based on the data gathered to date and the Licence stipulations, the monitoring program should continue as required by the Site Plan. In addition, the blockage in monitor BH2-S should be removed.

If you have any questions or require further assistance please do not hesitate to contact me.

Sincerely,

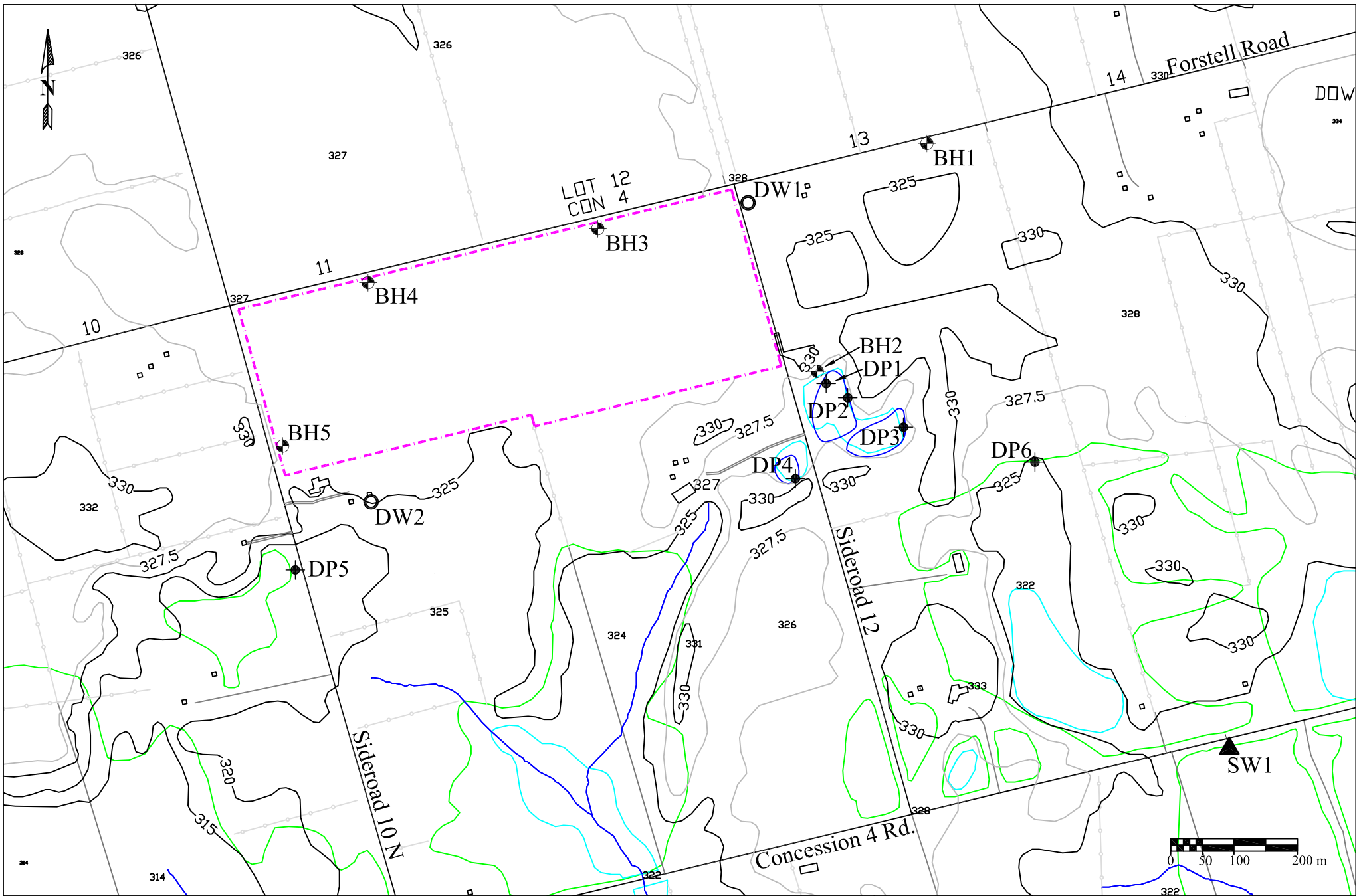


Andrew Pentney, B.Sc., P.Ge.
Hydrogeologist



Cc: Bernie Janssen, Harrington McAvan Ltd.
MNR, MOE, Township of Puslinch

Attached: Figure 1 Site Plan and Monitoring Locations
Table 1 Completion Details
Table 2 Water Level Measurements, Monitoring Wells
Table 3 Water Level Measurements, Pond Piezometers
Table 4 Surface Water Flow Measurements
Water Level Hydrograph, Monitors Surrounding Excavation Area
Precipitation Comparison



- monitoring well
- ◆ drive point piezometer
- private well
- ▲ surface water location

- Licenced boundary (approx.)
- surface water (pond, creek)
- mapped wetlands
- contour interval as shown

scale : as shown
January 2012

Figure 1: Site and Monitoring Locations

Groundwater Monitoring Program Report

CBM Nigro Pit, Licence No. 20749

Part Lots 11, 12, 13, Con. 4, Township of Puslinch

modified from: 1:10,000 OBM Mapping
UNDER LICENSE, WITHOUT PREJUDICE OR
ENDORSEMENT FROM THE QUEEN'S PRINTER OF ONTARIO

<i>Monitoring Location</i>	<i>Casing Stick-Up (mAGS)</i>	<i>Total Depth (mBGS)</i>	<i>Elevations* (mAMSL)</i>			
			<i>Ground Surface</i>	<i>Top of Casing</i>	<i>Top of Screen</i>	<i>Bottom of Screen</i>
BH1	0.63	8.23	330.70	331.33	323.99	322.47
BH2-S	0.69	4.57	328.00	328.69	323.53	323.43
BH2-D	0.69	7.60	328.00	328.69	321.92	320.40
BH3	0.62	6.71	327.01	327.63	321.82	320.30
BH4	0.63	7.60	327.40	328.03	321.32	319.80
BH5	1.02	8.23	328.40	329.42 ***	321.69	320.17
DP5	0.10 ****	1.85	319 **	319.10	317.57	317.15
DP1	0.93	0.61	326.45	327.38	326.14	325.84
DP2	0.82	1.14	326.66	327.47	325.82	325.52
DP3	0.79	1.13	326.59	327.38	325.76	325.46
DP4	0.79	1.19	330 **	330.79	329.23	328.88
DP6	0.76	1.86	325 **	325.76	323.56	323.14
DW1 (Dug Rd 12)	0.25	5.40	327.75 **	328	na	na
DW2 (Dug Rd 10 N)	0.00	5.85	324 **	324	na	na

Notes:
* Elevations relative to BH2 ground surface, assumed to be 328.00 mAMSL
** Ground elevation at DP4, DP5, DP6, DW1, and DW2 estimated from topographic mapping (Figure 1).
*** The casing at BH5 has been broken several times. As of Oct 1998, the casing stick-up was 0.13 m above ground surface. It was repaired in June 1999 and is now 1.02 m.
**** casing stick-up was noted to be altered in August 2004 - correction to tables made in May 2008
mAMSL = metres above mean sea level
mAGS = metres above ground surface
mBGS = metres below ground surface
na = not available

**Table 1:
Monitoring Well and Drive-Point Piezometer Installation Details**

Date	BH1		BH2-S		BH2-D		BH2 S-D	BH3		BH4		BH5		DP5		DW1 (Rd12)		DW2 (Rd 10N)	
	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Vertical Gradient	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)
9-Oct-97	324.66	6.04	326.86	1.14	324.73	3.27	0.92	323.29	3.72	321.64	5.77	321.47	6.93	#N/A	ni	#N/A	nm	#N/A	nm
16-Oct-97	324.62	6.09	326.89	1.12	324.68	3.32	0.95	323.26	3.76	321.60	5.81	321.44	6.97	#N/A	ni	#N/A	nm	#N/A	nm
28-Oct-97	324.56	6.15	324.78	3.23	324.56	3.44	0.09	323.58	3.43	321.51	5.90	321.36	7.05	#N/A	ni	#N/A	nm	#N/A	nm
17-Nov-97	324.50	6.21	n/a	nm	324.67	3.34	#N/A	323.14	3.87	321.43	5.97	321.32	7.09	#N/A	ni	#N/A	nm	#N/A	nm
17-Dec-97	324.43	6.27	324.78	3.22	324.56	3.44	0.09	323.10	3.91	321.32	6.08	321.24	7.16	#N/A	ni	#N/A	nm	#N/A	nm
21-Jan-98	324.94	5.77	325.48	2.52	325.30	2.71	0.08	323.67	3.34	321.70	5.70	321.55	6.86	#N/A	ni	#N/A	nm	#N/A	nm
10-Jun-98	325.22	5.49	325.63	2.37	325.35	2.65	0.12	323.82	3.20	321.96	5.44	321.82	6.58	#N/A	ni	#N/A	nm	#N/A	nm
23-Jun-98	325.17	5.53	325.69	2.31	325.44	2.56	0.11	323.91	3.11	322.00	5.40	321.83	6.57	#N/A	ni	#N/A	nm	#N/A	nm
16-Jul-98	325.04	5.66	325.52	2.49	325.26	2.75	0.11	323.75	3.26	321.93	5.47	321.89	6.51	#N/A	ni	323.93	3.82	320.05	3.95
17-Jul-98	325.01	5.69	325.47	2.54	325.21	2.80	0.11	323.72	3.29	321.91	5.49	321.88	6.52	#N/A	ni	#N/A	nm	#N/A	nm
25-Jul-98	324.95	5.75	325.31	2.69	325.07	2.94	0.11	323.65	3.37	321.87	5.54	321.83	6.57	#N/A	ni	323.81	3.94	319.95	4.05
23-Oct-98	324.25	6.45	323.99	4.01	323.92	4.08	0.03	322.97	4.04	321.26	6.14	321.10	6.41	#N/A	ni	323.14	4.61	318.89	5.11
6-Apr-99	324.59	6.11	325.09	2.91	324.74	3.26	0.15	323.17	3.84	321.26	6.14	321.34	6.17	#N/A	ni	323.25	4.50	319.72	4.28
17-Jun-99	324.37	6.33	324.55	3.46	324.39	3.61	0.07	322.97	4.04	321.06	6.34	321.06	7.34	317.61	1.39	323.08	4.67	319.32	4.68
30-Jul-99	324.17	6.53	324.06	3.94	323.93	4.07	0.06	322.81	4.20	320.90	6.50	321.05	7.35	317.20	1.80	322.87	4.88	318.48	5.52
17-Sep-99	323.94	6.77	323.55	4.45	323.53	4.48	0.01	322.64	4.37	320.82	6.58	321.02	7.38	317.16	1.84	322.65	5.10	318.73	5.27
19-Nov-99	323.83	6.87	#N/A	dry	323.72	4.28	#N/A	322.68	4.33	320.78	6.62	321.01	7.39	317.47	1.53	322.63	5.12	318.87	5.13
28-Apr-00	324.51	6.19	325.07	2.94	324.65	3.36	0.18	323.18	3.83	321.21	6.20	321.03	7.38	318.57	0.44	323.02	4.73	319.72	4.28
25-Jul-00	324.98	5.72	325.68	2.32	325.26	2.74	0.18	323.60	3.41	321.68	5.72	321.67	6.73	317.95	1.05	323.86	3.89	319.96	4.04
1-Dec-00	324.12	6.58	324.20	3.80	324.07	3.93	0.06	322.81	4.20	320.96	6.45	321.05	7.35	317.85	1.15	322.88	4.87	319.15	4.85
24-Jan-01	323.94	6.76	324.05	3.95	323.92	4.08	0.06	322.58	4.43	320.61	6.79	321.04	7.36	317.74	1.26	322.62	5.13	319.00	5.00
20-Apr-01	324.82	5.88	325.59	2.41	325.13	2.87	0.20	323.18	3.83	321.04	6.36	321.18	7.22	318.10	0.90	323.48	4.28	319.88	4.12
6-Jul-01	324.77	5.93	325.39	2.61	324.88	3.13	0.22	323.18	3.83	321.05	6.35	321.24	7.16	317.56	1.44	323.40	4.35	319.52	4.48
10-Sep-01	324.25	6.45	324.02	3.98	323.82	4.18	0.09	322.72	4.29	320.65	6.75	321.08	7.32	#N/A	dry	322.83	4.92	318.88	5.12
26-Nov-01	324.10	6.60	324.27	3.73	324.16	3.84	0.05	322.79	4.22	320.54	6.86	321.09	7.32	#N/A	dry	322.84	4.91	318.97	5.03
9-Jan-02	324.43	6.27	324.69	3.31	324.53	3.47	0.07	322.92	4.09	320.73	6.67	321.09	7.31	317.95	1.05	323.00	4.75	319.26	4.75
6-Mar-02	324.82	5.88	#N/A	fr	324.62	3.39	#N/A	323.26	3.75	321.03	6.37	321.13	7.28	318.46	0.55	323.58	4.18	319.93	4.07
17-Apr-02	325.28	5.42	326.10	1.90	325.62	2.38	0.21	323.48	3.53	321.29	6.11	321.41	6.99	318.59	0.41	323.98	3.77	320.50	3.50
22-May-02	325.40	5.30	326.19	1.81	325.65	2.35	0.23	323.49	3.52	321.40	6.00	321.63	6.77	318.52	0.48	324.02	3.73	319.69	4.31
18-Jun-02	325.20	5.50	326.00	2.00	325.36	2.65	0.28	323.38	3.63	321.27	6.13	321.53	6.87	318.11	0.89	323.79	3.96	#N/A	nm
24-Jul-02	324.92	5.78	325.62	2.38	324.93	3.07	0.30	323.23	3.78	321.14	6.26	321.35	7.05	317.57	1.43	323.56	4.19	319.32	4.68
26-Aug-02	324.61	6.09	324.79	3.21	324.36	3.64	0.19	322.92	4.09	320.89	6.51	321.11	7.29	317.21	1.79	323.17	4.58	319.04	4.96
23-Sep-02	324.40	6.30	324.32	3.68	323.98	4.02	0.15	322.83	4.18	320.78	6.62	321.09	7.31	317.22	1.78	323.03	4.72	318.95	5.05
24-Oct-02	324.19	6.51	324.22	3.78	323.79	4.21	0.19	322.69	4.32	320.58	6.82	321.08	7.32	317.23	1.77	322.83	4.92	318.82	5.18
21-Nov-02	324.07	6.63	324.13	3.87	323.79	4.21	0.15	322.70	4.31	320.52	6.88	321.08	7.32	317.23	1.77	322.79	4.96	318.79	5.21
19-Dec-02	323.95	6.75	#N/A	fr	323.66	4.34	#N/A	322.51	4.50	320.39	7.01	321.08	7.32	317.21	1.79	322.61	5.14	318.67	5.33
23-Jan-03	323.84	6.86	#N/A	fr	323.57	4.43	#N/A	322.41	4.60	320.27	7.13	321.07	7.33	317.21	1.79	322.50	5.25	318.60	5.40
20-Feb-03	323.79	6.91	#N/A	fr	323.46	4.54	#N/A	322.31	4.70	320.21	7.19	321.08	7.32	317.21	1.79	322.33	5.42	318.48	5.52
24-Mar-03	324.20	6.50	#N/A	fr	323.89	4.11	#N/A	322.78	4.23	320.63	6.77	321.08	7.32	318.37	0.63	323.11	4.64	319.02	4.98
23-Apr-03	324.66	6.04	325.47	2.53	324.82	3.18	0.28	323.02	4.00	320.83	6.57	321.08	7.32	318.37	0.63	323.34	4.41	319.63	4.37
26-May-03	324.74	5.96	325.17	2.83	325.09	2.91	0.03	323.15	3.86	320.83	6.57	321.08	7.32	318.52	0.48	323.44	4.31	319.79	4.21
23-Jun-03	324.74	5.96	325.78	2.22	325.06	2.94	0.31	323.04	3.98	320.83	6.57	321.09	7.31	317.98	1.02	323.38	4.37	319.56	4.44
21-Jul-03	324.61	6.09	325.17	2.83	324.75	3.25	0.18	323.01	4.00	320.77	6.63	321.08	7.32	317.68	1.32	323.24	4.51	319.33	4.67
19-Aug-03	324.53	6.17	324.88	3.12	324.66	3.34	0.09	323.09	3.92	320.81	6.59	321.08	7.32	317.82	1.18	323.32	4.43	319.32	4.68
30-Sep-03	324.39	6.31	#N/A	blocked	324.36	3.64	#N/A	323.06	3.95	320.82	6.58	321.07	7.33	317.76	1.24	323.22	4.54	319.17	4.83

Date	BH1		BH2-S		BH2-D		BH2 S-D	BH3		BH4		BH5		DP5		DW1 (Rd12)		DW2 (Rd 10N)	
	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Vertical Gradient	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)
21-Oct-03	324.33	6.37	324.69	3.31	324.49	3.51	0.09	322.97	4.04	320.70	6.70	321.07	7.33	317.85	1.15	323.14	4.61	319.26	4.74
17-Nov-03	324.59	6.11	325.16	2.84	324.89	3.11	0.12	323.16	3.85	320.90	6.50	321.07	7.33	318.38	0.62	323.40	4.35	319.75	4.25
17-Dec-03	324.95	5.75	#N/A	fr	325.40	2.60	#N/A	323.23	3.78	321.16	6.24	321.39	7.01	318.51	0.49	323.69	4.06	320.20	3.80
19-Jan-04	325.23	5.47	#N/A	fr	325.44	2.56	#N/A	323.25	3.76	321.21	6.19	321.49	6.91	318.30	0.70	323.72	4.03	320.08	3.92
19-Feb-04	324.97	5.73	#N/A	fr	325.11	2.89	#N/A	#N/A	nm	321.00	6.40	321.30	7.10	318.08	0.92	#N/A	nm	#N/A	nm
31-Mar-04	325.62	5.08	326.61	1.39	325.97	2.03	0.28	323.58	3.43	321.65	5.75	321.76	6.64	318.81	0.19	324.13	3.62	320.92	3.08
27-Apr-04	325.68	5.02	326.41	1.59	325.90	2.10	0.22	323.48	3.53	321.74	5.67	321.95	6.45	318.66	0.34	324.10	3.65	320.58	3.42
25-May-04	325.66	5.04	326.47	1.53	325.86	2.14	0.26	323.45	3.56	321.77	5.63	322.01	6.39	318.62	0.38	324.07	3.68	320.48	3.52
21-Jun-04	325.31	5.39	326.30	1.70	325.56	2.44	0.32	323.27	3.74	321.56	5.84	321.80	6.60	318.04	0.96	323.80	3.95	319.99	4.01
22-Jul-04	324.99	5.71	326.13	1.87	325.17	2.83	0.41	323.11	3.90	321.23	6.17	321.54	6.86	318.00	1.00	323.52	4.23	319.60	4.40
31-Aug-04	324.74	5.96	325.56	2.44	324.80	3.20	0.33	323.09	3.92	321.05	6.35	321.25	7.15	317.48	1.52	323.23	4.52	319.26	4.74
27-Sep-04	324.56	6.14	325.21	2.79	324.53	3.47	0.29	322.87	4.14	320.86	6.55	321.11	7.29	317.21	1.79	323.08	4.67	319.13	4.87
20-Oct-04	324.40	6.30	#N/A	nm	324.26	3.74	#N/A	322.79	4.22	320.73	6.67	321.08	7.32	317.47	1.53	322.96	4.79	318.95	5.05
18-Nov-04	324.32	6.38	324.66	3.35	324.33	3.67	0.14	322.79	4.22	320.70	6.70	321.09	7.31	#N/A	nm	322.75	5.00	319.12	4.88
14-Dec-04	324.36	6.34	#N/A	nm	324.54	3.46	#N/A	322.99	4.02	320.80	6.60	321.08	7.32	318.07	0.93	323.12	4.63	319.30	4.70
21-Jan-05	325.03	5.67	325.74	2.26	325.34	2.66	0.17	323.27	3.74	321.25	6.16	321.41	7.00	318.38	0.63	323.78	3.97	320.19	3.81
17-Feb-05	325.16	5.54	#N/A	fr	325.38	2.62	#N/A	323.49	3.52	321.33	6.07	321.52	6.88	318.74	0.26	323.81	3.95	320.32	3.68
18-Mar-05	325.11	5.59	#N/A	fr	325.32	2.68	#N/A	323.34	3.67	321.20	6.20	321.44	6.96	#N/A	nm	323.68	4.07	320.00	4.00
14-Apr-05	325.63	5.07	326.28	1.72	325.88	2.12	0.17	323.51	3.50	321.71	5.69	321.86	6.54	318.56	0.44	324.08	3.67	320.51	3.49
7-May-05	325.40	5.30	326.27	1.73	325.70	2.30	0.25	323.27	3.74	321.59	5.81	321.79	6.61	318.39	0.61	323.89	3.86	320.27	3.73
22-Jun-05	324.99	5.71	325.97	2.03	325.19	2.81	0.34	323.04	3.97	321.15	6.25	321.45	6.95	317.73	1.27	323.46	4.29	319.67	4.33
21-Jul-05	324.77	5.93	325.50	2.50	324.87	3.13	0.27	323.08	3.93	321.35	6.05	321.42	6.98	317.80	1.98	323.37	4.38	319.60	4.40
10-Aug-05	324.62	6.08	#N/A	nm	324.59	3.41	#N/A	322.94	4.07	321.07	6.33	321.31	7.09	317.65	2.13	323.17	4.58	318.93	5.07
21-Sep-05	324.37	6.33	#N/A	nm	324.18	3.82	#N/A	322.78	4.23	320.83	6.57	321.10	7.30	#N/A	dry	322.94	4.81	319.12	4.88
24-Oct-05	324.23	6.47	325.08	2.92	324.04	3.96	0.45	322.71	4.30	320.74	6.66	321.08	7.32	#N/A	dry	322.84	4.91	319.02	4.98
22-Nov-05	324.19	6.51	324.29	3.71	324.15	3.85	0.06	322.80	4.21	320.86	6.54	321.10	7.30	317.90	1.88	322.91	4.84	319.14	4.86
21-Dec-05	324.31	6.39	#N/A	nm	324.41	3.59	#N/A	322.77	4.24	320.79	6.61	321.09	7.31	317.95	1.83	322.94	4.81	319.37	4.63
16-Jan-06	324.46	6.24	324.86	3.14	324.71	3.29	0.06	322.97	4.04	320.96	6.44	321.08	7.32	318.29	1.49	323.17	4.58	319.77	4.23
14-Feb-06	325.05	5.65	#N/A	nm	325.50	2.50	#N/A	323.25	3.76	321.42	5.98	321.56	6.84	318.50	0.50	323.72	4.03	320.39	3.61
21-Mar-06	325.20	5.50	326.35	1.65	325.90	2.10	0.19	323.46	3.55	321.80	5.60	321.89	6.51	318.58	0.42	323.99	3.76	320.73	3.27
19-Apr-06	324.99	5.71	326.20	1.80	325.59	2.41	0.26	323.26	3.75	321.64	5.76	321.75	6.65	318.48	0.52	323.72	4.03	320.35	3.65
19-May-06	324.95	5.75	326.17	1.83	325.53	2.47	0.28	323.34	3.67	321.63	5.77	321.76	6.64	318.85	0.15	323.72	4.03	320.43	3.57
20-Jun-06	324.81	5.89	325.96	2.04	325.23	2.77	0.31	323.10	3.91	321.31	6.09	321.59	6.81	317.88	1.12	323.43	4.32	319.60	4.40
25-Jul-06	324.61	6.09	#N/A	nm	324.82	3.18	#N/A	323.03	3.98	321.17	6.23	321.37	7.03	317.69	1.31	323.28	4.47	319.68	4.32
18-Aug-06	324.43	6.27	325.12	2.88	324.46	3.54	0.28	322.94	4.07	320.97	6.43	321.20	7.20	317.65	1.35	323.12	4.63	318.98	5.02
24-Sep-06	324.22	6.48	324.47	3.53	324.17	3.83	0.13	322.80	4.21	321.01	6.39	321.10	7.30	317.77	1.23	322.87	4.88	319.19	4.81
28-Oct-06	324.31	6.39	325.15	2.85	324.89	3.11	0.11	323.05	3.96	321.49	5.91	321.39	7.01	318.68	0.32	323.18	4.57	320.08	3.92
26-Nov-06	324.54	6.16	325.80	2.20	325.26	2.74	0.23	323.15	3.86	321.82	5.58	321.64	6.76	318.50	0.50	323.28	4.47	320.35	3.65
29-Dec-06	324.64	6.06	326.01	1.99	325.47	2.53	0.23	323.23	3.78	322.17	5.23	321.89	6.51	318.68	0.32	323.35	4.40	320.58	3.42
23-Jan-07	324.73	5.97	326.10	1.90	325.52	2.48	0.25	323.24	3.77	322.18	5.22	321.99	6.41	318.53	0.47	323.37	4.38	#N/A	#N/A
28-Feb-07	324.52	6.18	325.99	2.01	325.03	2.97	0.41	322.96	4.05	322.02	5.38	321.65	6.75	318.21	0.79	323.10	4.65	319.87	4.13
23-Mar-07	324.76	5.94	#N/A	nm	325.56	2.44	#N/A	323.38	3.63	322.24	5.16	321.97	6.43	318.80	0.20	323.48	4.27	320.72	3.28
30-Apr-07	324.91	5.79	326.24	1.76	325.63	2.37	0.26	323.33	3.68	322.47	4.93	322.18	6.22	318.84	0.16	323.50	4.25	320.66	3.34
28-May-07	324.71	5.99	#N/A	nm	325.37	2.63	#N/A	323.10	3.91	322.24	5.16	321.99	6.41	318.47	0.53	323.24	4.51	320.24	3.76
27-Jun-07	324.55	6.15	325.84	2.16	325.05	2.95	0.34	322.92	4.09	321.76	5.64	321.77	6.63	317.88	1.12	323.15	4.60	319.88	4.12

Date	BH1		BH2-S		BH2-D		BH2 S-D	BH3		BH4		BH5		DP5		DW1 (Rd12)		DW2 (Rd 10N)	
	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Vertical Gradient	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)
26-Jul-07	324.40	6.30	#N/A	nm	324.49	3.51	#N/A	322.76	4.25	321.37	6.03	321.43	6.97	317.65	1.35	322.94	4.81	319.37	4.63
30-Aug-07	324.25	6.45	#N/A	nm	323.96	4.04	#N/A	322.63	4.38	321.07	6.33	321.12	7.28	<317.15	dry	322.78	4.97	319.12	4.88
26-Sep-07	324.14	6.56	324.38	3.62	323.60	4.40	0.34	322.53	4.48	320.90	6.50	321.11	7.29	<317.15	dry	322.63	5.12	318.90	5.10
25-Oct-07	324.04	6.66	323.83	4.17	323.48	4.52	0.15	322.58	4.43	320.80	6.60	321.08	7.32	<317.15	dry	322.53	5.22	318.84	5.16
27-Nov-07	324.03	6.67	#N/A	nm	323.52	4.48	#N/A	322.52	4.49	320.88	6.52	321.11	7.29	<317.15	dry	#N/A	#N/A	#N/A	#N/A
20-Dec-07	324.01	6.69	323.89	4.11	323.80	4.20	0.04	322.61	4.40	320.81	6.59	321.08	7.32	<317.15	dry	322.66	5.09	318.97	5.03
28-Jan-08	324.80	5.91	325.24	2.76	325.00	3.00	0.10	323.09	3.92	321.59	5.82	321.52	6.88	318.32	0.68	323.34	4.41	320.18	3.82
25-Feb-08	324.96	5.74	325.80	2.20	325.33	2.67	0.20	323.24	3.77	321.78	5.62	321.73	6.67	318.61	0.39	323.50	4.25	320.57	3.43
14-Mar-08	324.98	5.72	#N/A	fr	325.40	2.60	#N/A	323.25	3.76	321.89	5.51	321.79	6.61	318.48	0.52	323.49	4.26	320.52	3.48
29-Apr-08	325.40	5.30	326.48	1.52	325.92	2.08	0.24	323.43	3.58	322.68	4.72	322.44	5.96	318.54	0.46	323.76	3.99	320.70	3.30
21-May-08	325.21	5.49	326.26	1.74	325.63	2.37	0.27	323.23	3.78	322.59	4.81	322.30	6.10	318.48	0.52	323.11	4.64	320.56	3.44
25-Jun-08	324.93	5.77	325.99	2.01	325.26	2.75	0.32	323.02	3.99	322.07	5.33	321.94	6.46	318.23	0.77	323.28	4.47	320.14	3.86
22-Jul-08	324.90	5.80	325.92	2.08	325.02	2.98	0.39	323.02	3.99	322.02	5.38	321.87	6.53	318.77	0.23	323.23	4.52	320.17	3.83
20-Aug-08	324.79	5.91	325.96	2.04	325.16	2.84	0.34	323.01	4.00	321.83	5.57	321.78	6.62	318.39	0.61	323.22	4.53	320.10	3.90
25-Sep-08	324.71	5.99	325.65	2.35	324.97	3.03	0.29	322.98	4.03	321.69	5.71	321.62	6.78	318.27	0.73	323.17	4.58	319.96	4.04
15-Oct-08	324.59	6.11	325.59	2.42	324.84	3.16	0.32	322.89	4.12	321.46	5.94	321.48	6.92	318.08	0.92	323.05	4.70	319.79	4.21
11-Nov-08	324.49	6.21	325.20	2.80	324.61	3.39	0.25	322.82	4.19	321.25	6.15	321.30	7.10	318.08	0.92	322.94	4.81	319.64	4.37
5-Dec-08	324.68	6.02	325.32	2.68	324.91	3.09	0.18	323.03	3.98	321.56	5.84	321.45	6.95	318.53	0.47	323.17	4.58	320.11	3.89
23-Jan-09	325.09	5.62	#N/A	fr	325.46	2.54	#N/A	323.20	3.82	322.00	5.40	321.93	6.47	#N/A	nm	323.49	4.26	320.26	3.74
17-Feb-09	325.39	5.31	#N/A	fr	325.98	2.02	#N/A	323.65	3.36	322.51	4.89	322.29	6.11	318.85	0.15	323.98	3.77	321.01	2.99
13-Mar-09	325.39	5.31	#N/A	fr	325.99	2.01	#N/A	323.61	3.40	322.65	4.75	322.39	6.01	#N/A	fr	323.91	3.84	321.00	3.00
23-Apr-09	325.33	5.37	326.15	1.85	325.91	2.09	0.10	323.47	3.55	322.65	4.75	322.41	5.99	318.87	0.13	323.78	3.97	320.75	3.25
30-May-09	325.29	5.42	#N/A	nm	325.72	2.28	#N/A	323.36	3.65	322.64	4.76	322.37	6.03	318.88	0.12	323.67	4.08	#N/A	nm
23-Jun-09	325.09	5.61	326.13	1.87	325.42	2.58	0.31	323.16	3.85	322.28	5.12	322.10	6.30	318.37	0.63	323.47	4.28	320.17	3.83
28-Jul-09	324.88	5.82	325.84	2.16	325.10	2.90	0.32	323.01	4.00	321.93	5.47	321.82	6.58	318.18	0.82	323.21	4.54	319.91	4.09
27-Aug-09	324.72	5.98	325.75	2.25	325.29	2.71	0.20	322.95	4.06	321.72	5.68	321.69	6.71	318.09	0.91	323.03	4.72	319.96	4.04
29-Sep-09	324.54	6.16	325.15	2.85	324.49	3.51	0.28	322.81	4.20	321.39	6.01	321.40	7.00	317.69	1.31	322.96	4.79	319.59	4.41
29-Oct-09	324.50	6.20	324.84	3.16	324.47	3.53	0.16	322.79	4.22	321.27	6.13	321.28	7.12	318.01	0.99	322.94	4.81	319.59	4.41
24-Nov-09	324.43	6.27	324.73	3.27	324.36	3.64	0.16	322.79	4.22	321.12	6.29	321.15	7.25	317.87	1.13	322.93	4.82	319.38	4.62
23-Dec-09	324.51	6.19	#N/A	fr	324.54	3.46	#N/A	323.01	4.00	321.14	6.26	321.15	7.25	318.17	0.83	323.14	4.61	319.58	4.42
22-Jan-10	324.57	6.13	324.77	3.23	324.48	3.52	0.12	322.97	4.04	321.05	6.35	321.09	7.31	317.97	1.03	323.10	4.65	319.39	4.61
20-Feb-10	324.57	6.13	#N/A	fr	324.35	3.65	#N/A	322.92	4.09	320.97	6.43	321.08	7.32	317.86	1.14	323.08	4.67	319.26	4.74
20-Mar-10	325.13	5.57	#N/A	fr	325.19	2.81	#N/A	323.73	3.28	322.02	5.38	321.48	6.92	318.79	0.21	323.88	3.87	320.50	3.50
22-Apr-10	325.11	5.59	325.95	2.05	325.47	2.53	0.21	323.67	3.34	321.84	5.56	321.72	6.68	318.51	0.49	323.91	3.84	320.23	3.77
20-May-10	324.96	5.74	325.70	2.30	325.19	2.81	0.22	323.46	3.55	321.61	5.79	321.57	6.83	318.29	0.71	323.68	4.07	319.89	4.11
17-Jun-10	324.85	5.85	325.37	2.63	324.94	3.06	0.19	323.33	3.68	321.51	5.89	321.42	6.98	318.38	0.62	323.49	4.26	319.75	4.25
15-Jul-10	324.70	6.00	325.34	2.66	324.77	3.23	0.25	323.21	3.80	321.40	6.00	321.37	7.03	317.77	1.23	323.38	4.37	319.62	4.38
18-Aug-10	324.53	6.17	325.06	2.94	324.53	3.48	0.23	323.04	3.97	321.30	6.10	321.28	7.12	317.63	1.37	323.20	4.55	319.47	4.53
21-Sep-10	324.39	6.31	324.78	3.22	324.17	3.83	0.26	322.88	4.13	321.11	6.29	321.08	7.32	#N/A	dry	322.99	4.76	319.05	4.95
21-Oct-10	324.29	6.41	324.56	3.44	324.12	3.88	0.19	322.84	4.17	321.03	6.37	321.08	7.32	#N/A	dry	323.18	4.57	319.17	4.83
18-Nov-10	324.25	6.45	324.51	3.49	324.09	3.91	0.18	322.81	4.20	321.00	6.40	321.08	7.32	317.83	1.17	322.87	4.88	319.18	4.82
21-Dec-10	324.34	6.36	#N/A	fr	324.36	3.64	#N/A	322.91	4.10	321.00	6.40	321.07	7.33	317.97	1.03	323.03	4.72	319.35	4.65
17-Jan-11	324.33	6.37	#N/A	fr	324.27	3.73	#N/A	322.87	4.14	320.92	6.48	321.07	7.33	317.94	1.06	322.97	4.78	319.10	4.90
22-Feb-11	324.50	6.20	#N/A	fr	324.24	3.76	#N/A	323.09	3.92	#N/A	#N/A	321.07	7.33	318.39	0.61	323.15	4.60	319.31	4.69

Date	BH1 Groundwater		BH2-S Groundwater		BH2-D Groundwater		BH2 S-D Vertical Gradient	BH3 Groundwater		BH4 Groundwater		BH5 Groundwater		DP5 Groundwater		DW1 (Rd12) Groundwater		DW2 (Rd 10N) Groundwater	
	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)		Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)	Elevation (mAMSL)	Depth (mBGS)
31-Mar-11	325.20	5.50	#N/A	fr	325.52	2.48	#N/A	323.74	3.27	321.50	5.90	321.57	6.83	318.68	0.32	323.99	3.76	320.28	3.72
21-Apr-11	325.19	5.51	326.13	fr	325.58	2.42	0.24	323.78	3.23	321.70	5.70	321.68	6.72	318.66	0.34	323.98	3.77	320.35	3.65
20-May-11	325.36	5.34	326.56	fr	325.96	2.04	0.26	324.09	2.92	322.08	5.32	321.99	6.41	318.76	0.24	324.35	3.40	320.79	3.21
16-Jun-11	325.25	5.45	#N/A	blocked	325.91	2.09	#N/A	323.82	3.19	322.18	5.22	322.16	6.24	318.56	0.44	324.06	3.69	320.50	3.50
19-Jul-11	324.87	5.83	#N/A	blocked	325.29	2.71	#N/A	323.31	3.70	321.84	5.56	321.87	6.53	317.90	1.10	#N/A	removed	319.86	4.14
18-Aug-11	324.61	6.09	#N/A	blocked	324.61	3.39	#N/A	322.98	4.03	321.53	5.87	321.56	6.84	317.64	1.36	#N/A	-	319.51	4.49
22-Sep-11	324.45	6.25	#N/A	blocked	324.14	3.86	#N/A	322.82	4.19	321.29	6.11	321.27	7.13	317.64	1.36	#N/A	-	319.30	4.70
18-Oct-11	324.39	6.31	#N/A	blocked	323.99	4.01	#N/A	322.80	4.21	321.18	6.22	321.15	7.25	#N/A	dry	#N/A	-	319.23	4.77
15-Nov-11	324.41	6.29	#N/A	blocked	324.30	3.70	#N/A	322.96	4.05	321.28	6.12	321.23	7.17	317.70	1.30	#N/A	-	319.33	4.67
20-Dec-11	324.87	5.83	#N/A	blocked	325.23	2.77	#N/A	323.70	3.31	321.73	5.67	321.67	6.73	318.63	0.37	#N/A	-	320.43	3.57
26-Jan-12	324.93	5.77	#N/A	blocked	325.37	2.63	#N/A	323.58	3.43	321.77	5.63	321.79	6.61	318.57	0.43	#N/A	-	320.30	3.70
21-Feb-12	324.94	5.76	#N/A	blocked	325.38	2.62	#N/A	323.55	3.46	321.79	5.61	321.82	6.58	318.48	0.52	#N/A	-	320.20	3.80
14-Jun-12	#N/A	#N/A	#N/A	blocked	324.74	3.26	#N/A	323.01	4.00	321.36	6.04	321.37	7.03	#N/A	#N/A	#N/A	-	319.52	4.48
18-Sep-12	324.04	6.66	#N/A	blocked	323.48	4.52	#N/A	322.58	4.43	320.83	6.57	321.07	7.33	#N/A	#N/A	#N/A	-	#N/A	#N/A
13-Dec-12	324.13	6.57	#N/A	blocked	324.35	3.65	#N/A	322.97	4.04	321.16	6.24	321.10	7.30	318.14	0.86	#N/A	-	318.91	5.09

mAMSL = metres above mean sea level
mBGS = metres below ground surface
#N/A = no elevation available
ni = not yet installed
nm = not measured
fr = frozen, no measurement
dry = dry, no measurement
positive gradient = downward gradient

Date	DP1		DP2			DP3			DP4			DP6			
	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)
16-Oct-97	326.35	0.10	326.65	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
28-Oct-97	326.63	-0.18	326.64	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
17-Nov-97	326.70	-0.25	326.69	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
17-Dec-97	326.68	-0.23	326.68	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
21-Jan-98	#N/A	fr	fr	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10-Jun-98	#N/A	nm	nm	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
23-Jun-98	326.86	-0.41	326.86	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
16-Jul-98	326.77	-0.32	326.77	#N/A	#N/A	326.77	#N/A	#N/A	326.77	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
17-Jul-98	326.75	-0.30	326.75	326.75	-0.08	326.75	326.74	-0.15	326.75	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
25-Jul-98	326.67	-0.22	326.67	326.68	-0.02	326.68	326.63	-0.04	326.67	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
23-Oct-98	#N/A	dry	dry	325.57	1.09	dry	326.00	0.59	dry	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
6-Apr-99	326.59	-0.14	326.59	326.57	0.10	dry	326.64	-0.05	dry	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
17-Jun-99	326.42	0.03	dry	326.33	0.34	dry	326.42	0.17	dry	329.23	0.77	dry	323.58	1.42	dry
30-Jul-99	#N/A	dry	dry	325.54	1.13	dry	325.70	0.89	dry	329.34	0.66	dry	324.47	0.53	dry
17-Sep-99	#N/A	dry	dry	325.54	1.13	dry	#N/A	dry	dry	329.28	0.72	dry	324.18	0.82	dry
19-Nov-99	#N/A	dry	dry	325.58	1.08	dry	326.08	0.51	dry	329.49	0.51	dry	324.49	0.51	dry
28-Apr-00	326.58	-0.13	326.61	326.59	0.08	dry	326.63	-0.04	326.63	330.19	-0.19	330.19	325.29	-0.28	325.23
25-Jul-00	326.70	-0.25	326.65	326.61	0.06	326.65	#N/A	nm	nm	330.23	-0.23	330.09	325.23	-0.23	325.08
1-Dec-00	326.45	0.00	dry	326.32	0.34	dry	326.50	0.09	dry	329.91	0.09	dry	324.76	0.24	dry
24-Jan-01	326.07	0.38	dry	325.65	1.01	dry	326.45	0.14	dry	329.84	0.16	dry	324.98	0.03	dry
20-Apr-01	326.90	-0.45	326.90	326.91	-0.24	326.91	326.90	-0.31	326.90	330.52	-0.52	330.52	325.28	-0.28	325.26
6-Jul-01	326.72	-0.27	326.66	326.63	0.04	dry	326.67	-0.08	dry	330.23	-0.23	330.22	325.10	-0.10	325.03
10-Sep-01	325.91	0.55	dry	325.58	1.09	dry	325.67	0.92	dry	329.32	0.68	dry	324.06	0.94	dry
26-Nov-01	326.21	0.24	dry	326.32	0.35	dry	326.38	0.21	dry	329.82	0.18	dry	324.64	0.36	dry
9-Jan-02	326.33	0.12	dry	326.26	0.41	dry	326.49	0.10	dry	329.89	0.11	dry	325.04	-0.04	fr
6-Mar-02	326.57	-0.12	326.60	326.61	0.06	dry	#N/A	nm	nm	#N/A	nm	nm	#N/A	nm	nm
17-Apr-02	326.77	-0.32	326.80	326.80	-0.13	326.80	326.80	-0.21	dry	330.41	-0.41	dry	325.28	-0.28	325.26
22-May-02	326.87	-0.42	326.87	326.89	-0.22	326.89	326.90	-0.31	326.90	330.49	-0.49	330.22	325.28	-0.28	325.28
18-Jun-02	326.90	-0.45	326.82	326.81	-0.14	326.81	326.83	-0.24	dry	330.42	-0.42	330.11	325.22	-0.22	325.14
24-Jul-02	326.77	-0.32	326.62	326.62	0.05	dry	326.66	-0.06	dry	330.21	-0.21	329.93	325.00	0.00	dry
26-Aug-02	326.54	-0.09	dry	326.21	0.46	dry	326.42	0.17	dry	329.91	0.09	dry	324.45	0.55	dry
23-Sep-02	326.06	0.39	dry	325.70	0.97	dry	325.83	0.76	dry	329.68	0.32	dry	324.12	0.88	dry
24-Oct-02	325.88	0.57	dry	325.65	1.02	dry	325.68	0.91	dry	329.49	0.51	dry	324.05	0.95	dry
21-Nov-02	325.99	0.46	dry	325.78	0.89	dry	325.92	0.67	dry	329.65	0.35	dry	324.11	0.89	dry
19-Dec-02	325.88	0.57	dry	325.57	1.10	dry	325.68	0.91	dry	329.33	0.67	dry	324.13	0.87	dry
23-Jan-03	325.88	0.57	dry	325.52	1.15	dry	#N/A	nm	nm	329.21	0.79	dry	324.15	0.85	dry
20-Feb-03	#N/A	dry	dry	325.55	1.12	dry	325.66	0.94	dry	329.22	0.78	dry	324.06	0.94	dry
24-Mar-03	326.64	-0.19	326.70	326.62	0.05	326.71	326.69	-0.10	326.69	330.12	-0.12	330.15	324.61	0.39	325.24
23-Apr-03	326.75	-0.30	326.75	326.72	-0.05	326.75	326.74	-0.15	326.74	330.33	-0.33	330.35	325.17	-0.17	325.22
26-May-03	326.86	-0.41	326.81	326.78	-0.11	326.81	326.80	-0.21	326.80	330.40	-0.40	330.41	325.26	-0.26	325.24
23-Jun-03	326.87	-0.42	326.75	326.76	-0.09	326.75	326.83	-0.24	326.74	330.33	-0.33	330.33	325.21	-0.21	325.16
21-Jul-03	326.76	-0.31	326.60	326.52	0.15	dry	326.63	-0.04	dry	330.19	-0.19	330.17	325.06	-0.06	dry
19-Aug-03	326.77	-0.32	326.60	326.49	0.18	dry	326.58	0.01	dry	330.14	-0.14	330.13	325.00	0.00	325.03
30-Sep-03	326.61	-0.16	dry	326.35	0.32	dry	326.52	0.07	dry	330.03	-0.03	330.04	324.86	0.14	dry
21-Oct-03	326.63	-0.18	dry	326.36	0.31	dry	326.54	0.05	326.62	330.03	-0.03	dry	324.97	0.03	325.05

Date	DP1			DP2			DP3			DP4			DP6		
	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)
17-Nov-03	326.69	-0.24	326.58	326.54	0.13	dry	326.64	-0.05	326.65	330.16	-0.16	330.17	325.20	-0.20	325.25
17-Dec-03	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
19-Jan-04	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
19-Feb-04	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
31-Mar-04	#N/A	nm	nm	326.98	-0.31	327.16	327.08	-0.49	327.15	#N/A	nm	330.69	325.04	-0.04	325.29
27-Apr-04	#N/A	nm	nm	327.16	-0.49	327.16	327.15	-0.56	327.15	#N/A	nm	nm	324.98	0.02	325.26
25-May-04	#N/A	nm	nm	327.14	-0.47	327.17	327.15	-0.56	327.15	#N/A	nm	nm	325.26	-0.26	325.27
21-Jun-04	#N/A	nm	nm	327.07	-0.40	327.03	327.06	-0.47	327.02	330.59	-0.59	330.59	325.20	-0.20	325.18
22-Jul-04	327.06	-0.61	326.87	326.90	-0.23	326.87	326.87	-0.28	326.87	330.45	-0.45	330.45	325.10	-0.10	dry
31-Aug-04	327.04	-0.59	326.73	326.72	-0.05	326.75	326.74	-0.15	326.74	330.31	-0.31	330.32	324.78	0.22	dry
27-Sep-04	326.84	-0.39	326.45	326.57	0.10	dry	326.61	-0.02	dry	330.14	-0.14	dry	#N/A	nm	nm
20-Oct-04	326.77	-0.32	326.45	326.48	0.19	dry	326.57	0.02	dry	330.10	-0.10	dry	#N/A	m	nm
14-Dec-04	#N/A	fr	326.62	326.62	0.05	326.65	#N/A	nm	fr	#N/A	nm	fr	325.00	0.00	325.16
21-Jan-05	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
17-Feb-05	#N/A	fr	fr	#N/A	fr	326.99	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
18-Mar-05	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
14-Apr-05	#N/A	nm	nm	327.14	-0.47	327.12	327.12	-0.53	327.12	330.68	-0.68	330.68	325.33	-0.33	325.26
12-May-05	#N/A	nm	nm	327.10	-0.43	327.10	327.09	-0.50	327.09	330.64	-0.64	330.66	325.28	-0.28	325.24
22-Jun-05	327.07	-0.62	326.88	326.87	-0.20	326.87	326.86	-0.27	326.86	330.47	-0.47	330.45	325.12	-0.12	325.06
21-Jul-05	326.97	-0.52	326.72	326.74	-0.07	dry	326.71	-0.12	326.70	330.31	-0.31	330.29	324.80	0.20	dry
10-Aug-05	#N/A	nm	nm	#N/A	nm	nm	326.55	0.04	dry	330.13	-0.13	dry	324.61	0.39	dry
21-Sep-05	326.77	-0.32	dry	326.11	0.56	dry	326.41	0.19	dry	329.96	0.04	dry	324.34	0.66	dry
24-Oct-05	326.73	-0.28	dry	326.15	0.52	dry	326.45	0.14	dry	329.87	0.13	dry	324.40	0.60	dry
22-Nov-05	#N/A	fr	dry	326.35	0.32	dry	326.54	0.05	dry	329.99	0.01	dry	324.59	0.41	dry
21-Dec-05	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
16-Jan-06	#N/A	fr	fr	326.57	0.10	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
14-Feb-06	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
21-Mar-06	#N/A	fr	fr	#N/A	fr	fr	326.92	-0.33	fr	#N/A	fr	fr	#N/A	fr	fr
19-Apr-06	#N/A	nm	nm	327.03	-0.36	327.01	327.00	-0.41	327.01	330.60	-0.60	330.61	325.30	-0.30	325.26
19-May-06	#N/A	nm	nm	327.04	-0.37	327.03	327.02	-0.43	327.02	#N/A	nm	nm	325.32	-0.32	325.30
20-Jun-06	327.03	-0.58	326.84	326.91	-0.24	326.84	326.86	-0.27	326.83	330.46	-0.46	330.43	325.18	-0.18	dry
25-Jul-06	326.91	-0.46	326.71	326.70	-0.03	dry	326.70	-0.11	326.68	330.32	-0.32	330.29	324.90	0.10	dry
18-Aug-06	326.89	-0.44	dry	326.49	0.18	dry	326.58	0.01	dry	330.19	-0.19	dry	324.49	0.51	dry
24-Sep-06	326.71	-0.26	dry	326.49	0.18	dry	326.57	0.02	dry	330.10	-0.10	330.10	324.24	0.76	dry
28-Oct-06	326.83	-0.38	326.67	326.67	0.00	dry	326.69	-0.10	326.69	330.27	-0.27	330.27	325.11	-0.11	325.29
26-Nov-06	326.86	-0.41	326.77	326.78	-0.11	326.77	326.77	-0.18	326.77	330.39	-0.39	330.39	325.28	-0.28	325.27
29-Dec-06	#N/A	fr	fr	#N/A	fr	326.91	#N/A	fr	326.91	#N/A	fr	fr	#N/A	fr	325.28
23-Jan-07	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
28-Feb-07	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
23-Mar-07	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
30-Apr-07	#N/A	nm	nm	#N/A	nm	nm	327.13	-0.54	327.12	#N/A	nm	nm	325.34	-0.34	325.31
28-May-07	#N/A	nm	nm	327.04	-0.37	327.02	327.12	-0.53	327.01	#N/A	nm	nm	325.32	-0.32	325.26
27-Jun-07	#N/A	nm	nm	326.82	-0.16	dry	326.82	-0.23	326.82	330.41	-0.41	330.40	325.14	-0.14	dry
28-Jul-07	326.77	-0.32	326.57	326.55	0.12	dry	326.60	-0.01	dry	330.17	-0.17	330.14	324.62	0.38	dry
30-Aug-07	326.44	0.01	dry	#N/A	dry	dry	#N/A	nm	dry	329.86	0.14	dry	#N/A	nm	dry

Date	DP1			DP2			DP3			DP4			DP6		
	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Pond Depth (mBGS)	Pond Elevation (mAMSL)
26-Sep-07	325.95	0.50	dry	#N/A	dry	dry	325.88	0.71	dry	329.42	0.58	dry	323.69	1.31	dry
25-Oct-07	325.92	0.53	dry	325.63	1.04	dry	326.14	0.45	dry	329.56	0.44	dry	323.71	1.29	dry
27-Nov-07	326.11	0.34	dry	325.98	0.69	dry	326.35	0.24	dry	329.75	0.25	dry	323.79	1.21	dry
20-Dec-07	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
28-Jan-08	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
25-Feb-08	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
14-Mar-08	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
29-Apr-08	#N/A	nm	nm	327.09	-0.42	327.12	327.09	-0.50	327.09	#N/A	nm	330.65	325.33	-0.33	325.28
21-May-08	327.10	-0.65	327.08	327.10	-0.43	327.08	327.05	-0.46	327.08	330.65	-0.65	330.65	325.30	-0.30	325.28
25-Jun-08	#N/A	nm	nm	326.89	-0.22	326.94	326.90	-0.31	326.90	330.53	-0.53	330.51	325.22	-0.22	325.18
22-Jul-08	326.98	-0.53	326.88	326.84	-0.17	326.90	326.84	-0.25	326.86	330.50	-0.50	330.49	325.20	-0.20	325.27
20-Aug-08	326.96	-0.51	326.81	326.79	-0.12	326.83	326.79	-0.20	326.79	330.42	-0.42	330.42	325.22	-0.22	325.20
25-Sep-08	326.89	-0.44	326.72	326.71	-0.04	326.74	326.71	-0.12	326.71	330.33	-0.33	330.33	325.17	-0.17	325.19
15-Oct-08	326.83	-0.38	326.68	326.66	0.00	dry	326.70	-0.11	326.67	330.27	-0.27	330.28	325.16	-0.16	325.16
11-Nov-08	325.91	0.54	326.64	326.63	0.04	dry	326.63	-0.04	326.63	330.21	-0.21	330.25	325.13	-0.13	325.17
5-Dec-08	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
23-Jan-09	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
17-Feb-09	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
13-Mar-09	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
23-Apr-09	#N/A	fr	327.28	#N/A	fr	327.27	#N/A	fr	327.23	#N/A	fr	330.76	325.32	-0.32	325.32
24-May-09	#N/A	nm	nm	#N/A	nm	nm	327.18	-0.59	327.16	#N/A	nm	nm	325.34	-0.34	325.29
23-Jun-09	#N/A	nm	nm	327.05	-0.38	327.06	327.05	-0.46	327.03	#N/A	nm	nm	325.27	-0.27	325.21
24-Jul-09	#N/A	nm	nm	326.91	-0.24	326.89	326.89	-0.30	326.87	330.56	-0.56	330.51	325.11	-0.11	325.09
27-Aug-09	327.05	-0.60	326.79	326.79	-0.12	326.78	326.78	-0.19	326.76	330.45	-0.45	330.41	325.09	-0.09	dry
29-Sep-09	326.93	-0.48	326.63	326.62	0.05	dry	326.65	-0.06	dry	330.27	-0.27	330.24	324.84	0.16	dry
29-Oct-09	326.84	-0.39	326.60	326.59	0.08	dry	326.65	-0.06	dry	330.26	-0.26	330.24	324.87	0.13	dry
24-Nov-09	326.78	-0.33	dry	326.53	0.14	dry	326.62	-0.03	dry	330.19	-0.19	330.17	324.91	0.09	dry
23-Dec-09	#N/A	fr	fr	326.57	0.10	dry	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
22-Jan-10	#N/A	fr	fr	326.48	0.19	dry	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
20-Feb-10	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
20-Mar-10	326.73	-0.28	326.78	326.80	-0.13	326.80	326.76	-0.17	326.75	330.42	-0.42	330.43	325.23	-0.23	325.28
22-Apr-10	#N/A	nm	nm	326.83	-0.16	326.81	326.78	-0.19	326.76	330.48	-0.48	330.46	325.28	-0.28	325.27
20-May-10	326.84	-0.39	326.76	326.78	-0.11	326.78	326.74	-0.15	326.72	330.42	-0.42	330.40	325.30	-0.30	325.26
17-Jun-10	326.83	-0.38	326.71	326.73	-0.06	326.73	326.69	-0.10	326.68	330.38	-0.38	330.34	325.25	-0.25	325.25
15-Jul-10	326.77	-0.32	326.60	326.61	0.06	dry	326.60	-0.01	dry	330.27	-0.27	330.24	325.22	-0.22	325.11
18-Aug-10	326.70	-0.25	dry	#N/A	nm	nm	326.50	0.09	dry	330.16	-0.16	330.12	325.07	-0.07	dry
21-Sep-10	325.93	0.52	dry	326.22	0.45	dry	326.38	0.21	dry	330.04	-0.04	dry	324.79	0.21	dry
21-Oct-10	326.55	-0.10	dry	326.13	0.54	dry	326.43	0.16	dry	330.01	-0.01	dry	324.75	0.25	dry
18-Nov-10	326.50	-0.05	dry	326.27	0.40	dry	326.47	0.13	dry	329.98	0.02	dry	324.84	0.16	dry
21-Dec-10	#N/A	fr	fr	325.90	0.77	dry	326.48	0.11	dry	#N/A	fr	fr	#N/A	fr	fr
17-Jan-11	#N/A	fr	fr	325.66	1.01	dry	326.45	0.14	dry	#N/A	fr	fr	#N/A	fr	fr
22-Feb-11	#N/A	fr	fr	326.37	0.30	dry	#N/A	fr	dry	#N/A	fr	fr	#N/A	fr	fr
31-Mar-11	#N/A	#N/A	fr	326.93	-0.26	326.93	326.91	-0.31	326.91	#N/A	nm	nm	325.21	-0.21	325.33
21-Apr-11	#N/A	#N/A	fr	327.01	-0.34	327.01	326.98	-0.39	326.96	#N/A	nm	nm	325.32	-0.32	325.29
20-May-11	#N/A	#N/A	fr	327.13	-0.46	327.12	327.09	-0.50	327.08	#N/A	nm	nm	325.38	-0.38	325.34

Date	DP1			DP2			DP3			DP4			DP6		
	Groundwater Elevation (mAMSL)	Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Depth (mBGS)	Pond Elevation (mAMSL)	Groundwater Elevation (mAMSL)	Depth (mBGS)	Pond Elevation (mAMSL)
16-Jun-11	#N/A	#N/A	fr	327.15	-0.48	327.15	327.12	-0.53	327.09	330.74	-0.74	330.72	325.37	-0.37	325.25
19-Jul-11	#N/A	#N/A	fr	326.90	-0.23	326.90	326.88	-0.29	326.85	330.55	-0.55	330.51	325.17	-0.17	dry
18-Aug-11	326.87	-0.42	326.64	326.64	0.03	dry	326.64	-0.05	dry	330.31	-0.31	330.30	324.66	0.34	dry
22-Sep-11	326.73	-0.28	dry	326.49	0.18	dry	326.52	0.07	dry	330.16	-0.16	330.13	324.29	0.71	dry
18-Oct-11	326.69	-0.24	dry	326.42	0.25	dry	326.51	0.08	dry	330.12	-0.12	dry	324.22	0.78	dry
15-Nov-11	326.75	-0.30	326.52	326.54	0.13	dry	326.60	-0.01	dry	330.22	-0.22	330.19	324.64	0.36	dry
20-Dec-11	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	325.19	-0.19	325.27
26-Jan-12	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
21-Feb-12	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr	#N/A	fr	fr
14-Jun-12	326.82	-0.37	326.68	326.70	-0.03	dry	326.68	-0.09	326.64	330.37	-0.37	330.32	325.13	-0.13	dry
18-Sep-12	#N/A	dry	dry	#N/A	dry	dry	#N/A	dry	dry	329.55	0.45	dry	#N/A	dry	dry
13-Dec-12	326.30	0.15	dry	326.28	0.39	dry	326.44	0.15	dry	329.99	0.01	dry	325.03	-0.03	fr

mAMSL = metres above mean sea level #N/A = no elevation available nm = not measured dry = dry, no measurement
mBGS = metres below ground surface ni = not yet installed fr = frozen, no measurement negative depth = water level in piezometer above ground surface

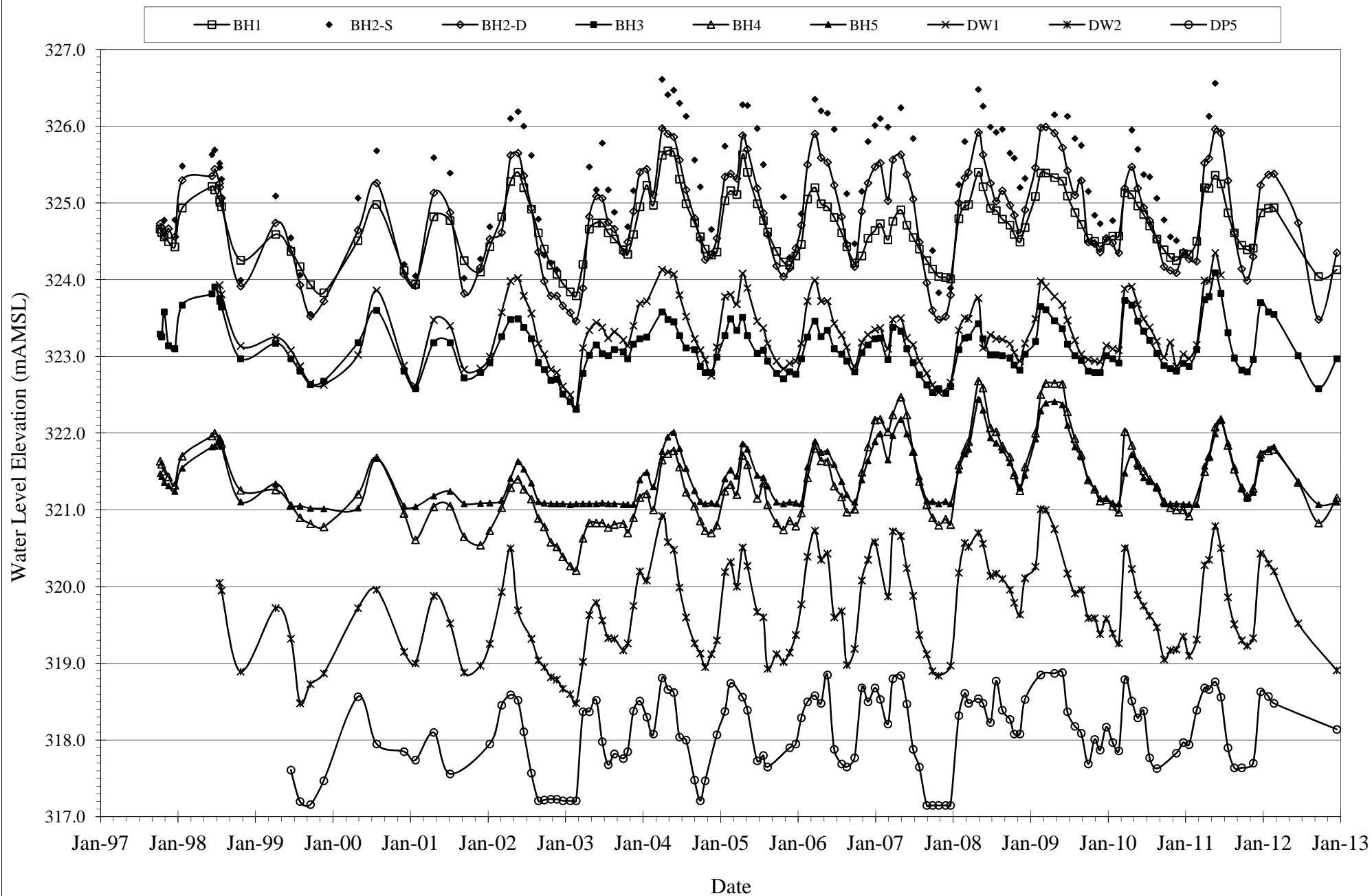
Date	Measured Water Depth (m)	Measured Water Width (m)	Cross-Sectional Area (m ²)	Estimated Flow (L/s)	Measurement Method
24-Apr-99	0.03	0.095	0.0045	n/a	area
17-Jun-99	dry	dry	0	0	observation
30-Jul-99	dry	dry	0	0	observation
17-Sep-99	dry	dry	0	0	observation
19-Nov-99	dry	dry	0	0	observation
28-Apr-00	n/a	n/a	n/a	0	observation
25-Jul-00	n/a	n/a	n/a	0	observation
1-Dec-00	n/a	n/a	n/a	0.2	pail / stopwatch
24-Jan-01	n/a	n/a	n/a	0	observation
20-Apr-01	0.08	0.35	0.014	1.8	area / velocity
6-Jul-01	dry	dry	n/a	0	observation
10-Sep-01	dry	dry	n/a	0	observation
26-Nov-01	0.03	0.22	0.0044	0.1	area / velocity
9-Jan-02	0.03	0.22	0.0033	0.01	area / velocity
6-Mar-02	0.065	0.3	0.012	0.7	area / velocity
17-Apr-02	0.08	0.4	n/a	2.4	area / velocity
22-May-02	0.09	0.43	0.032	6.7	area / velocity
18-Jun-02	0.04	0.34	0.01	0.9	area / velocity
24-Jul-02	dry	dry	n/a	0	observation
26-Aug-02	dry	dry	n/a	0	observation
23-Sep-02	dry	dry	n/a	0	observation
24-Oct-02	dry	dry	n/a	0	observation
21-Nov-02	dry	dry	n/a	0	observation
19-Dec-02	dry	dry	n/a	0	observation
23-Jan-03	dry	dry	n/a	0	observation
20-Feb-03	dry	dry	n/a	0	observation
24-Mar-03	0.05	n/a	n/a	n/a	observation
23-Apr-03	0.08	0.8	0.032	1.9	area / velocity
26-May-03	0.08	0.82	0.033	8.2	area / velocity
23-Jun-03	dry	dry	n/a	0	observation
21-Jul-03	dry	dry	n/a	0	observation
19-Aug-03	dry	dry	n/a	0	observation
30-Sep-03	dry	dry	n/a	0	observation
21-Oct-03	dry	dry	n/a	0	observation
17-Nov-03	dry	dry	n/a	0	observation
17-Dec-03	dry	dry	n/a	0	observation
19-Jan-04	dry	dry	n/a	0	observation
19-Feb-04	dry	dry	n/a	0	observation
31-Mar-04	0.13	0.93	0.08	55.9	area / velocity
27-Apr-04	0.09	0.87	0.05	2.7	area / velocity
25-May-04	0.08	0.82	0.04	8.2	area / velocity
21-Jun-04	0.01	n/a	n/a	0	observation
22-Jul-04	dry	dry	n/a	0	observation
31-Aug-04	dry	dry	n/a	0	observation
27-Sep-04	dry	dry	n/a	0	observation
20-Oct-04	dry	dry	n/a	0	observation
18-Nov-04	dry	dry	n/a	0	observation
14-Dec-04	dry	dry	n/a	0	observation
21-Jan-05	dry	dry	n/a	0	observation
17-Feb-05	dry	dry	n/a	0	observation
18-Mar-05	dry	dry	n/a	0	observation
14-Apr-05	dry	dry	n/a	0	observation
7-May-05	dry	dry	n/a	0	observation
22-Jun-05	dry	dry	n/a	0	observation
21-Jul-05	dry	dry	n/a	0	observation

Date	Measured Water Depth (m)	Measured Water Width (m)	Cross-Sectional Area (m ²)	Estimated Flow (L/s)	Measurement Method
10-Aug-05	dry	dry	n/a	0	observation
21-Sep-05	dry	dry	n/a	0	observation
24-Oct-05	dry	dry	n/a	0	observation
22-Nov-05	dry	dry	n/a	0	observation
21-Dec-05	dry	dry	n/a	0	observation
16-Jan-06	dry	dry	n/a	0	observation
14-Feb-06	fr	n/a	n/a	0	observation
21-Mar-06	fr	n/a	n/a	0	observation
19-Apr-06	<0.01	n/a	n/a	n/a	observation
19-May-06	0.02	n/a	n/a	n/a	observation
20-Jun-06	dry	dry	n/a	0	observation
25-Jul-06	dry	dry	n/a	0	observation
18-Aug-06	dry	dry	n/a	0	observation
24-Sep-06	dry	dry	n/a	0	observation
28-Oct-06	0.01	n/a	n/a	n/a	observation
26-Nov-06	<0.01	n/a	n/a	n/a	observation
29-Dec-06	fr	n/a	n/a	0	observation
23-Jan-07	fr	n/a	n/a	0	observation
28-Feb-07	fr	n/a	n/a	0	observation
23-Mar-07	0.06	0.33	0.015	11	area / velocity
30-Apr-07	0.03	0.23	0.005	2.2	area / velocity
28-May-07	dry	dry	n/a	0	observation
27-Jun-07	dry	dry	n/a	0	observation
28-Jul-07	dry	dry	n/a	0	observation
30-Aug-07	dry	dry	n/a	0	observation
26-Sep-07	dry	dry	n/a	0	observation
25-Oct-07	dry	dry	n/a	0	observation
27-Nov-07	dry	dry	n/a	0	observation
20-Dec-07	fr	n/a	n/a	0	observation
28-Jan-08	fr	n/a	n/a	0	observation
25-Feb-08	fr	n/a	n/a	0	observation
14-Mar-08	fr	n/a	n/a	0	observation
29-Apr-08	0.02	0.16	0.003	3	area / velocity
21-May-08	<0.01	0.18	n/a	n/a	observation
25-Jun-08	dry	dry	n/a	0	observation
22-Jul-08	dry	dry	n/a	0	observation
20-Aug-08	dry	dry	n/a	0	observation
25-Sep-08	dry	dry	n/a	0	observation
15-Oct-08	dry	dry	n/a	0	observation
11-Nov-08	dry	dry	n/a	0	observation
5-Dec-08	fr	n/a	n/a	0	observation
23-Jan-09	fr	n/a	n/a	0	observation
17-Feb-09	fr	n/a	n/a	0	observation
13-Mar-09	0.04	0.31	n/a	n/a	observation
23-Apr-09	0.03	0.27	0.06	2.8	area / velocity
30-May-09	0.03	0.22	0.05	2.1	area / velocity
23-Jun-09	0.02	0.15	n/a	n/a	observation
28-Jul-09	0.01	0.12	n/a	n/a	observation
27-Aug-09	dry	dry	n/a	0	observation
29-Sep-09	dry	dry	n/a	0	observation
29-Oct-09	dry	dry	n/a	0	observation
24-Nov-09	dry	dry	n/a	0	observation
23-Dec-09	dry	dry	n/a	0	observation
22-Jan-10	frozen	frozen	n/a	0	observation
20-Feb-10	frozen	frozen	n/a	0	observation

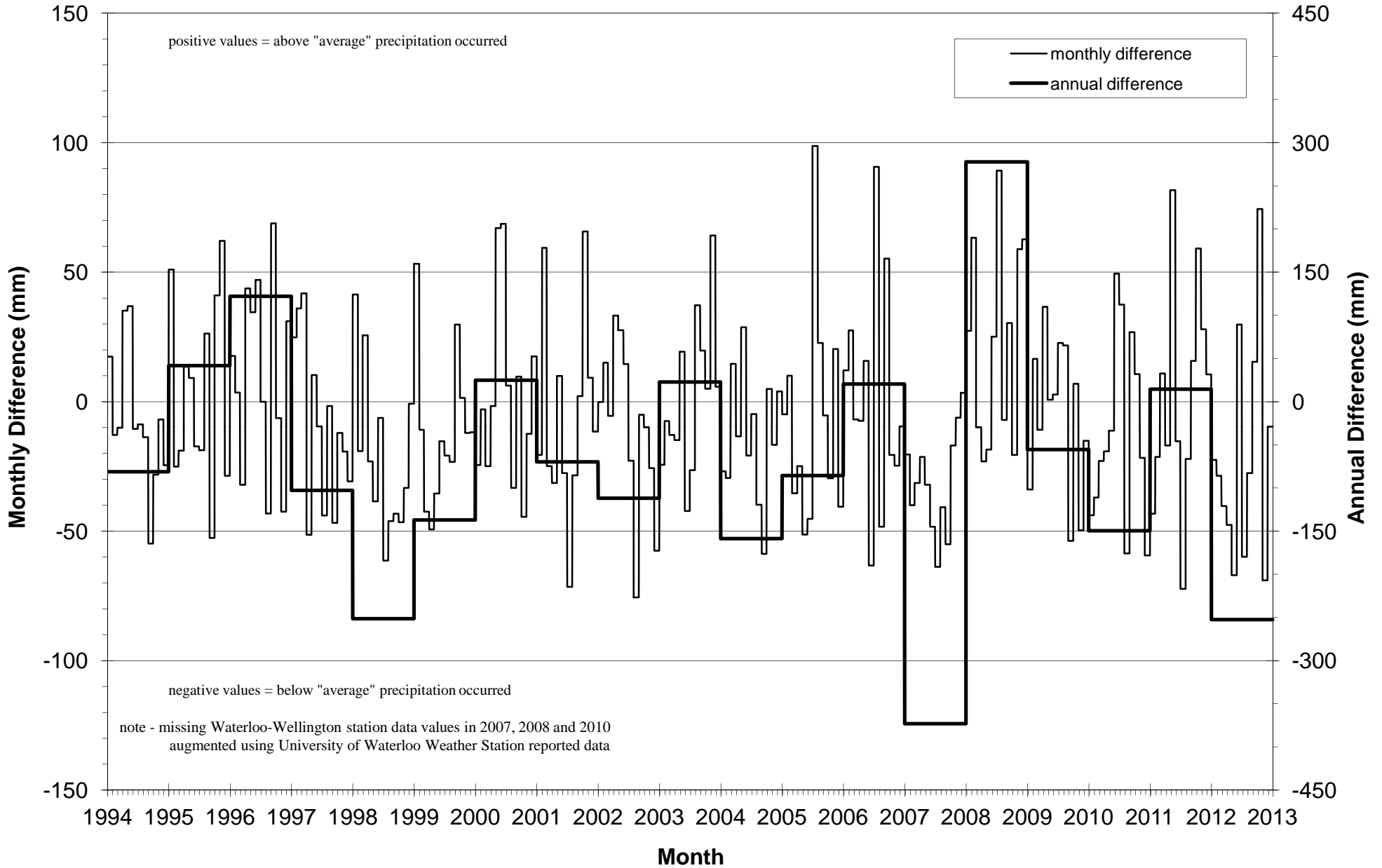
Date	Measured Water Depth (m)	Measured Water Width (m)	Cross-Sectional Area (m ²)	Estimated Flow (L/s)	Measurement Method
20-Mar-10	0.04	0.24	0.06	2.7	area / velocity
22-Apr-10	0.01	0.15	n/a	n/a	observation
20-May-10	0.01	0.12	n/a	n/a	observation
17-Jun-10	0.02	0.18	n/a	n/a	observation
15-Jul-10	dry	dry	n/a	0	observation
18-Aug-10	dry	dry	n/a	0	observation
21-Sep-10	dry	dry	n/a	0	observation
21-Oct-10	dry	dry	n/a	0	observation
18-Nov-10	0.05	0.09	n/a	n/a	observation
21-Dec-10	frozen	frozen	n/a	0	observation
17-Jan-11	frozen	frozen	n/a	0	observation
22-Feb-11	frozen	frozen	n/a	0	observation
31-Mar-11	0.03	0.23	0.005	2.5	area / velocity
21-Apr-11	0.05	0.3	0.011	4.6	area / velocity
20-May-11	0.06	0.35	0.016	12.5	area / velocity
16-Jun-11	0.02	0.18	n/a	n/a	observation
19-Jul-11	dry	dry	n/a	0	observation
18-Aug-11	dry	dry	n/a	0	observation
22-Sep-11	dry	dry	n/a	0	observation
18-Oct-11	dry	dry	n/a	0	observation
15-Nov-11	0.01	0.13	n/a	n/a	observation
20-Dec-11	0.02	0.2	n/a	n/a	observation
26-Jan-12	frozen	frozen	n/a	0	observation
21-Feb-12	frozen	frozen	n/a	0	observation
14-Jun-12	dry	dry	n/a	0	observation
18-Sep-12	dry	dry	n/a	0	observation
13-Dec-12	dry	dry	n/a	0	observation

Notes: fr = frozen, or snow covered
Culvert diameter is 0.432 m High-flow measurements taken downstream of culvert
The cross-sectional areas or depth of water are used to track changes in flow.
In addition, observation and/or flow measurements will be used to track flow.

Hydrograph - Monitors Surrounding Excavation Area

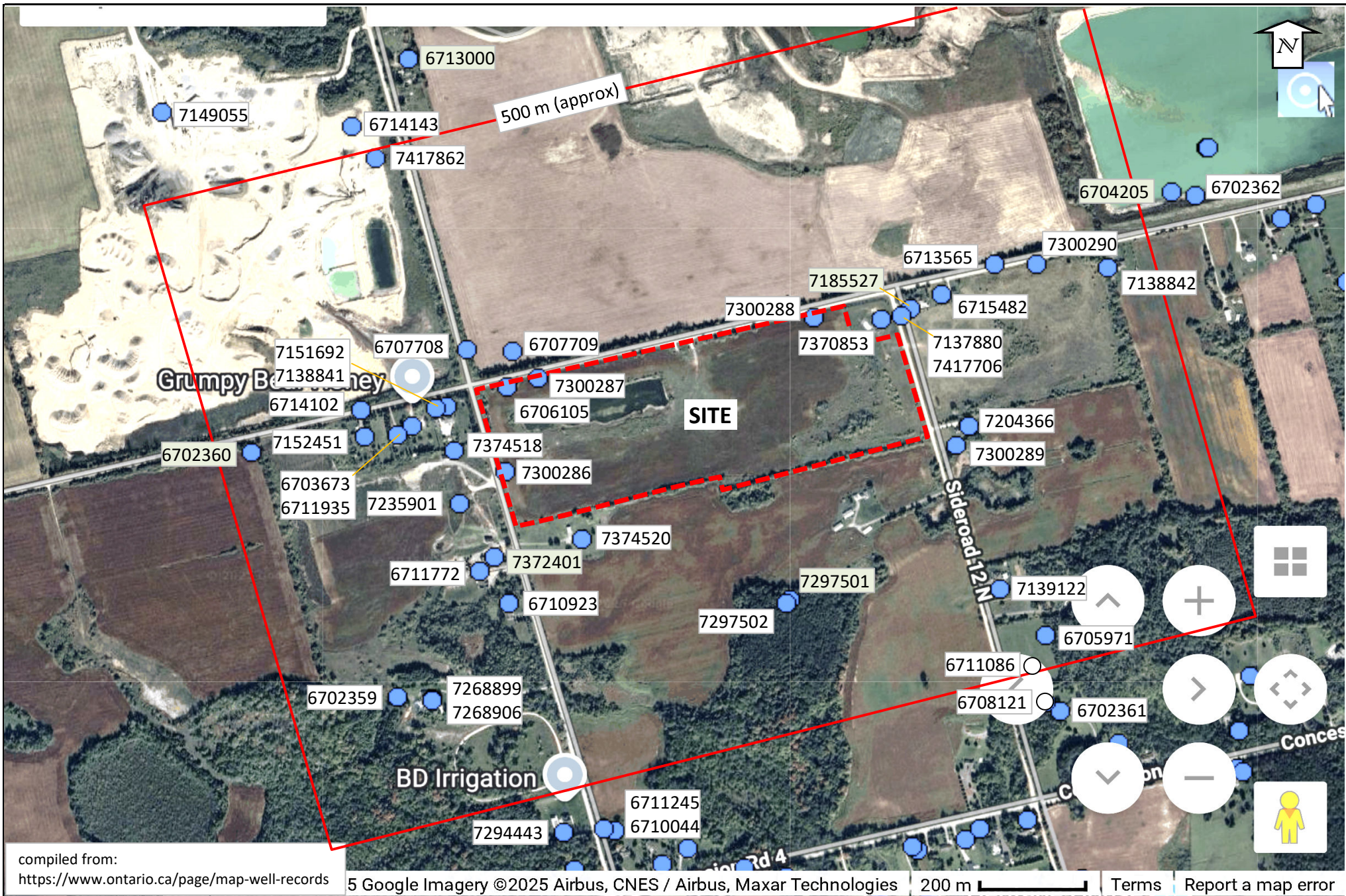



Precipitation Analysis - Waterloo/Wellington Station Reported Precipitation minus 30-yr Normal


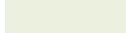


December 2, 2025

Appendix B: Water Well Record Review



 study site (approximate)

 reported water well record locations and references as shown
 reported overburden water supply well

Date: December 2025
 scale: approximate

GROUNDWATER
 SCIENCE CORP.

Figure B1: Reported Water Well Record Locations Near The Site

Puslinch West Estate Subdivision
 Cox Construction Ltd

Record No.	Date Constructed	Total Depth (m)	Type		Use	Static Level (m)	Bedrock Depth (m)	Recorded Rate (gpm)	Source Classification
			constr.	source unit					
6702359	4-Dec-63	37.2	drilled	brown rock	stock, domestic	9.1	28.0	10	confined bedrock aquifer
6702360	28-Nov-51	37.5	drilled	gravel	domestic	9.1	-	5.8	confined overburden aquifer
6702361	4-Jul-67	56.7	drilled	brown/black rock	domestic	12.2	36.9	10	confined bedrock aquifer
6702362	4-Dec-59	36.6	drilled	limestone	stock, domestic	7.6	25.0	8	confined bedrock aquifer
6703673	5-Jun-70	36.9	drilled	limestone	domestic	9.1	36.3	5	unconfined bedrock aquifer
6704205	25-Feb-72	17.7	drilled	gravel	domestic	3.4	-	20	confined overburden aquifer
6705971	2-Mar-76	45.7	drilled	brown rock	domestic	4.0	30.8	10	confined bedrock aquifer
6706105	16-Jun-76	74.7	drilled	brown rock	test hole, not used	38.7	29.0	25	confined bedrock aquifer
6707708	6-Oct-82	9.8	drilled	gravel	test hole, commercial	6.2	-	3	confined overburden aquifer
6707709	6-Oct-82	10.1	drilled	gravel	observation well	5.7	-	-	confined overburden aquifer
6708121	12-Sep-84	41.1	drilled	limestone	domestic	12.2	37.8	4	confined bedrock aquifer
6710044	4-Aug-89	31.1	drilled	limestone	domestic	0.9	27.1	10	confined bedrock aquifer
6710923	29-Apr-92	50.6	drilled	brown rock	domestic	3.7	34.1	25	confined bedrock aquifer
6711086	27-Oct-92	36.6	drilled	limestone	domestic	7.6	28.7	2.5	confined bedrock aquifer
6711245	11-Aug-93	49.7	drilled	limestone	domestic	23.5	39.9	15	confined bedrock aquifer
6711772	22-Jun-95	42.7	drilled	limestone	domestic	7.6	28.3	25	confined bedrock aquifer
6711935	25-Mar-96	48.8	drilled	limestone	domestic	12.2	38.1	20	confined bedrock aquifer
6713000	9-Jun-99	12.2	drilled	gravel	domestic	5.5	-	12	unconfined overburden aquifer
6713565	5-Nov-00	32.3	drilled	brown rock	domestic	5.8	31.1	15	confined bedrock aquifer
6714102	6-Jun-02	67.1	drilled	limestone	domestic	15.5	n/a	18	bedrock aquifer
6714143	24-Oct-01	33.5	well abandonment record		-	-	-	-	-
6715482	5-Aug-08	30.5	drilled	brown rock	domestic	4.9	25.3	12	confined bedrock aquifer
7137880	31-Aug-09	82.0	drilled	limestone	observation well	-	27.4	-	confined bedrock aquifer
7138841	12-Nov-09	38.1	drilled	limestone	domestic	8.9	31.4	13.2	confined bedrock aquifer

Record No.	Date Constructed	Total Depth (m)	Type		Use	Static Level (m)	Bedrock Depth (m)	Recorded Rate (gpm)	Source Classification	
			constr.	source unit						
7138842	23-Nov-09	51.8	drilled	limestone	domestic	8.4	31.1	7.1	confined bedrock aquifer	
7139122	28-Oct-09	37.5	drilled	limestone	domestic	5.5	23.8	10	confined bedrock aquifer	
7149055	13-May-10	33.5	drilled	gravel, sand	industrial water supply	3.4	-	33	confined overburden aquifer	
7151692	27-Jul-10	39.9	drilled	limestone	domestic	9.5	32.0	30	unconfined bedrock aquifer	
7152451	23-Jun-10	45.7	drilled	limestone	domestic	10.7	39.6	5	confined bedrock aquifer	
7185527	23-Jul-12	17.7	drilled	gravel, sand	domestic	4.9	-	10	confined overburden aquifer	
7204366	8-May-13	47.9	drilled	limestone	domestic	4.3	29.0	10	confined bedrock aquifer	
7235901	10-Nov-14	3.7	drilled	sand	4 observation wells	-	-	-	unconfined overburden aquifer	
7268899	4-Jul-16	42.7	drilled	limestone	domestic	6.1	28.7	8	confined bedrock aquifer	
7268906	2-Jul-16	67.1	well abandonment record		domestic	3.7	-	-	-	
7294443	30-Aug-17	48.8	drilled	brown rock	domestic	5.8	33.5	12	confined bedrock aquifer	
7297501	13-Sep-17	16.8	drilled	gravel	domestic	7.3	-	7	unconfined overburden aquifer	
7297502	13-Sep-17	12.2	well abandonment record		-	-	-	-	-	
7300286	4-Nov-17	-	monitoring well abandonment record (BH5)			-	-	-	-	
7300287	4-Nov-17	-	monitoring well abandonment record (BH4)			-	-	-	-	
7300288	4-Nov-17	-	monitoring well abandonment record (BH3)			-	-	-	-	
7300289	4-Nov-17	-	monitoring well abandonment record (BH2)			-	-	-	-	
7300290	4-Nov-17	-	monitoring well abandonment record (BH1)			-	-	-	-	
7370853	13-Aug-20	78.3	drilled	limestone	domestic	25.8	21.3	20	unconfined bedrock aquifer	
7372401	15-Oct-20	35.7	drilled	gravel, sand	domestic	8.8	-	10	confined overburden aquifer	
7374518	10-Nov-20	42.1	drilled	limestone	domestic	8.8	36.0	10	confined bedrock aquifer	
7374520	5-Nov-20	36.6	drilled	limestone	domestic	6.1	29.0	8	confined bedrock aquifer	
7417706	27-Apr-22	86.9	drilled	limestone	observation well nest	-	27.4	-	confined bedrock aquifer	
7417862	4-Apr-22	no well record information - corresponds to observation well installed at gravel pit					-	-	-	-