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March 28, 2024

Ministry of Municipal Affairs and Housing
Municipal Services Office - Central Ontario
777 Bay Street, 16th Floor
Toronto, Ontario
M7A 2J3

Dear Sir/Madam:

Re: *Get it Done Act, 2024 – Amending the Official Plan Adjustments Act, 2023*
ERO Number: 019-8273
Submission by Schlegel Urban Developments Corp. regarding Official Plan Amendment No. 6 to the Region of Waterloo Official Plan

Schlegel is the owner of lands adjacent to the existing urban area within the southwest portion of the City of Kitchener, including approximately 59 ha north of New Dundee Road and east of Fischer-Hallman Road, commonly referred to as “Bayer Lands”, and approximately 58 ha located at 236 Gehl Place, between Bleams Road and Huron Road and west of Fischer-Hallman Road, commonly referred to as the “BSF2 Lands”. For reference, the Bayer Lands and the BSF2 Lands are identified on the attached map.

Following an extensive submission from Schlegel in support of the inclusion of both the Bayer Lands and the BSF2 Lands within the Urban Area of the Region of Waterloo Official Plan (the “RWOP”), which was submitted to the Ministry of Municipal Affairs and Housing (the “Ministry”) through the Environmental Registry of Ontario in January 4, 2023, the Ministry approved Official Plan Amendment No. 6 to the RWOP (“OPA 6”), with modifications, on April 11, 2023.

Among the modifications made to OPA 6 by the Ministry on April 11, 2023 were amendments to Map 1, Regional Structure and Map 2, Urban System to the RWOP that, among other things, had the effect of including both the Bayer Lands and the BSF2 Lands (and adjacent lands) within the Urban Area. These modifications made by the Ministry were entirely reasonable and appropriate, and should have been adopted by the Region of Waterloo in the first place.

It is relevant to note that in the appeal of Waterloo Region’s OPA 5 and subsequent 2015 settlement hearing and resolution of outstanding appeals, both the Schlegel and the adjoining Mattamy owned lands were the only lands in SW Kitchener in which the Region’s Protected Countryside designation was not applied reflecting the lands were indicated to be further considered following technical studies (now completed) and therefore a refinement of the Region’s Countryside Line was possible and anticipated, pending satisfactory technical work, within these approximate 64 hectares of land.

This is not dissimilar to the Southwest Kitchener Policy Area (SKPA) lands in which the 2015 settlement agreement deferred final determination of the countryside lands in the SKPA area pending further technical and subwatershed work.

Acknowledging all of the above, and in direct response to Minister Calandra's November 2, 2023 written request to all affected Ontario municipalities to provide feedback and local recommendations with regard to, in this instance, the Region of Waterloo Official Plan recommendation, the Council of the City of Kitchener adopted a resolution at a Special Council Meeting on November 27, 2023, which had the clear effect, among other things, of supporting the immediate inclusion of the Bayer Lands and the BSF2 Lands within the Urban Area of the RWOP.

It is further understood that in response to this current ERO commenting period, the City of Kitchener has once again reiterated its formal Council adopted position from November 27, 2023 that the Schlegel Bayer and BSF2 land parcels both be included within the urban area of the City of Kitchener, alongside the other adjoining lands identified by the City of Kitchener November 27, 2023 (and consistent with the provincial decision of April 2023).

On February 20, 2024, Bill 162 – *Get it Done Act, 2024* ("Bill 162"), was introduced in the Legislature for first reading and includes, in Schedule 3, proposed amendments to the *Official Plan Adjustments Act, 2023*. Section 8 of Schedule 3 pertains to proposed modifications to the RWOP, and includes at clause ii. the following provision: "ii. Map 1, Regional Structure, and Map 2, Urban System, are modified to designate lands as Urban Area, Township Urban Area or Designated Greenfield Area, as applicable in accordance with Map 3.", with the proposed new Map 3 being identified as a map numbered 349 and filed at the Toronto office of the Ministry ("Map No. 349").

Request to the province –

Schlegel fully supports the proposed modification to OPA 6 through Bill 162 to include both the Bayer Lands (and adjoining SKPA lands) and the BSF2 Lands (and adjacent Mattamy lands) within the Urban Area in keeping with the City of Kitchener November 2023 request.

As a matter of implementation of mapping, we respectfully suggest that rather than indirectly modifying Maps 1 and 2 of the RWOP by reference to the modified Map 3 per Bill 162, we suggest that the Ministry consider modifying Maps 1 and 2 directly through the inclusion of additional maps – namely, a modified Map 1 and a modified Map 2 reflecting the final alignment of the Countryside Line in the deferred Non-Protected Countryside BSF2/Mattamy land area as determined through the modified Map 3 of Bill 162.

Given these lands have been in contemplation for urban development for 20 plus years through Alder-Strasburg sub-watershed update (2008/2009), City of Kitchener Southwest Area Urban Study (2010), and City of Kitchener Rosenberg Secondary Plan (2011/2012), and given a very recent Region of Waterloo submission provided to the current ERO process, we offer the following additional background information below.

Further Background -

On March 20, 2024, Region of Waterloo (RMOW) Hydrology and Water Program staff made a presentation to Region of Waterloo Council and presented a report that was surprisingly not circulated in the advance Council package (under the guise of tight timelines to meet ERO submission deadline)

Attached to this letter you will find the RMOW staff memo entitled **Proposed Bill 162 (Get it Done Act) and Drinking Water Supply Implications for Waterloo Region**. The red text imbedded with the RMOW staff report is the submission which Schlegel made to RMOW Council on March 20th in response to the varied inaccurate statements/assertions made within the report.

It is relevant to note that at the March 20th RMOW Council meeting, and as part of discussion on a memo regarding drinking water implications, planning staff again asserted that ample housing supply through draft approved and pending plans is available, that the RMOW's planned ROPA 6 inclusion of 151ha of additional urban and settlement area land expansions is adequate to meet provincial housing allocations in Waterloo Region... and therefore RMOW planning does not support the local positions taken and submitted to the Minister of Municipal Affairs and Housing by the elected Councils in each local municipality. This includes the position taken by the City of Kitchener Mayor and Council, in response to the Minister's November 2nd 2023 instructions... a position in keeping with the provinces April 2023 position.

It is clear that municipal reform is needed now and the real science of source water protection has become a poorly veiled effort to shape RMOW planning desires based on the objectives of the day.

Schlegel Urban Developments (Schlegel), has significant concerns regarding two source water protection policies/policy applications that are purported to affect approximately 160 acres of land for consideration to meeting housing supply needs. The lands in question are approximately 140 acres owned by Schlegel and 20 acres of contiguous lands owned by Mattamy. The combined Schlegel (BSF2 lands) and Mattamy lands represent the potential for approximately 1500 home ownership opportunities. (concept draft plan materials attached in fulsome ERO submission materials)

1) Well Head Protection Area (WHPA) mapping

Erroneous Wellhead Protection Area (WHPA) mapping in the Region of Waterloo as well as with Region of Waterloo Official Plan requirements that are unnecessary and duplicative of Provincial Source Water Protection (SWP) requirements.

The WHPA concerns include the following two principal technical issues:

- i) The mapped WHPA is significantly in error and incorrectly applies a WHPA designation to private lands, including Schlegel's "BSF2" property. Refer to Figure 1
- ii) With the incorrect inclusion of these lands in the WHPA (i.e. as "source water" areas), it follows that other corresponding source water areas that contribute to municipal water supply are lacking the WHPA coverage intended under the Clean Water Act

2) Region of Waterloo Regional Recharge Area (RRA) Policy

The WHPA mapping errors are further complicated/elevated by ongoing review advanced by our consultants and legal advisors of the Region of Waterloo Regional Recharge Area (RRA) Policy which has

implications in the current Regional Official Plan/Municipal Comprehensive Review process that made its way to the province for review in the Fall of 2021. The Region has enacted RRA policies that seek to protect the sources of water for municipal water supply and other water resources, that go beyond the Provincial SWP requirements and normal Environmental Impact Assessment provisions. The following provides some further context and background on this matter.

First, it is important to understand that the RRA designation is NOT part of, and is separate from, the Provincial Source Water Protection Program.

The Provincial Source Water Protection Program is required by the Ontario Clean Water Act 2006 and has come into practical effect in recent years. The Provincial program provides protection of water quality and quantity for municipal use. Prior to the Provincially required program coming into effect, the Region of Waterloo proactively put their own source water protections measures in place as enacted through the current Regional Official Plan (ROP approved December 22, 2010 and amended through OMB Regional Official Plan - Region of Waterloo).

The RRA is a designation that was developed and enacted by the Region of Waterloo, separate from the Provincial program. It is based on hydrogeologic and planning considerations of the Region and enacted through the Region Official Plan (ROP) Section 7.B.22 and Section 8.A.23. It is not a feature or requirement of the Provincial program.

The ROP includes Chapter 8 that is entitled “Source Water Protection.” These source water protection requirements described in the ROP are based on the Region’s own program that predated the current Provincial Source Water Protection Program requirements (e.g. the ROP refers to Wellhead Protection Sensitivity Areas (WPSAs) rather than the Provincially required Wellhead Protection Areas (WHPAs).

Subsequently, the Provincial Source Water Protection Program came into effect in the Region of Waterloo. The Provincial rules have specific measures to protect important areas supplying water to current or future municipal water supplies. These rules define WHPA-Q’s which are Wellhead Protection Areas for Quantity of water and do not utilize or rely on the Region’s RRA designation. They are distinct programs. However, it is noted that the current definition of the WHPA-Q (as defined by the Region and approved by the Province) includes the area of the RRA defined by the Region as well as a broader area.

The practical effect of the RRA policies is to prohibit any further urban development of lands within the RRA that are not presently within the urban boundary. The protection of regional recharge intended by the RRA policies, do not require this prohibition approach as the objectives can be, and are elsewhere, addressed through the use of suitable design and engineering measures such as stormwater infiltration and road salt management. This is evidenced by the current state-of-practice (and science) in urban development and it is demonstrated by the Region’s ongoing approval of comparable development within the existing urban boundary.

The Region has promoted implementation of the new Provincial approach to WHPAs for a number of years. It is unclear what the Region’s plan is for updating the ROP to reflect the Provincial rules; however, it is understood that the Provincial rules are now legally in effect.

Background summary –

Schlegel has made repeated efforts to have the inaccurate WHPA mapping corrected in alignment with the exhaustive real world technical data gained through an on the ground drilling program and well development (in contrast to inaccurate RMOW modelling).

Schlegel has met the two tests laid out at the time of the 2015 ROP settlement in Waterloo Region by confirming aquifer flow direction and confirming existence of an aquitard.

Further –

- 1) RRA with Protected Countryside designation is indicated in RMOW policy as a permanent policy barrier to development whereas RRA and **NO** Protected Countryside designation is not a permanent barrier to development.
- 2) Urban development presently takes place and is taking place on Kitchener lands identified by the made in Waterloo Region policy of Regional Re-charge Area (RRA)
- 3) The RMOW March 20, 2024 staff report notes... “The Waterloo Moraine is located in almost the entirety of the Region of Waterloo
- 4) The two tests of the 2015 ROP settlement and Schlegel motion for party status withdrawal have been met and the exhaustive study materials provided. Aquifer flow beneath the BSF2 and adjacent Mattamy lands is south and east... away from RMOW supply wells which are to the north of the lands and a thick and contiguous aquitard exists beneath the lands
- 5) Pre-development and post development infiltration rates can be maintained and exceeded with currently employed, modern, sustainable development practices
- 6) Residential development is not ranked as a provincial threat to source water protection. (agricultural use is the third highest risk)

We ask that the above and attached information be read in conjunction with the complete materials submitted on behalf of Schlegel on January 4, 2023 as part of an earlier ERO submission and we provide all of these technical/scientific reports, planning LNA materials and back up again for ease of reference.

Sincerely,



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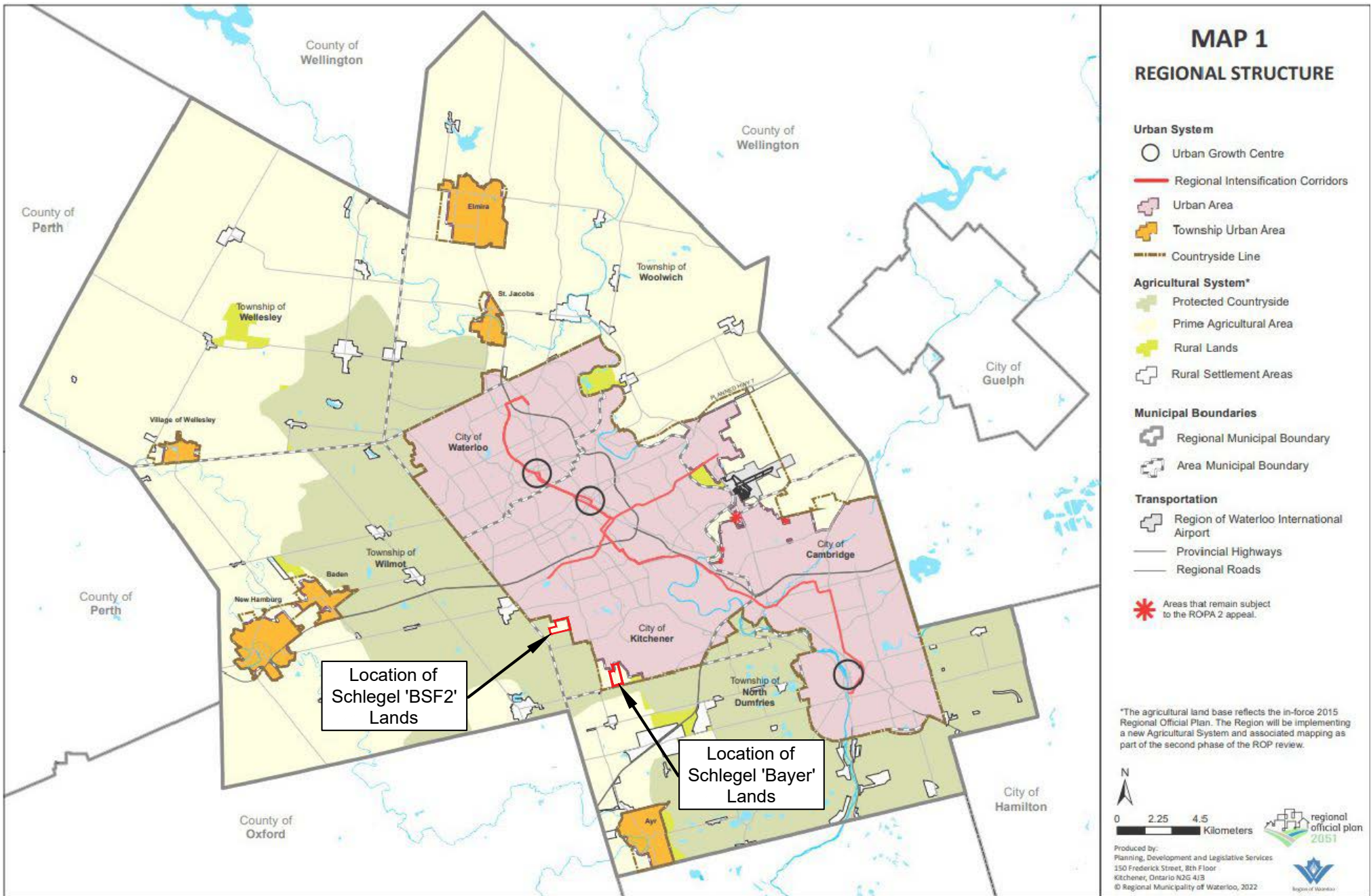


Figure 1: Location of Schlegel Lands on Waterloo Regional Official Plan Map 1

Region of Waterloo
Engineering and Environmental Services
Water and Wastewater Services

To: Regional Council
Meeting Date: March 20, 2024
Report Title: Proposed Bill 162 (Get it Done Act) and Drinking Water Supply Implications for Waterloo Region

Schlegel Responses to matters within this staff report inserted in RED

1. Recommendation

For information.

2. Purpose /Issue:

This report will provide an overview of Bill 162 and the implications of this Bill on the Region's drinking water supply. Groundwater from the Waterloo Moraine is the primary source of drinking water for the Region and is critical for building housing and job creation initiatives. Development on the Waterloo Moraine will limit our ability to build more housing and economic opportunities in the future. There is also potential through the approval of lands to incent leapfrogged development that will make building housing infrastructure more expensive for residents.

3. Strategic Plan:

This report supports Homes for All and Climate Aligned Growth by protecting the Regions water supply for the Region's future growth.

4. Report Highlights:

- The Waterloo Moraine is the primary source for groundwater recharge in Waterloo Region. The moraine is protected in the Region Official Plan (ROP), Policy 7.B.23, with Regional Recharge Area designation which restricts development on the moraine. Protection of the moraine is essential for the quantity of water supply and the quality of the water.
- Ontario uses a multi-barrier approach to protecting drinking water safety which includes source protection. This is intended to keep the raw water as clean as possible to lower the risk that contaminants will get through or overwhelm the treatment system.
- At least 75% of Waterloo Region's drinking water is primarily drawn from groundwater through water supply wells. Groundwater wells in the Kitchener and

Waterloo area are almost exclusively drawn from aquifers of the Waterloo Moraine.

- On February 20, 2024, in response to consultation undertaken by the Province in late 2023, the Province introduced Bill 162 (Get it Done Act, 2024). Bill 162 proposes modifications to the Regional Official Plan (ROP). Based on a preliminary review of the mapping associated with Bill 162, the modifications include adding an expansion to the Urban Area beyond the Countryside Line and onto the Regional Recharge Area in Southwest Kitchener.

Regional Re-charge on its own is not a prohibition to development. Regional Re-charge combined with designation as Protected Countryside is intended to be a permanent barrier to development. The 64 hectares of Gehl Place lands are NOT designated Protected Countryside.

It is factual to note that regardless of Bill 162 there are residential developments taking place today on lands designated by the RMOW as Regional Re-charge.

The appended **Figure 1** shows areas of approved residential development occurring in the RRA adjacent to the subject 64ha lands.

The appended Figure 1 (and Figure 2) are part of the December 23, 2022 summary report on water resources protection measures associated with Schlegel's south Kitchener lands, including the indicated 64 hectare (ha) parcel associated with the BSF2 lands. This publicly available report is appended in full to this submission.

- If development happens in the Regional Recharge area, there will be less water available to shallow and deep municipal supply aquifers of the Waterloo Moraine. This threatens the sustainability of drinking water supply to current and future residents in the cities of Cambridge, Kitchener and Waterloo, and the Townships of North Dumfries, Wellesley, Wilmot, and Woolwich.

The above statement is not factual and it is misleading.

The starting point for modern residential developments today in Kitchener is that pre-development infiltration rates for water must be achieved and maintained post development. That has been the requirement in Kitchener since the mid 2000's.

In fact, the detailed Water Resources Management Plan (WRMP) developed by GHD and to be implemented for the 64 ha of lands referenced in this staff report shows infiltration will be greater for development conditions than it is under current existing

conditions... greater by approximately 35 percent.

The WRMP also will mitigate against potential Source Water Protection (SWP), Regional Recharge Area (RRA) concerns and any other water resources considerations. The WRMP will use an integrated green infrastructure low impact development (LID) approach blended with traditional Storm Water Management (SWM) design, using best management practices to maximize infiltration of “clean” water (e.g., roof and green space runoff), while also collecting and treating “less clean” water (e.g., road and parking lot runoff).

The overall goals of the WRMP are to maintain the pre-development water balance, maximize infiltration on site, and maintain water quality. This proposed approach draws on findings and recommendations from Ontario and local programs, guidelines, and subwatershed studies, including the *Upper Cedar Creek Scoped Subwatershed Study* (Matrix, 2019¹) and the *Upper Blair Creek (Kitchener) Functional Drainage Study Final Report* (Stantec, 2009²).

The existing conditions and development conditions average annual infiltration volumes at the BSF2 Lands have been evaluated in detail by GHD and annual infiltration under development conditions will exceed that of existing conditions as summarized below:

Condition	Average Annual Infiltration Volume (m ³)	Percentage Infiltration Increase for Development Conditions
	BSF2 Lands	
Existing Conditions	148,570	--
Development Conditions	200,664	35 percent

In addition to achieving the goal of exceeding pre-development infiltration while maintaining water quality, this approach delivers a wide range of additional benefits over historic development practices, including:

- Reduced air temperatures and improved air quality
- Habitat improvement and connectivity
- Space for recreation and physical activity
- Climate resilience and carbon sequestration

GHD’s findings indicate the opportunity to readily exceed the annual infiltration volume determined to exist pre-development on the BSF2 Lands through well-planned design measures targeting the zones of higher infiltration capacity on the lands post-

¹ Matrix Solutions Inc. (Matrix), 2019. Upper Cedar Creek Scoped Subwatershed Study, Prepared for: The Regional Municipality of Waterloo and Grand River Conservation Authority, Version 1.0, October.

² Stantec Consulting Ltd. (Stantec), 2009. Upper Blair Creek (Kitchener) Functional Drainage Study, Final Report, Prepared for: The City of Kitchener, February.

- Reduced recharge will restrict the Region's ability to maintain and enhance capacity of the Region's water supplies. This could lead to a reduced amount of water supply to support future homes.

Again, as described above, reduced recharge will not occur. In fact, the WRMP developed by GHD for the BSF2 Lands shows that recharge will increase by approximately 35 percent under development conditions relative to existing conditions. Therefore, the residential development of the 64 ha of Gehl Place lands will actually increase the amount of recharge reaching groundwater, which in turn will increase the amount of water supply available to support future homes and other water resources.

Development could also degrade water quality at urban well fields due to road salt application, which could result in the loss of available urban water supplies, further restricting growth.

There exist provincial standards for chlorides that every residential development must achieve. Modern agricultural practices are more likely to degrade water quality at municipal well fields than local residential development. Nitrates are for example a challenge in the Wilmot Township well field area. GHD completed a salt loading assessment disproving the RMOW's concern that road salt application for the residential development of the BSF2 Lands will appreciably affect groundwater quality and the RMOW municipal well fields.

Firstly, in the specific area referenced (around the approximately 64 ha of Gehl Place lands) extensive on-site drilling and hydrogeologic investigations have demonstrated that the RMOW's characterization of the groundwater flow direction and Source Water Protection groundwater modelling is incorrect and highly misleading. In fact the groundwater flow direction in the referenced area is to the southeast, directly away from the Region wellfields. Therefore groundwater quality in the referenced area does not have any potential to impact municipal water supply.

Secondly, GHD's salt loading assessment for the Gehl Place lands demonstrated that any potential salt level increases would at most be modest. The assessment accounts for industry standard design and best management practices in residential development that will capture surface water runoff in the stormwater conveyance system and discharge it to the Stormwater Management facility (SWM Pond). The assessment also accounts for the winter bypass outlet, which has already been constructed for the BSF2 Lands. Chloride impacted runoff occurring

during winter months can be captured in the SWM Pond where it then can be diverted through the bypass outlet off-site and not allowed to infiltrate to groundwater. This approach is similar to the salt mitigation measures already implemented by the City of Kitchener to manage the salt loading from their nearby snow storage facility.

Under these design conditions, GHD performed Reasonable Use Concept (RUC) calculations to evaluate the chloride concentration in storm water allowed to infiltrate to groundwater beneath the BSF2 Lands.

The results of the RUC calculations estimate a chloride concentration within infiltrated water of 48 milligrams per liter (mg/L), which is significantly below both the Ontario Drinking Water Quality Aesthetic Objective (ODWQ-AO) for chloride of 250 mg/L and the RUC goal of 145 mg/L, and comparable to background concentrations of 40 mg/L already present in groundwater beneath the BSF2 Lands.

This chloride concentration in infiltrated water would be diluted further once reaching the groundwater table and mixing with the ambient groundwater flow beneath the BSF2 Lands.

As a result, with the best management practices to be implemented for the residential development of the BFS2 Lands, there will not be an appreciable increase chloride concentration in groundwater beneath the BSF2 Lands beyond what is already present under existing background conditions.

Thirdly, available monitoring data demonstrate that appropriate modern residential development does not in fact result in elevated groundwater concentrations of salt. The monitoring results for the Eby Estates development, which is immediately adjacent the Region of Waterloo Mannheim Wellfield (north and upgradient of the BSF2 lands) exhibit background level chloride concentrations over 9 years of monitoring data and demonstrate that residential development with appropriate management measures can be protective of groundwater quality.

- Reduced and lost water supplies resulting from land use decisions will significantly impact the building of new homes as the quantity of water available to service new development may impact the ability of the area municipalities to meet housing targets in the Region as water supply capacity may be considerably reduced. In addition, it could accelerate the need for a pipeline connection to Lake Erie.

As described above, through using industry standard design and best management practices, GHD's science-based technical evaluations demonstrate the following:

- The residential development of the BSF2 Lands will increase infiltration recharge to groundwater making more groundwater available for water supply and water resources
- The residential development of the BSF2 Lands will not increase chloride concentrations appreciably above existing background conditions

In consideration of these findings, there is no conceivable way that the residential development of the BSF2 Lands can possibly be deemed as responsible for accelerating the hypothetical need for a pipeline connection to Lake Erie, or any other Great Lake. This concept, as the RMOW introduces at the end of their previous Memo bullet, is entirely unfounded, not based on any scientific evaluation or technical assessment.

Indeed, Region of Waterloo hydrogeology staff previously agreed with GHD on this technical conclusion that residential development can occur on the BSF2 Lands in a manner that is protective of water resources, including municipal water supply.

5. Background:

On February 20, 2024, the Province released Bill162 (Get it Done Act, 2024). Bill 162 proposes to amend various statutes, including the Official Plan Adjustments Act, 2023 and is posted on the Environmental Registry of Ontario for comment until March 21, 2024. Bill 162 changes the legislatively approved official plans of some of the province's fastest-growing municipalities to address local needs while continuing to support the Province's goal of building at least 1.5 million new homes by 2031.

For the Region of Waterloo, Bill162 proposes modifications to the Regional Official Plan which would expand the Urban and Township Urban Areas. Based on a preliminary review of the mapping released with Bill 162, the modifications would generally implement the Area Municipal Mayors requests submitted through the Province's consultant on Bill150 (Planning Statue Law Amendment Act, 2023) and include adding land to Urban/Township Urban Areas to the full extent of the Countryside Line in Woolwich, Cambridge and Kitchener, an employment conversion in Cambridge, expansions to the Township Urban Area boundaries in Wilmot and Wellesley and an expansion to the Urban Area beyond the Countryside Line and onto the Regional Recharge Area in Southwest Kitchener. See Figure 2.

The Waterloo Moraine

The Waterloo Moraine is located in almost the entirety of the Region of Waterloo (Figure 1) and is protected by the Regional Recharge Area designation in the ROP, as well as, the *Clean Water Act*. The moraine acts as a natural recharge for groundwater, which

the Region uses for drinking water. The moraine is a natural filter with sandy soils, which support a quick recharge of aquifers. Since the moraine is not completely developed it also provides good quality water to wells in other areas of the moraine which have seen increasing salt levels due to winter maintenance. Salt in wells is a public health concern and must be monitored carefully for the safety of residents. Protection of the Waterloo Moraine satisfies the first step in the multi-barrier protection of drinking water safety. Please see Figure 3 for an illustration of how the moraine works.

The development of the BSF2 lands will not adversely affect the municipal water supply quality. As explained above and demonstrated by the detailed technical assessments completed for the subject lands:

- Groundwater from the BSF2 area flows south, away from the municipal wells
- Development would be implemented with appropriate protection measures such that salt concentrations will not increase appreciably above background levels

Furthermore, the groundwater beneath the BSF2 area is underlain by a thick and extensive aquitard (“barrier”) layer that isolates the shallow groundwater from the deeper municipal aquifer that is the source of water targeted by the Regional Recharge policy.

The extensive drilling and hydrogeologic investigations undertaken on behalf of Schlegel (by GHD, MTE, and Tony Lotimer of ARL Groundwater Resources Ltd.) have definitively demonstrated that this aquitard is 20 to 40 metres thick and effectively separates the shallow and deeper groundwater aquifers in the BSF2 area.

In 2015 the test before the settlement hearing discussions was whether or not the 64 ha of lands referenced in this report flow toward or away from Manheim treatment and re-charge facilities and whether or not an adequate aquitard existed between the upper and lower aquifers. If this test was applied today, as it was more recently for the Southwest Kitchener Policy Area (SKPA lands), it would be noted that the 64 ha of lands satisfies those same tests as applied to SKPA lands.

Drinking Water Implications

The supply wells for the Region of Waterloo are fed by large water supply aquifers that form part of the Waterloo Moraine. Groundwater wells in the Kitchener and Waterloo area are almost exclusively drawn from these aquifers. The greatest risk to the groundwater supply is the introduction of hard surfaces as part of development and salinization of water supply aquifers by increasing rates of winter maintenance salt use. The Province's proposed modifications to the ROP would result in an expansion of the Urban Area of approximately 64 hectares onto the Regional Recharge Area. Should these lands be developed for urban purposes this will reduce the amount of water which infiltrates into

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Report: EES-WAS-24-001

the ground. This will cause uncertainty that there is adequate water available to be drawn for the Region's drinking water, and will introduce more road salt into the moraine through winter maintenance activities.

Again, it is inaccurate and misleading for the Region to state that development of the subject lands will reduce infiltration. To the contrary, the proposed development includes measures that would actually increase the recharge to groundwater. As also identified above, the proposed development includes protective measures such that salt levels will not be increased appreciably above background levels.

Waterloo Moraine Protection through the Regional Official Plan (ROP)

The ROP provides enhanced protection for the Waterloo Moraine that goes above and beyond the protection offered by the *Clean Water Act* through the Regional Recharge Area policies and mapping. This protection is critical to sustain this unique, local drinking water supply source.

It is accurate that the Regional Re-charge Policy is a made in Waterloo Region policy which has been acknowledged by RMOW source water protection staff in past technical meetings to have been implemented in concert with a broader planning push for intensification and directing future growth to the East Side of Waterloo Region.

The Ontario Clean Water Act and provincial standards for source water protection are the acceptable and governing standards now in place across the province. These rigorous standards were developed post Walkerton and should prevail in Waterloo Region.

The Regional Recharge Area is an area where considerable deposits of sand and gravel allow for the infiltration of significant quantities of rainfall and snowmelt deep into the ground. The Regional Recharge Area serves important functions:

- Replenishes large quantities of water to aquifers that feed municipal drinking water supplies,
- Groundwater discharge that sustains a wide range of aquatic habitats and ecosystems within the Greenlands Network, and
- Contributes a high percentage of baseflow to the Grand River, its tributary rivers and cold-water streams, which helps maintain the health of the Grand River and provide assimilative capacity for the Region's wastewater treatment plants.

Preserving the form and function of the Regional Recharge Area protects sensitive ecological features and watercourses, and ensures a sustainable drinking water supply to residents in the cities of Cambridge, Kitchener and Waterloo, and the Townships of

North Dumfries, Wellesley, Wilmot, and Woolwich.

This statement is overly broad and does not reflect the reality of the BSF2 lands which have been investigated and studied in detail by experts relying on field driven data.

GHD's technical assessments show that applying the residential development of the BSF2 Lands:

- 1) Will increase the overall groundwater recharge;
- 2) Will not increase chloride concentrations appreciably above background levels.
- 3) Will not result in a negative impact to sensitive ecological features and watercourses or drinking water supplies.

Potential Implications of Land Development on the Core of the Waterloo Moraine

In areas of greenfield development groundwater recharge will be reduced by 50 to 80% on newly developed lands, depending on the type of development proposed (i.e. residential vs. commercial/industrial).

Again, it is inaccurate and misleading for the Region to state that development of the subject lands will reduce infiltration. To the contrary, the proposed development includes measures that would actually increase the recharge to groundwater.

The starting point for modern residential developments today in Kitchener is that pre development infiltration rates for water must be achieved and maintained post development. That has been the requirement in Kitchener since the mid 2000's.

An indirect consequence of the reduction in recharge is that groundwater levels are predicted to decline at the Mannheim Well Field, an important source of water to the Integrated Urban System (IUS). Future Urban Area expansions could reduce the Mannheim Well Field capacity by upwards of 10% of the available supply. If new development is allowed on the Regional Recharge Area, on the lands proposed through Bill162, it will greatly reduce the water available to service growth. This loss of water equates to 500 to 1,800 fewer new homes that cannot be built, compared to equivalent land development in areas outside of the Regional Recharge Area.

Again, it is inaccurate and misleading for the Region to state that development of the subject lands will reduce infiltration. To the contrary, the proposed development includes measures that would actually increase the recharge to groundwater.

The starting point for modern residential developments today in Kitchener is that pre development infiltration rates for water must be achieved and maintained post

development. That has been the requirement in Kitchener since the mid 2000's.

The Region could achieve higher community growth targets if equivalent land development occurs in areas outside of the Regional Recharge Area.

If a precedent is set, and development is permitted to proliferate across the entirety of the Regional Recharge Area within Kitchener's municipal boundaries, modelling shows that water losses would mean upwards of 10,000 fewer homes compared to equivalent land development in areas outside of the Regional Recharge Area.

Again, the proposed development will increase recharge, not decrease recharge as implied by the Regions statement above.

It is also of note that the above statement refers to modelling. Presumably (no specific information has been provided) the modelling was completed using the RMOW's Tier 3 Groundwater Flow Model (Tier 3 Model) developed under the provincial Source Water Protection (SWP) program under Ontario's Clean Water Act.

GHD has proven that the Tier 3 Model is incorrect in the vicinity of the BSF2 Lands and this has been previously acknowledged by the Region and their modelling consultant. Thus, conclusions reached by the RMOW using the Tier 3 Model, such as that expressed in the above comment, are not accurate.

Groundwater flow at the BSF2 Lands and Bayer Lands has been scientifically and irrefutably proven to flow from north to south/southeast – away from the Region of Waterloo's groundwater supply wells within the Mannheim Wellfield. The Tier 3 Model incorrectly simulates groundwater beneath the BSF2 Lands to northwest. As a result, the Tier 3 Model is incorrect in the vicinity of the BSF2 Lands and has resulted in erroneous Well Head Protection Area (WHPA) delineations for the Mannheim Wellfield as has been previously identified to the RMOW, the Source Water Protection Authority (SWPA), and the Province (both MMAH and MECP) (Schlegel, 2021³).

The errors in the Tier 3 Model are a result of incorrect representation of hydrogeologic conditions beneath lands in the BSF2 area, which then in turn erroneously simulate a groundwater flow direction in Regional Aquifer 1 that is directly opposite of the measured groundwater flow direction.

The appended **Figure 2** shows groundwater elevation contours at and surrounding the BSF2 Lands that are interpolated based on groundwater elevations measured in April 2022 at and surrounding the BSF2 Lands. The groundwater elevation contours demonstrate that groundwater flows to the southeast from Bleams Road to New Dundee Road. **Figure 2** shows the incorrect groundwater flow direction to the northwest simulated by the RMOW's Tier 3 Groundwater Flow Model and the erroneous WHPAs for the Mannheim Wellfield that are based on the incorrect groundwater flow direction to the northwest. Quarterly groundwater elevation measurements conducted by Schlegel since November 2019 have consistently proven this same southeastern groundwater flow direction.

³ Schlegel, 2021. Schlegel correspondence to Mr. C. White, Chair, Laker Erie Region Source Protection Authority, Grand River Conservations Authority Board of Directors, Subject: Updates to the Grand River Source Protection Plan – 2021, June 24.

The RMOW is aware of this error in the Tier 3 Model and has indicated they will be undertaking long-term (i.e., years into the future) efforts to correct the model for WHPA delineation. Notably neither the RMOW nor SWPA have acted to address the erroneous WHPA designations in the interim or to provide notification to the public or the affected landowners of the erroneous WHPA designations.

In addition to erroneous WHPA delineations, it is important to recognize that groundwater flow beneath the BSF2 Lands is away from any current or future municipal water supply pumping.

Development of lands designated Regional Recharge Area will also cause potential reductions in baseflow (a portion of the river and/or stream flow which is not storm or snow run off) to sensitive ecological features in Waterloo Region. Groundwater baseflow is also important for assimilative capacity (the amount of treated wastewater which can enter a river/stream) at the Region's wastewater treatment facilities. A number of the Region's communities situated on receiving waters have assimilative capacity constraints. It is anticipated that in order to provide servicing for the additional growth areas in some of these communities, more advanced treatment, beyond what is currently used anywhere in Canada, would be required, at a per capita cost far exceeding that of existing infrastructure.

If the Waterloo Moraine is developed, the need for an approximately \$2 billion pipe line from Lake Erie would be required to support growth. This pipe will take at least 20 years to build which makes the protection of the Waterloo Moraine even more important to support building homes.

The above factual information about modern development standards meeting and exceeding existing groundwater infiltration levels would suggest this statement is not accurate.

Infrastructure Planning Implications

The modifications proposed to the ROP through Bill 162 are beyond the boundary expansions to accommodate growth considered by Regional Council in August 2022.

The population and employment forecasts contained in the ROP will need to be updated to reflect any new growth areas added through Bill162. In addition, the lands proposed to be added to the Urban Area and Township Urban Area will need to be considered in Master Planning processes through which the availability, financial impact and timing of servicing will be determined.

A sweeping generalization not applicable to the 64 ha of lands specifically referenced in this report. Indeed, the 64 ha of land referenced in this report have both sanitary sewer and stormwater winter bypass outlet services stubbed into the property limits. The lands

reflect the most efficient and appropriate use of infrastructure already built and paid for.

Some of the new Urban and Township Urban Areas identified under Bill162 may have significant challenges with respect to wastewater servicing and technical studies will need to be completed. Development on the lands will require more study to understand the costs of servicing required. If lands are developed far from existing infrastructure, this would result in higher costs and oversizing of infrastructure. It is anticipated that costs would be orders of magnitude higher to expand the treatment plants. The cost to operate these facilities and the GHG impact from this operation would also be anticipated to significantly increase.

Again, a general statement not applicable to the 64 ha of lands specifically referenced in this report. The 64 ha of land referenced in this report have both sanitary sewer and stormwater winter bypass outlet services stubbed into the property limits. The lands reflect the most efficient and appropriate use of infrastructure already built and paid for.

Bill 162 allows for leap-frogging development which can negatively impact affordability. Leap-frogging occurs where a developer may be ready to build further out from existing infrastructure than a developer who is closer to existing infrastructure. Since needed infrastructure is determined based on the population, there is a possibility of higher construction costs as infrastructure is oversized to ensure there is enough capacity to service development where the infrastructure is built. Oversizing of infrastructure leads to 10% to 30% higher construction costs and higher operations costs. Construction costs will be increasingly debt financed for growth related project and these costs are borne by the ratepayers in the Region.

Again, a general statement not relevant to the 64 ha of lands specifically referenced in this report.

The 64 ha of land referenced in this report have both sanitary sewer and stormwater winter bypass outlet services stubbed into the property limits. The lands reflect the most efficient and appropriate use of infrastructure already built and paid for. The lands reflect the orderly rounding out of the Rosenberg Secondary planning area within the City of Kitchener. The lands have been identified as serviceable by gravity by the City of Kitchener since 2004. The lands were evaluated by the City of Kitchener as part of the South West Urban Area Studies which then proceeded directly into the Rosenberg Secondary planning process. The Middles Strasburg Sanitary Sewer (MSTSS) is built with capacity to include these long-contemplated lands.

These 64 ha of lands are the opposite of leap frogging.

6. Communication and Engagement with Area Municipalities and the Public

Area Municipalities:

The Regional Recharge Area and associated policies were included in the 2009 ROP, which previously went through extensive consultation and received Council endorsement. The development of ROPA 6, which includes the continued protection of the Region's drinking water supply through the Regional Recharge Area designation located in the core of the Waterloo Moraine, included extensive consultation with area municipalities and was fully endorsed by Council on August 18, 2022.

It will continue to be important to work collaboratively with the Area Municipalities to consider the staging of development within the expansion areas to ensure that growth and infrastructure are occurring in an efficient manner, and maximize medium and long-term growth.

Public:

The public was extensively consulted during the development of ROPA 6. The public also can provide comments on Bill162 through the ERO on the Provincial website.

7. Financial Implications:

The changes proposed under Bill 162 will require a large scale review of growth related infrastructure in terms of scope, need, timing, and cost, particularly for Water Supply, Wastewater Treatment and Roads infrastructure. A number of the Region's master and business plans will need to be updated to reflect required servicing for the new Urban and Township Urban Areas contemplated under Bill162. Most of these plan updates are scheduled to occur in the 2024/2025 timeframe with updates to be reflected in 2026/2027 capital programs and future Development Charge (DC) Background Studies. Detailed financial impacts of each of these plans on the Region's ten year capital program will be provided when these plans are presented for Council approval.

8. Conclusion / Next Steps:

The protection of the Waterloo Moraine, through the ROP Regional Recharge Area designation, is critical to ensuring homes will be built in the Region of Waterloo. Expansions of the Urban Area onto areas designated Regional Recharge Area will impact the Region's water supply and water quality which is critical to supporting growth and the construction of new homes in Waterloo Region.

It is also expected that the approaches that will be required to service the new Urban and Township Urban Areas approved through Bill162 will result in an increase in climate impacts and our carbon footprint.

The Region of Waterloo will prepare a response to the ERO for Bill162, due on March 21.

March 20, 2024

Report: EES-WAS-24-001

9. Attachments:

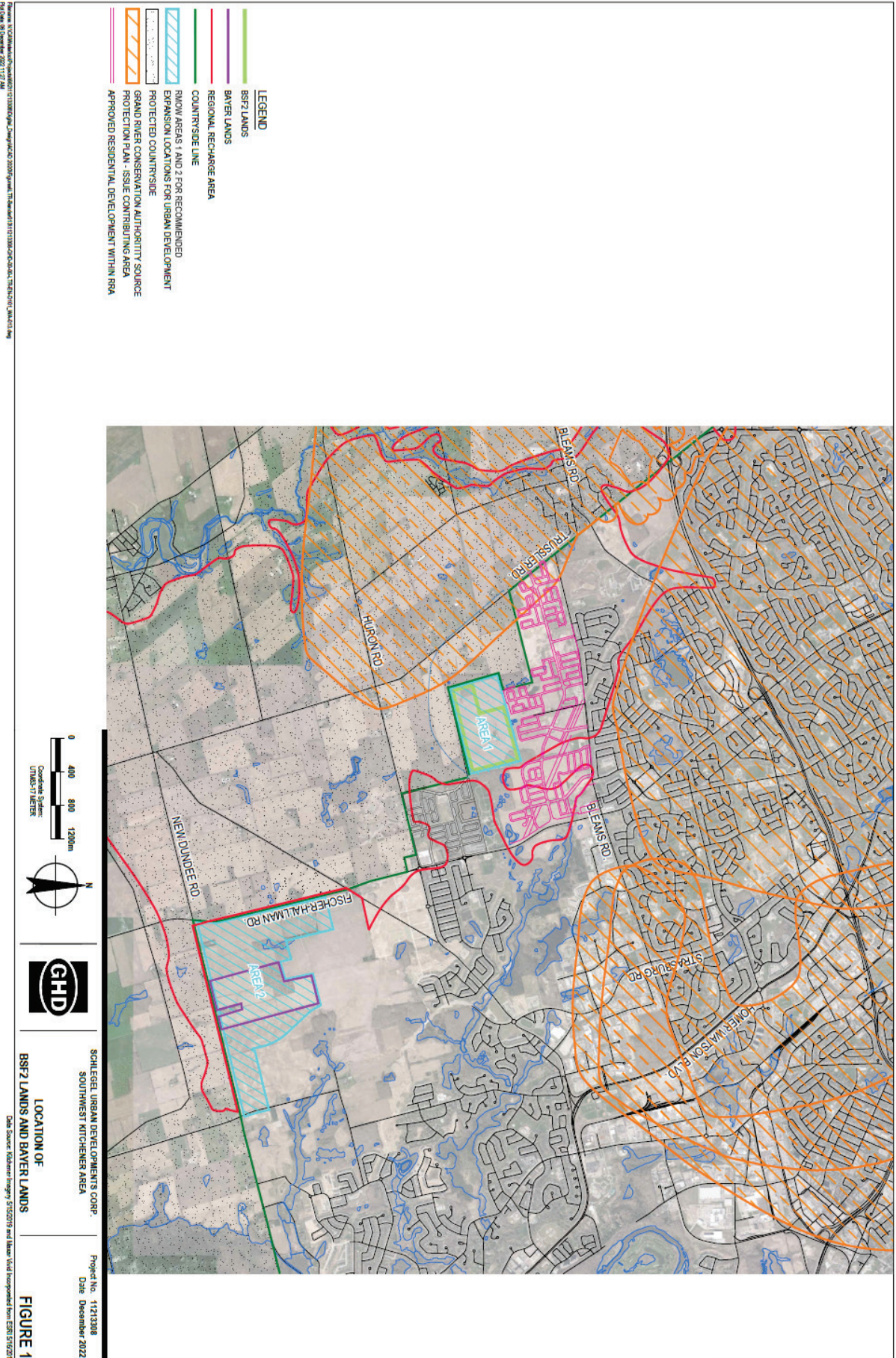
Attachment A: Figures 1, 2 and 3

Prepared By: Geoff Moroz, Manager, Hydrogeology and Water Programs

Reviewed By: Mari MacNeil, Director, Water and Wastewater Services

Approved By: Jennifer Rose, Commissioner, Engineering and Environmental Services

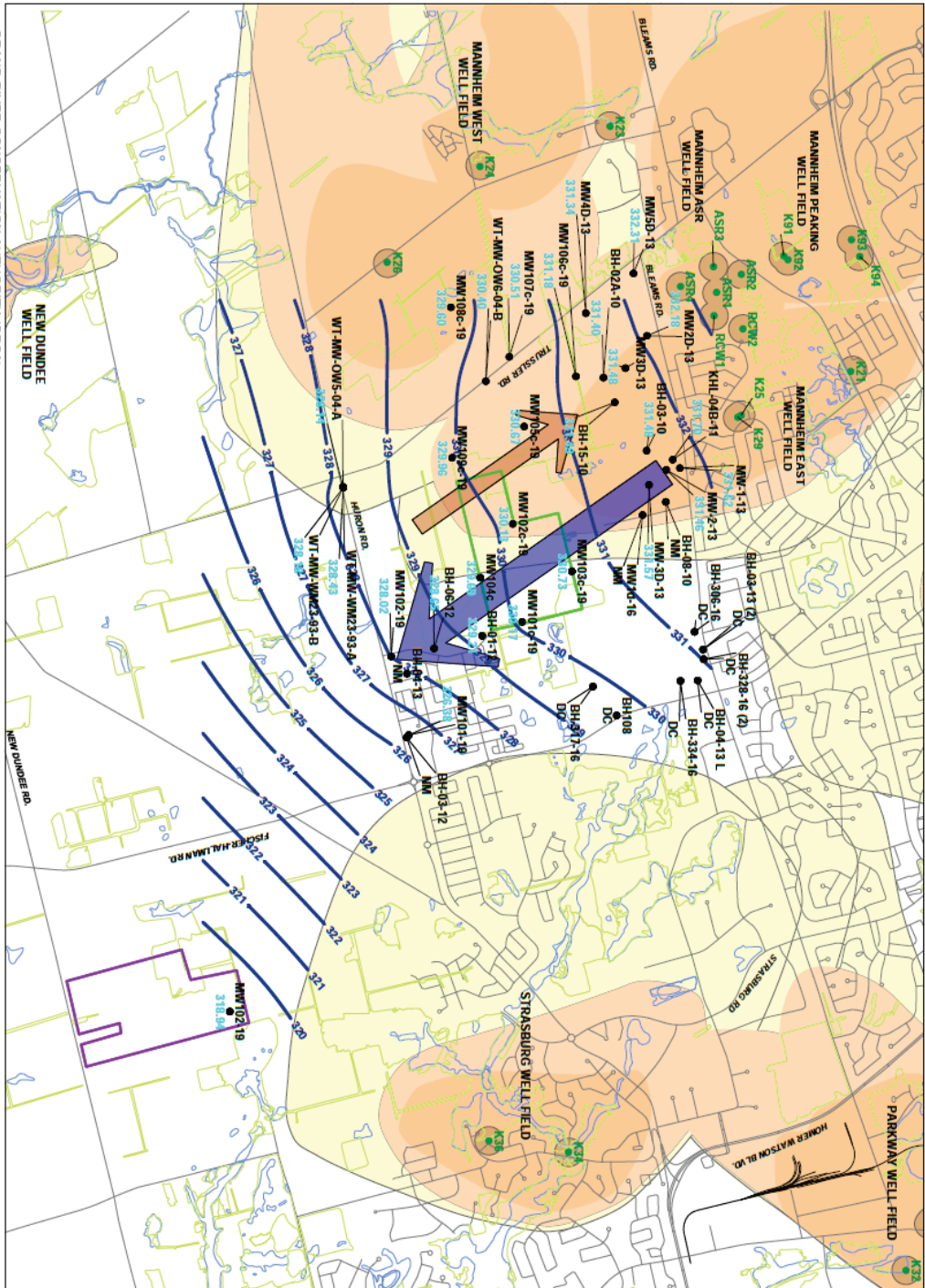
Rod Regier, Commissioner, Planning, Development and Legislative Services



Project No. 11213308
Date: December 2022

FIGURE 1
LOCATION OF
BSE7 LANDS AND BAYER LANDS
SCHLEBEL URBAN DEVELOPMENTS CORP.
SOUTHWEST KITCHENER AREA
Project No. 11213308
Date: December 2022

Date Source: Kitchener Imagery 5/15/2015 and Aerial Void Incorporated from ESRI 5/15/2015



LEGEND

- BSF2 PROPERTY
- BAYER FARM PROPERTY
- RMOW MUNICIPAL WELL
- MONITORING WELL LOCATION
- MEASURED GROUNDWATER ELEVATION (m AMSL)
- 331.07
- MW-103c-19

- 332.50
- INTERPOLATED GROUNDWATER ELEVATION CONTOUR (m AMSL)
- DC
- NM
- NOT MEASURED
- MONITORING WELL DECOMMISSIONED

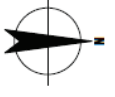
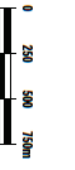
- INCORRECT ACQUIFER 1 GROUNDWATER FLOW DIRECTION SIMULATED BY RMOW APL 3 WATER BUDGET MODEL APPLIED AS BASIS FOR WHPA DEVELOPMENT
- ← OBSERVED ACQUIFER 1 GROUNDWATER FLOW DIRECTION OPPOSITE TO THAT USED FOR WHPA DEVELOPMENT. MANNHEIM WHPA SHOULD NOT EXTEND DOWNGRADIENT IN DIRECTION OF OBSERVED GROUNDWATER FLOW.

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GRAND RIVER CONSERVATION AUTHORITY (GRCA)
DRAFT WELL HEAD PROTECTION AREAS (WHPA)

- WHPA-A
- WHPA-B
- WHPA-C
- WHPA-D

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SCHLEGEL URBAN DEVELOPMENTS CORP.
BIG SPRING FARMS 2 PROPERTY
235 GEM PLACE, KITCHENER, ON
REGIONAL ACQUIFER 1 OBSERVED
GROUNDWATER ELEVATION
CONTOURS - APRIL 2022

Project No: 1113308
Date: November 2022

FIGURE 2