TBT ENGINEERING
CONSULTING GROUP

April 16, 2026 TBTE Ref No: 26-0120

Dilworth Development Inc.
92 Bentley Avenue
Ottawa, ON
K3E 6T9

Attn: Mr. Dennis Colautti
and Mr. Walter Griesseier

Subject: City File Number: D02-02-24-0029
Update to Hydrogeological Study Report
Concept Plan (April 2026)
2095 Dilworth Road
Ottawa, Ontario

1.0 Introduction

TBT Engineering Limited (TBTE) was retained by Dilworth Development Inc. (Client) to prepare an update to the Englobe Hydrogeological Study Report dated February 2025 and provide responses to the City of Ottawa comments received on January 26, 2026, for the Zoning By-law Amendment application of the property located at 2095 Dilworth Road (Site) in Ottawa, Ontario.

On January 26, 2026, Novatech (Planner) received formal review comments from the City of Ottawa regarding the Zoning By-law Amendment application for this Site. The comments relating to the Hydrogeological Study, Environmental Site Assessment, and Geotechnical Investigation reports by Englobe in 2021 through 2025. Since the issuance of these reports, the potential concept plan has advanced from an original commercial subdivision with a retail fuel outlet to the current potential concept plan, which consists of two small, lightly-loaded commercial buildings near the south property line. A copy of the current potential concept plan prepared by the Planner is attached at the end of this letter for reference (Attachment A).

This letter is intended to update the existing studies and documents, as indicated below:

- **Hydrogeological Study Report – 2095 Dilworth Road – Kars, Ontario,** prepared by Englobe Corp., dated February 2025.
- **Review of Hydrogeological Study Report**, prepared by TBT Engineering Consulting Group, dated July 30, 2025.

In addition, this letter is intended to respond to the formal review comments (dated January 2026) provided by Mr. Travis Smith of the City of Ottawa (the City). These comments were discussed between TBTE, Novatech and Travis Smith of the City of Ottawa during a virtual meeting on March 2, 2026.

2.0 Current Potential Concept Plan

This letter is intended to support the current Zoning By-law Amendment application only, based on the current potential concept plan. It is anticipated that additional hydrogeological studies will be required to support the Site Plan Control application and construction. Such additional investigation will need to be specific to the designs prepared at that time.

The current potential concept plan was received from the Planner on April 6, 2026, by email. It is attached at the end of this letter for reference (Attachment B). The current potential concept plan consists of two (2) small commercial or industrial buildings with three units each. Each of the two buildings will be approximately 12 m x 93 m in area and will be aligned east-west on the southern limit of the property. It is understood that the single-storey lightly-loaded structures will be designed with shallow foundations with slab on grade construction. . The current potential concept plan contains no basements or below-grade levels. In addition to the structures, the current potential concept plan includes on-grade parking or outdoor storage areas.

Alternate concepts will require additional hydrogeological studies. It is critical to emphasize that prospective buyers and developers will need to perform their own hydrogeological studies specific to their designs at that time.

At the time of preparation of this letter, TBTE has only been provided with the current potential concept plan for the Site and a list of potential acceptable land uses. Therefore, it is important to emphasize that the discussions and recommendations in this report should be considered as preliminary and support the zoning By-law Amendment only.

3.0 Hydrogeological Discussion

The following subsections are intended to be an update to and not a replacement of the discussion within the Englobe 2025 Hydrogeological Study Report. This letter should be read in conjunction with the Report. The structure of this section references the particular hydrogeological comments by the City (received by the Planner on January 26, 2026).

3.1 Conceptual Water Demand and Aquifer Capacity (Comments 53 & 54)

City of Ottawa Comment 53: *In section 2.4 of the Hydrogeological Study Report, please provide and rationalize the selected pumping rate. It appears that the rate was determined by dividing the estimated water usage of 9,000 L/day by the 120-minute peaking factor. State how the determined rate compares to the permitted uses available in the zoning.*

As stated in section 2.4 of the Englobe Hydrogeological Study Report dated February 2025, the pumping rate was not selected. The pumping rate of 76 L/min is the capacity of the existing one-horsepower submersible pump and the associated infrastructure in the water well. The Englobe Hydrogeological Study Report dated February 2025 does not refer to the estimated water usage

of 9,000 L/day. This existing water well (note that the water well was installed in 1978) supplies water to the existing dwelling on the property for non-potable uses. Please also refer to section 3.1.1 on how the pumping rate of 76 L/min compares to the permitted uses available in the zoning.

City of Ottawa Comment 54: *The reporting in section 2.4 should analyze the pumping test results and aquifer parameters and compare them to the permitted uses being sought. The zoning by-law amendment stage is where it is demonstrated that the site can accommodate these ranges of uses. Clarification can also be provided in this section that the intention is for the water supply to be used as a non-potable source, which will reduce the water demand as a result of limiting to flushing, etc.*

Section 4.0 of the Englobe Hydrogeological Study Report dated February 2025 presents the pumping test results, including the estimates of aquifer parameters and well yield. The water supply from the onsite aquifer is to be used for non-potable purposes. Please also refer to section 3.1.1, which demonstrates that the Site can accommodate a range of permitted uses identified by the City.

3.1.1 Current Potential Concept Plan, Permitted Uses and Water Demand

The current potential concept plan (refer to Attachment A) shows a building on each developable area with three (3) tenants each, with a space of 300 m^2 each. The following are the permitted uses for the property:

- Artist Studio
- Automobile rental establishment
- Automobile service station
- Car wash
- Heavy Equipment Servicing
- Kennel
- Parking lot, limited to a “park and ride” lot or a parking lot accessory to a permitted use
- Retail food store, limited to an outdoor farmers’ market retail store
- Service and repair show
- Warehouse, limited to an indoor self-storage facility
- Retail fuel outlet

To present a potential "worst-case scenario" for development use based on the current potential concept plan, the following scenario includes permitted uses with the worst-case demands and related assumptions.

- Tenant uses within the buildings would include:
    - **Building 1**

- **Unit 1:** A car wash featuring 6 **self-serve** wash bays and two (2) employees.
- **Units 2 and 3:** Two separate store / retail units, each accommodating eight (8) employees.

- **Building 2**
  - **Unit 1:** A retail fuel outlet with ten (10) fuel pumps and two (2) employees.
  - **Units 2 and 3:** Two separate store / retail units, each accommodating approximately 8 employees.

- Water consumption for each unit would be restricted to **non-potable uses only.**

Table 1 below provides the water demand estimates for the potential "worst-case scenario" development use based on the current potential concept plan.

Table 1: Potential Worst-Case Scenario – Estimated Non-Potable Water Demand

Activity	Operating Hours	Per Hour		Per Day	Demand per Use or Unit (L)	Total Volume (L) Per Person and Per Day	Estimated Non-Potable Demand (L/day)
	Car Wash (Building 1 - Unit 1)						
Hand Wash (6 total wash bays)	7 AM - 11 PM	12[1]	Wash	192	200[2]	-	38,400
Employee	-	-	-	-	-	-	--
Daytime	7 AM - 3 PM	2	Employee	2	-	75[2,4]	150
Nighttime	3 PM - 11 AM	2	Employee	2	-	75[2,4]	150
	Retail Fuel Outlet (Building 2 - Unit 1)						
Fuel Pump Outlet	7 AM - 11 PM	10	Pump	10	560[3,4]	-	5,600
Water Closet (restrooms)	7 AM - 11 PM	2	Water Closet	2	950[3,4]	-	1,900
Employee	--	--	--	--	-		--
Daytime	7 AM - 3 PM	2	Employee	2	-	75[2,4]	150
Afternoon-Evening	3 PM - 11 AM	2	Employee	2	-	75[2,4]	150
	General Commercial (Remaining Buildings 1 and 2 Units)						
Employees (Building 1 - Unit 2)	8 AM - 4 PM	8	Employee	8	-	75[2,4]	600
Employees (Building 1 - Unit 3)	8 AM - 4 PM	8	Employee	8	-	75[2,4]	600
Employees (Building 2 - Unit 2)	8 AM - 4 PM	8	Employee	8	-	75[2,4]	600
Employees (Building 2 - Unit 3)	8 AM - 4 PM	8	Employee	8	-	75[2,4]	600
Total Estimated Non-Potable Water Demand							48,900

Notes:

(1) Assuming an average of 30 minutes per car wash

(2) Based on Ottawa Design Guidelines, Appendix 4-A, Daily Sewage Flow for Various Types of Establishments.

(3) Based on Ontario Building Code (OBC), Table 8.2.1.3.B, Other Occupancies.
(4) The potable water component for the identified activities has not been separated from the non-potable water demand estimates. The total estimated non-potable demand for these activities will likely be an overestimation of the actual non-potable water demand, as the potable use component is not applicable to the Site.

The total estimated non-potable water demand of 48,900 L/day (34 L/min) is lower than the pumping rate of 76 L/min for the pumping test detailed in the Englobe Hydrogeological Study Report dated February 2025.

3.1.2 Aquifer Capacity and Sustainable Well Yield

A total non-potable daily water demand of **48,900 L/day** was estimated to service the potential "worst-case scenario" permitted uses of the property. The hydrogeological data confirm that the existing bedrock aquifer has sufficient capacity to support this demand, as supported by the following:

- **Pumping Test:** An 8-hour constant-rate pumping test was conducted on the existing water supply well (PW21-01) at a withdrawal rate of 76 L/min (109,440 L/day).
- **Drawdown:** After 8 hours of continuous pumping at the rate of 76 L/min, the maximum recorded drawdown was 2.21 m. This value represents approximately 4% of the total available drawdown of 60.4 m within the well.
- **Recovery:** The well recovered to 94.9% of its static water level within 30 minutes. A recovery of over 99% was observed after 23 hours.
- **Sustainable Yield:** Applying the Cooper and Jacob method to the aquifer test data yields an estimated theoretical maximum sustainable well yield of 118 cubic metres per day, or 118,000 L/day.

The estimated maximum sustainable well yield of **118,000 L/day** is substantially greater than the anticipated worst-case daily demand of **48,900 L/day**. As such, the underlying bedrock aquifer has a sustainable capacity that will support the potential worst-case non-potable daily water demand scenario.

Alternate concepts will require additional hydrogeological studies. It is critical to emphasize that prospective buyers and developers will need to perform their own hydrogeological studies specific to their designs at that time.

3.2 Mineralized Test Well – New Test Well (Comment 55)

City of Ottawa Comment 55: *In section 4.3 of the Hydrogeological Study Report, please confirm if the new test well has been abandoned because of poor water quality (mineralized well due to chloride concentration exceeding 500 mg/L). Keeping the well would require consent from the MECP to not abandon the well. Please provide the well record for the abandonment, as applicable.*

In October 2024, the Client retained Splash Well Drilling of Prescott, Ontario, to install a test well (New Test Well) to a depth of approximately 12 m. Groundwater sampling was completed on October 30, 2024, to assess the groundwater quality for selected general chemistry, inorganics, and metal parameters.

Based on the results of the groundwater sampling, chloride was measured at a concentration of 743 mg/L, which exceeds the threshold for mineralized water of 500 mg/L identified within Ontario Regulation (O.Reg.) 903: Wells (as amended).

The Client will decommission New Test Well, as this well is mineralized in accordance with Reg. 903. A well record documenting the decommissioning will be provided to the City of Ottawa, upon completion.

3.3 Turbidity and Colour (Comment 56)

City of Ottawa Comment 56: *In section 5.3 of the Hydrogeological Study Report, field testing results were provided from January 20, 2025, which showed apparent colour (TCU) and turbidity quite elevated. Turbidity is a health-related parameter, and the field result of 106 NTU far exceeds the MCCRT of 5 NTU. This section should include discussion and rationale for this exceedance, which seems to vary from the 2021 results.*

The 2021 well sampling was completed at the 4-hour and 8-hour marks of a constant-rate pumping test. Water samples were collected directly from the outlet pipe connected to the existing one-horsepower submersible pump and the associated infrastructure in the water well.

The 2025 well sampling was completed from plumbing fixtures associated with the dwelling, and testing of water samples for turbidity and colour was completed using a multi-parameter probe in the field. It is possible that the elevated turbidity and colour associated with the 2025 sampling event were introduced by plumbing elements associated with the residence.

Due to the absence of intervening plumbing elements, extended purging times, and the turbidity and colour results from the 2021 well sampling are expected to represent the water quality of the water supply more accurately from the underlying aquifer, in contrast to the results from the 2025 sampling. Further, the water supply from the onsite aquifer is to be used for non-potable purposes such as flushing the toilets and car washing.

3.4 Typographical Error (Comment 57)

City of Ottawa Comment 57: *In section 5.3 of the Hydrogeological Study Report, there is a minor clarification required in the first sentence which refers to the "chloride and chloride", whereas it seems it was referring to sodium and chloride.*

The first sentence of Section 5.3 of the Englobe Hydrogeological Study Report should read: "*In September 2024, Englobe collected a groundwater sample from the existing water supply well PW21-01 for the analysis of sodium and chloride*".

3.5 Non-Potable Water Use (Comment 58 through 63)

City of Ottawa Comment 58: *Throughout the Hydrogeological Study Report, clarification is required regarding how the water supply will be used. To be clear, the city does not support <u>any</u> sensitive uses, not less sensitive uses. The water supply shall only be considered as a non-potable supply and must be noted as such in Section 5.3, 5.4, 8.4, and 8.6. Non-potable supplies come with additional requirements which will be described in the bullets below which shall be noted and addressed throughout the report. This application is being considered on a case-by-case basis, as a zoning by-law amendment is not normally contemplated where non-potable water supplies exist.*

City of Ottawa Comment 59: *The City has consulted with the local health unit regarding industrial and commercial uses where exceedances to treatability limits exist. Employees should not drink the water and must be provided with safe drinking water, and the mitigation measures (supplying safe drinking water and clear signage) should be sufficient to notify employees of the risks.*

City of Ottawa Comment 60: *The use must not change to include exposure to a vulnerable population. No sensitive uses shall be included in the list of permitted uses.*

City of Ottawa Comment 61: *Lot creation should not be supported, as described in the City's Hydrogeological and Terrain Analysis Guidelines based on the water quality exceedances. The City will not grant approval on treatment in the case of exceedances of health or aesthetic related parameters.*

City of Ottawa Comment 62: *Future lot purchasers need to be aware of the risk and requirements and a notice on title will be registered as a condition of future site plan control approval.*

City of Ottawa Comment 63: *Reporting will need to specify Ontario Building Code requirements for non-potable water sources: 3.7.4.18 Drinking Water and 7.7.2.1 Markings Required. These requirements should be specifically outlined in the reporting.*

The water supply for any future developments at the Site shall be for non-potable use only, and for the range of permitted uses outlined within the section 3.1.1.

All future developments will require markings on all water fixtures and signage identifying the non-potable status of the water in accordance with Section 7.7.2.1 of the Ontario Building Code. Specifically, markings and signage are required as follows:

- Non-potable water piping shall be identified by markings that are permanent, distinct and easily recognized.
- Non-potable water system for re-use purposes shall be marked in accordance with Section 12 of CAN/CSA-B128.1, “Design and Installation of Non-Potable Water Systems”.
- A sign containing the words **Non-Potable Water, Do Not Drink** shall be in letters at least 25 mm high with a 5 mm stroke and posted immediately above a fixture that is permitted to receive non-potable water.

In addition, a separate supply of safe potable drinking water is required to be provided from a tap from a covered vessel on every floor where work will be performed and within 100 m of any area where work will be performed, in accordance with Section 3.7.4.18 of the Ontario Building Code.

A notice on the title related to the non-potable supply of water for the Site shall be made by the owner.

3.6 Comment 64

City of Ottawa Comment 64: *If the well is mineralized due to chloride, as it was approaching, a Consent to Not Abandon the Well would be required from the MECP.*

TBTE Response to Comment 64:

If future testing of the existing water supply well PW21-01 indicates that the well is mineralized, then this well will be either decommissioned or a Consent to Not Abandon the Well will be sought from the MECP.

4.0 Limitations

This report was prepared for the exclusive use of Dilworth Developments Inc. No third party is entitled to rely upon this report without the knowledge and consent of TBT Engineering Limited (TBTE). Any such consensual reliance upon this report would be subject to the same contractual, technological and other limitations that governed the assessment and report.

This report is based on information primarily obtained from a review of relevant historical investigations and data sources referenced herein. The conclusions presented reflect the site conditions observed at the time of the investigation and are supplemented by available background information. No assurances can be made regarding changes in site conditions occurring after the time of TBTE’s investigation.

In evaluating the project area, TBTE has relied in good faith upon information provided by others. TBTE accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omission, misinterpretation or fraudulent act of the persons interviewed.

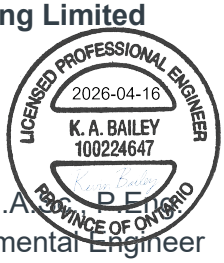
Where references have been made to regulatory statutes, codes, guidelines and the like, note that these regulations are subject to interpretation and the regulations and their interpretations can change over time.

5.0 Closure

We trust the information presented meets your current requirements. If you have any questions regarding this matter, please do not hesitate to contact us.

Yours very truly,

TBT Engineering Limited



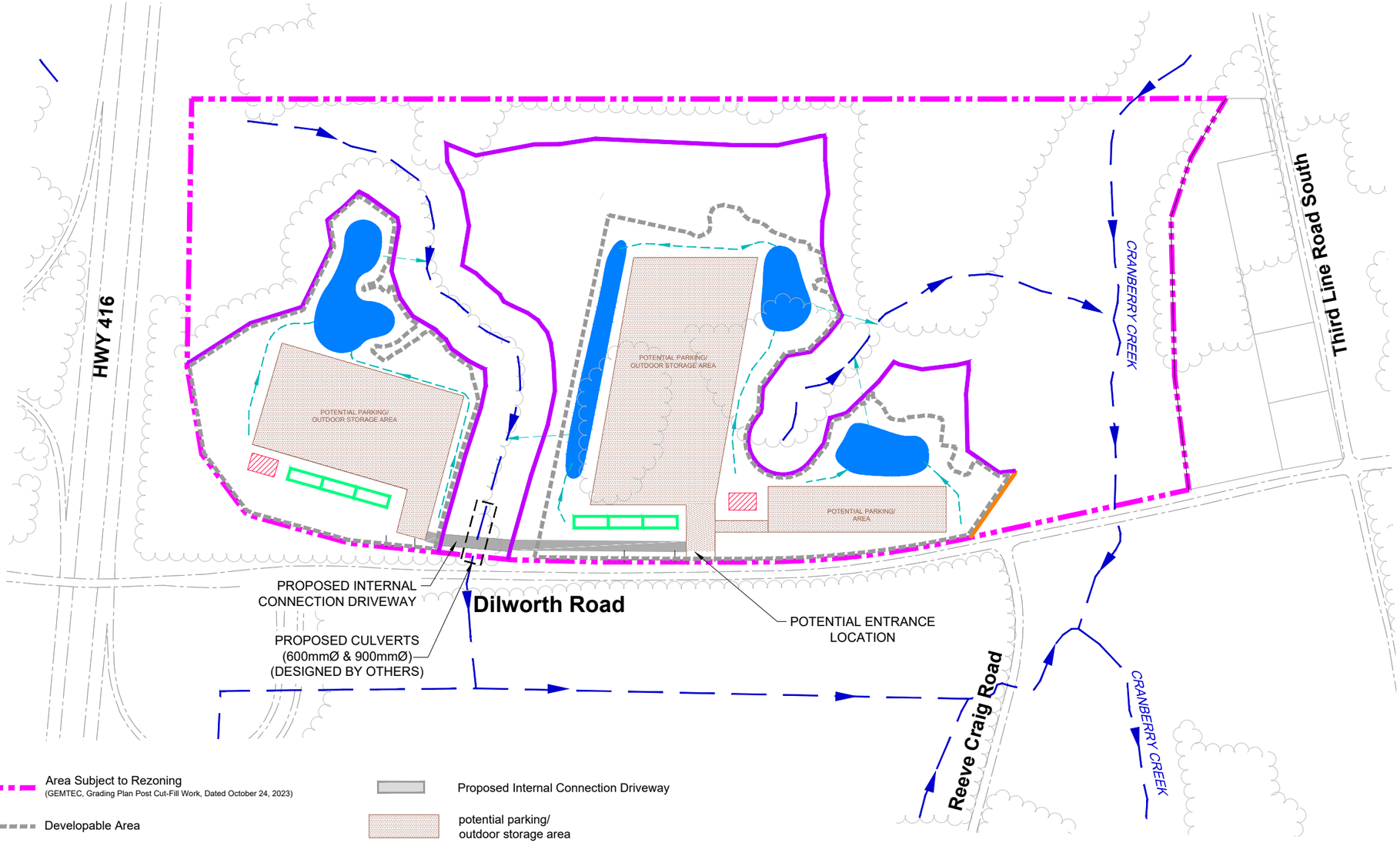
Kevin Bailey, M.A.Sc., P.Eng.
Senior Environmental Engineer

Sonny Sundaram, Ph.D., P.Geo.
Principal Hydrogeologist

Attachments:

Attachment A: Current Potential Concept Plan
Attachment B: Email (Planner) Identifying Permitted Uses

Attachment A – Current Potential Concept Plan



LEGEND

- Area Subject to Rezoning (GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- Developable Area
- 30m Setback (From Local Wetland/Watercourse) (GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- 50m Setback (From Provicially Significant Wetland) (GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- Watercourse (GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- Treeline (GEMTEC, Grading Plan Post Cut-Fill Work, Dated October 24, 2023)
- Proposed Internal Connection Driveway
- potential parking/ outdoor storage area
- potential storm pond area
- potential footprint for building occupancies
- potential septic system area
- potential swale to storm pond area

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

2095 DILWORTH ROAD

CONCEPT PLAN

SCALE 1 : 4000 (0, 40, 80, 120, 160)
DATE APR 2026
JOB 123081
FIGURE 4

SHT11X17.DWG - 279mmX432mm

C:\Temp\AcPublish_20788\123081-CP1.dwg, CP, Apr 02, 2026 - 10:10am, abibi

Attachment B – Email (Planner) Identifying Permitted Uses

From: Cara Ruddle <c.ruddle@novatech-eng.com>
Sent: April 6, 2026 1:11 PM
To: Shane Dunstan <sdunstan@tbte.ca>; Robert Tran <r.tran@novatech-eng.com>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Greg Winters <G.Winters@novatech-eng.com>; George Thomas <gthomas@tbte.ca>; Salim Eid <seid@tbte.ca>; Sonny Sundaram <ssundaram@tbte.ca>
Subject: RE: Formal Review Comments - 2095 Dilworth Road - D02-02-24-0029 (123081)

Please find attached an updated concept plan. The overall concept is the same there are some minor changes to some labels for clarity of the figure. Please advise when your addendum memos will be ready for submission to the City.

Thanks.

Cara Ruddle, P.Eng., Senior Project Manager | Land Development Engineering
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 220 | Cell: 613.261.7719

From: Cara Ruddle
Sent: Thursday, March 19, 2026 3:53 PM
To: 'Shane Dunstan' <sdunstan@tbte.ca>; Robert Tran <r.tran@novatech-eng.com>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Greg Winters <G.Winters@novatech-eng.com>; George Thomas <gthomas@tbte.ca>; Salim Eid <seid@tbte.ca>; Sonny Sundaram <ssundaram@tbte.ca>
Subject: RE: Formal Review Comments - 2095 Dilworth Road - D02-02-24-0029 (123081)

We have had further internal discussions on the City comments about the Dilworth site. We have agreed to continue to use the previous concept plan in our updated reports to be included in the response package to the City. The concept plan has been updated based on an updated developable area (due to updated floodline information). A copy of the concept plan is attached for reference. The concept plan shows a building on each developable area with 3 tenants each with a space of 300 square metres each. The following are the acceptable land uses for the Dilworth property

artist studio
automobile rental establishment
automobile service station
car wash
heavy equipment servicing
kennel
parking lot, limited to a “park and ride” lot or a parking lot accessory to a permitted use
retail food store, limited to an **outdoor farmers’ market retail store**
service and repair shop
warehouse, limited to an indoor self-storage facility
gas bar (to be added and accepted by City)