

Final Report

ENVIRONMENTAL AND ENGINEERING SUMMARY REPORT - PHASE 2

12304 Heart Lake Road, Caledon



Prepared for Broccolini
by IBI Group
April 22, 2022

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1 Introduction

1.1 Background

IBI Group Canada (IBI) has been retained by Broccolini (the “Owner”) to prepare an Environmental and Engineering Summary Report to support the Zoning Bylaw Amendment (ZBA) and Site Plan Application (SPA) processes for Phase 2 of a proposed industrial development located at 12304 Heart Lake Road. The site is located in the Town of Caledon (the “Town”) and the Region of Peel (the “Region”). The purpose of this report is to integrate and summarize the environmental site investigations with the findings of the Functional Servicing Report and the Stormwater Management Report.

2 Study Area

2.1 Site Description

Located at 12304 Heart Lake Road in the Town of Caledon and Region of Peel, the overall subject site is approximately 37 ha in size, however, it should be noted that this report will only consider Phase 2 of the development, which consists of a 6.53 ha lot at the southeast corner of the site, bounded by the Abbotside Way extension to the north, Heart Lake Road to the east, Highway 410 to the south, and Phase 1 of the same development to the west. A vicinity map and an aerial exhibit can be found as **Figure 1** and **Figure 2** respectively following the report.

2.2 Site Proposal

As previously noted, this report will only consider Phase 2 of the development, which includes a 29,830 m² building (Building 2) within a 6.53 ha lot at the southeast corner of the site. Construction will be slab on grade, with no underground levels. Sample architectural drawings can be found in **Appendix A** for reference.

It should also be noted that Abbotside Way will be extended in an easterly direction to Heart Lake Road and is to be conveyed to the Town through a Development Agreement.

2.3 Physiography and Landform

The site is located within the South Slope physiographic region, which is a drumlinized area at the south of the Oak Ridges Moraine. The site falls within the Etobicoke Creek watershed, which drains to Lake Ontario. There are no existing surface water features at the site, however there are two seasonal un-named tributaries starting immediately to the east and south of the site, which drain to the Etobicoke Creek and Heart Lake, respectively.

2.4 Topography

The Phase 2 site is currently comprised of agricultural land and slopes in a southwesterly and southeasterly direction with a drainage split running north – south through the centre of the Phase 2 site. There is a change in elevation starting at ± 274 m at the site’s high point, falling to ± 272.25 m at the west property line. There is a change in elevation starting at ± 274 m at the site’s high

point, falling to ± 269.5 m at the east property line. A copy of the topographic survey can be found in **Appendix A** for reference.

3 Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment (ESA) was carried out by EXP Services Inc. (EXP) dated April 14, 2021 to identify areas of potential environmental concern (APECs) to the Site. The following APECs were identified:

- Two exterior diesel-containing aboveground storage tanks (ASTs);
- One historic oil-fire furnace and wood burning in the basement of one of the dwellings; and,
- One diesel-containing AST in the basement of one of the dwellings.

The identified APECs were determined to have a low relative degree of environmental risk, due to the observed good condition of the structures and no visible staining in these areas.

The relative degree of environmental risk at the site was found to be low and it was concluded that a Phase II ESA was not warranted, with the following recommendations:

- If unsuitable fill is encountered during site grading, it should be removed off site and testing should be carried out to assess disposal options.
- The existing (2) wells and (3) septic systems at the site should be decommissioned prior to redevelopment, once not in use, in accordance with applicable regulations; and
- A Designated Substances Survey should be conducted prior to any demolition activities and Regulated Building Materials should be managed in accordance with applicable regulations and guidelines.

4 Geotechnical Investigation

A geotechnical investigation was carried out by EXP, dated March 22, 2022 to determine subsurface conditions at the site. Drilling and sampling were carried out between March 16 and March 25, 2021 at a total of (30) borehole locations. Of the (30) boreholes, Boreholes 21 to 23 and 28 to 30 are applicable to the southeast portion of the site where Building 2 is proposed. The soil conditions at the site can be summarized as surficial topsoil over a discontinuous fill layer underlain by native deposits of clayey silt till, sandy silt till, and silty sand. The soil conditions at the site are described as follows:

Topsoil

- Topsoil thickness ranged from 200 to 280 mm at all borehole locations, however thicknesses of up to 600 mm should be anticipated due to ploughing.

Fill

- Fill was encountered at Boreholes 21, 22 and 30, extending to a depth of 1.4 m.
- Fill was found to constitute brown clayey silt to sandy silt with trace gravel and minor stone fragments.
- Moisture content was found to range from 12 to 22 percent, with higher moisture content in the upper ranges likely due to recently melted snow.

Clayey Silt Till

- Clayey silt till was found to extend to a termination depth of 8.1 m at Boreholes 21, 22 and 30.
- Clayey silt till was fully penetrated at 4.1 to 7.1 m depths at the remaining boreholes.
- Clayey silt till was found to be typically brown in colour becoming grey as depth increased.
- Moisture content was found to range from 8 to 14 percent.

Sandy Silt Till

- Sandy silt till was found to extend to a termination depth of 8.1 m in Boreholes 22, 23 and 29.
- Sandy silt till was found to be grey in colour with the exception of Borehole 30, where the deposit was brown. Moisture content ranged from 6 to 12 percent.

Silty Sand

- Silty sand was found in Borehole 30, which was terminated in the silty sand at approximately 8.1m deep.
- Silty sand was found to be brown in colour with a degree of compactness assessed as very dense. Moisture content was approximately 13 percent.

Groundwater was observed in Borehole 22 upon completion of drilling, at a depth of 5.5 m below grade. A monitoring well was also installed in Borehole 30 which was observed as dry after 16 days. It should be noted that groundwater elevations are subject to seasonal fluctuations.

The subsurface soil conditions at the site were found to be suitable for the proposed development, with the native soil able to support the proposed structures.

5 Hydrogeological Investigation

A Hydrogeological Investigation and Water Balance Assessment was completed by EXP, dated March 12, 2021 based on information gathered during the aforementioned geotechnical investigation and Phase I ESA to establish local hydrogeology, assess dewatering flow rates, assess groundwater quality, and develop site-specific water balance for pre-and post-development conditions. The conclusions of the investigation are summarized as follows:

Hydrogeological Setting

- The site is located within the South Slope physiographic region.
- Surficial geology can be described as clay to silt till, with approximately 65 m of overburden thickness atop the Queenston Formation bedrock.
- Regional groundwater flows in an easterly/southeasterly direction toward a tributary of the Etobicoke Creek.
- Water Well Records indicate that (29) water wells exist within a 500 m radius of the site, some of which are expected to be active.
- There are no existing surface water features at the site.
- The site was found to be located outside of Well Head Protection Areas (WHPA) Zones Q1/Q2, outside of any Highly Vulnerable Aquifer (HVA) areas, outside of Significant Groundwater Recharge Areas (SGRA), and at least 10 km from any intake protection zone (IPZ).

Dewatering

- The construction dewatering rate was estimated to be 483,000 L/day for Building 2, using a safety factor of 2.0 during a 15 mm precipitation event.
- As the building will not have underground levels, it is anticipated that long-term dewatering will not be required.

Groundwater Quality

- Levels of Total Manganese and Chloroform were found to exceed the Region's discharge limits for storm sewers.
- All analyzed parameters were found to meet the Region's discharge limits for sanitary and combined sewers.

Water Balance

- Under pre-development conditions, approximately 99.1% of the overall Site is pervious and available for infiltration.
- Under post-development conditions, the total pervious area is reduced to 61.4%.
- If no remedial measures are implemented to maintain infiltration post-development, is expected that the annual infiltration volume will be reduced from approximately 54,130 m³/year to 33,535 m³/year.
- It is recommended that mitigation measures be implemented to balance the infiltration rate deficit, such as the use of Low Impact Development (LID) facilities.

6 Functional Servicing Report

A Functional Servicing Report was prepared by IBI Group, dated April 22, 2022 to provide a municipal servicing strategy for sanitary discharge and water supply. Servicing opportunities and constraints and the capacity of the existing municipal infrastructure to support the development were evaluated. Results are summarized in the following sections.

6.1 Sanitary Drainage System

Per the proposed Abbotside Way extension plan and profiles, prepared by SCS Consulting, sanitary infrastructure within the Abbotside Way extension consists of a 300 mm sanitary sewers which flows in an easterly direction across Heart Lake Road. These sewer connect to the proposed sanitary infrastructure included as part of the future Spiers Giffen extension (prepared by IBI Group, dated July 2019) and convey flows to 525 mm trunk sanitary sewers on Spiers Giffen and Dixie Road.

A 300 mm sanitary service and control manhole are proposed to be installed as part of the Abbotside Way extension. The proposed service will easily convey the post-development peak sanitary flow of 14.3 L/s while operating at 14% of full flow capacity.

6.2 Water Supply System

Per the Abbotside Way extension plan and profiles, prepared by SCS Consulting, proposed water infrastructure within Abbotside Way consists of a 300mm watermain. There is also a local 400 mm watermain within Heart Lake Road, and both a 900 mm and a 1200 mm feedermain within Heart Lake Road.

Located within the lower end of Pressure District 7, the existing 300 mm watermain is predicted to have a static pressure of 558 kPa (81 psi) and is expected to have an appropriate fire response curve to adequately service the site from both domestic and fire demand perspectives.

7 Stormwater Management Report

A 1050 mm storm service at 0.3% is proposed to be stubbed to the property line at the northwest limit of the subject site as part of the works associated with the Abbotside Way extension. This service connection will serve as the storm outlet for the Phase 2 site and is connected to a proposed 1950 mm storm sewer within the Abbotside Way extension, which will convey flows in a westerly direction to SWM Pond E4. The SWM Pond has been designed to accommodate storm flows from the subject site, provided outflow is limited to the 10-year release rate.

Storm flows from the subject site will be controlled and attenuated through rooftop storage and will be discharged to the existing 1950 mm storm sewer within Abbotside Way extension at the allowable release rate as identified in the Mayfield West Functional Servicing Report.

8 Grading

Under pre-development conditions, no external drainage enters the site and all drainage within the site is conveyed to the adjacent municipal rights-of-way. Proposed grades will match current drainage patterns wherever feasible. Emergency overland flow route in excess of a 100-year storm event will continue to be directed to the municipal right-of-way matching pre-development conditions.

9 Erosion and Sediment Control

During construction, it is recommended that a sediment control fence be installed along the perimeter of the site as required during demolition activities. All existing and proposed catch basins within close proximity of the subject site shall be protected with a geotextile fabric. A mud mat shall be installed as required to minimize distribution of mud into the public realm, as well as a temporary sediment control pond(s) per the TRCA Erosion and Sediment Control Guide for Urban Construction.

10 Conclusions and Recommendations

In summary, it can be concluded that the proposed development will not have significant impacts on the natural environment or the municipal infrastructure if the appropriate recommendations made within the various supporting studies are implemented.

Should you have any questions, please do not hesitate to contact the undersigned.

Respectfully Submitted,

IBI Group Canada Inc.



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[https://ibigroup.sharepoint.com/sites/projects1/135636/internal documents/6.0_technical/6.04_civil/03_tech-reports/phase 1/zba and spa/revision 1/env and eng summary/135636 - environmental and engineering summary \(revision 1\).docx](https://ibigroup.sharepoint.com/sites/projects1/135636/internal%20documents/6.0_technical/6.04_civil/03_tech-reports/phase%201/zba%20and%20spa/revision%201/env%20and%20eng%20summary/135636%20-%20environmental%20and%20engineering%20summary%20(revision%201).docx)

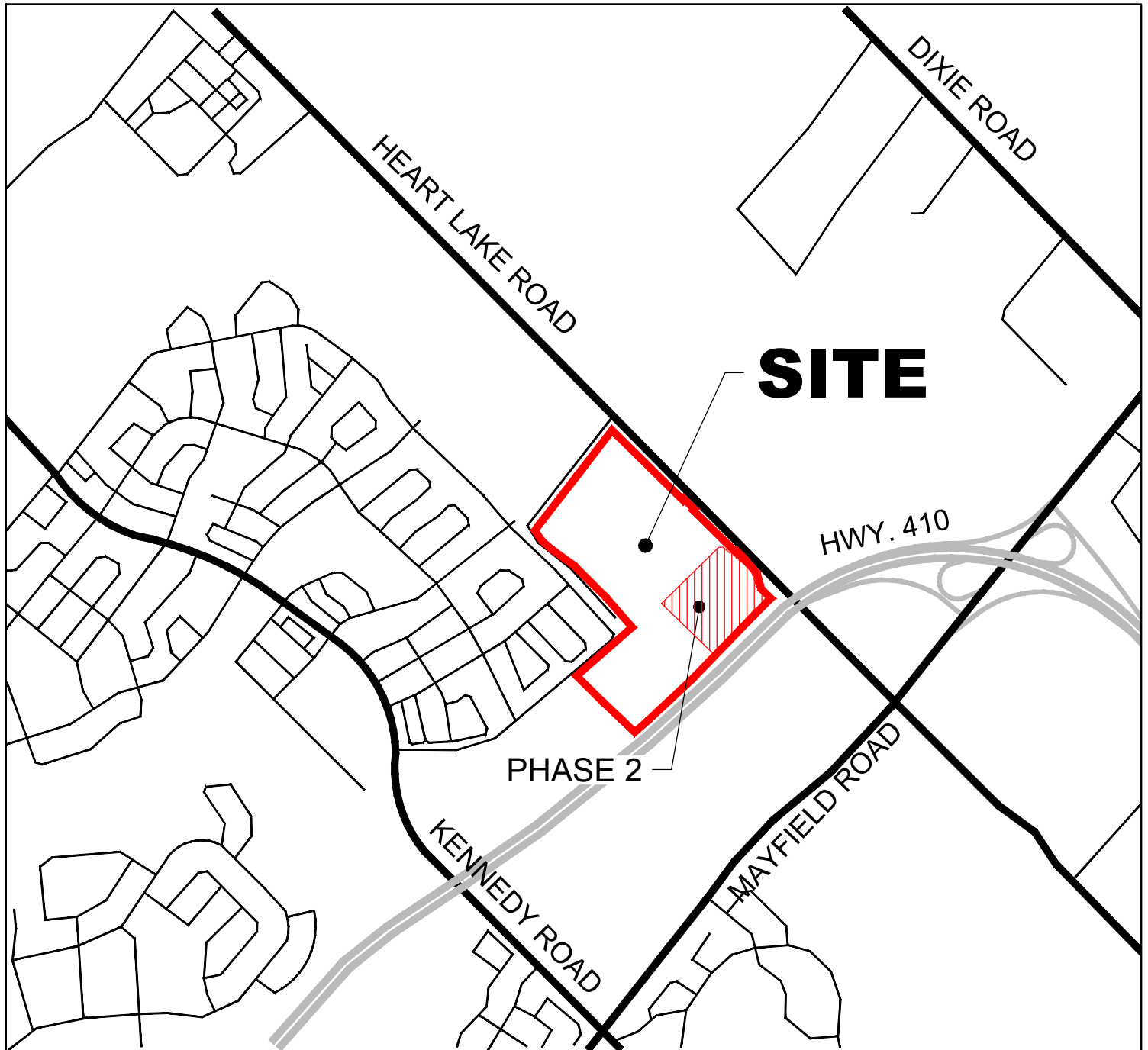
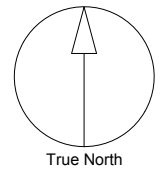
Figure 1 – Vicinity Map

Figure 2 – Aerial Plan

Appendix A – Background Information

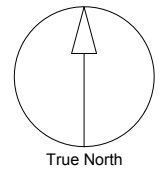
Sample Architectural Drawings (Ware Malcomb)
Topographic Survey (R-PE)

Figure 1 – Vicinity Map



PROJECT NAME INDUSTRIAL DEVELOPMENT - PHASE 2 12304 HEART LAKE ROAD CALEDON, ONTARIO		<div><div></div><div>IBI GROUP</div><div>Unit 300 – 8133 Warden Avenue Markham ON L6G 1B3 Canada tel 905 763 2322 fax 905 763 9983 ibigroup.com</div></div>		
SCALE: N.T.S.	DATE: MAR 2022	FIGURE NAME KEY PLAN	FIGURE NO. FIG-1	REVISION
PROJECT ENG: JJ	DRAWN BY: NDS			
CHECKED BY: JJ	APPROVED BY:			
PROJECT NO: 135636				

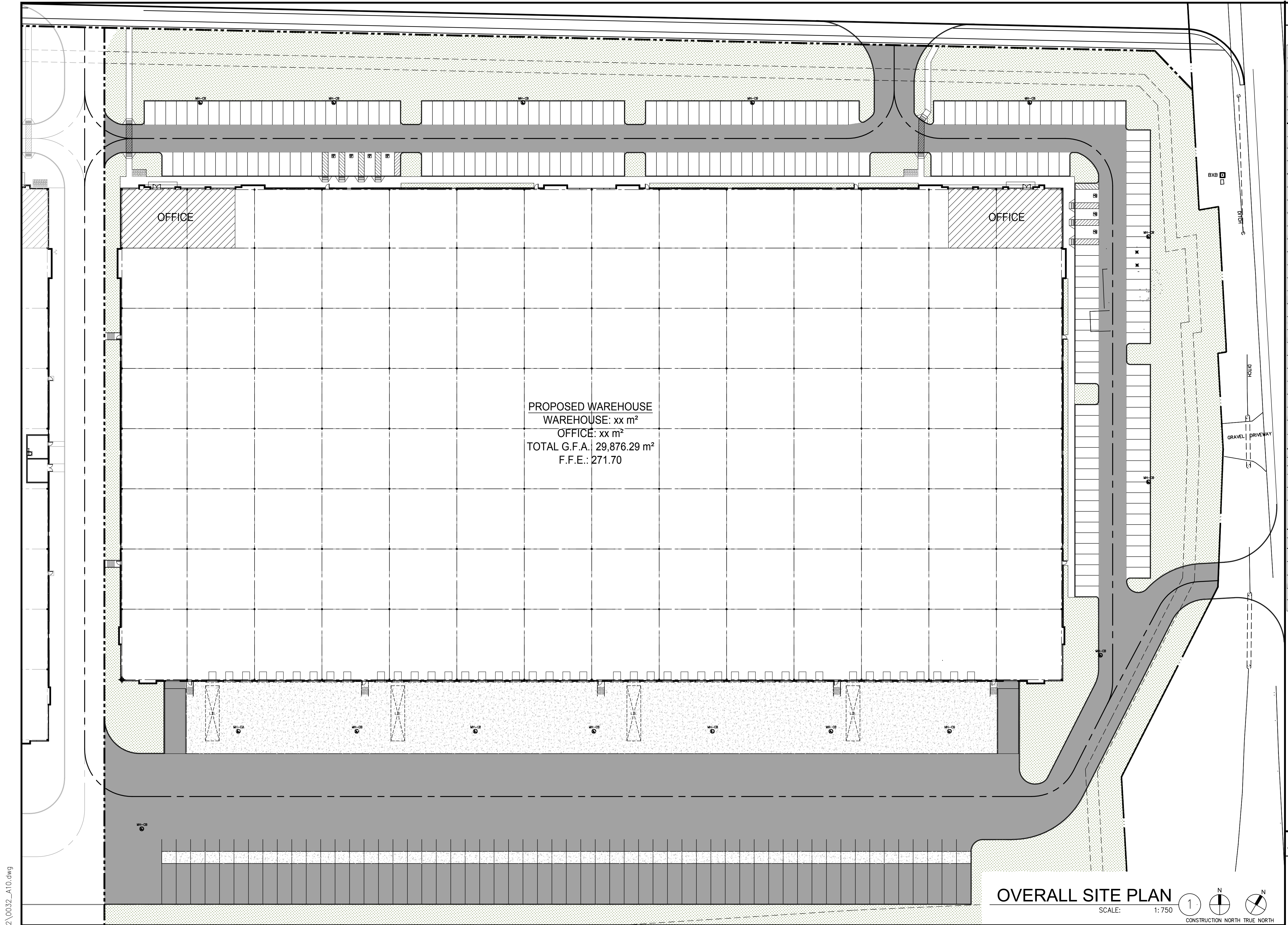
Figure 2 – Aerial Plan



PROJECT NAME INDUSTRIAL DEVELOPMENT - PHASE 2 12304 HEART LAKE ROAD CALEDON , ONTARIO		 IBI GROUP Unit 300 – 8133 Warden Avenue Markham ON L6G 1B3 Canada tel 905 763 2322 fax 905 763 9983 ibigroup.com		
SCALE: N.T.S.	DATE: MAR 2022	FIGURE NAME AERIAL PLAN	FIGURE NO. FIG-2	REVISION
PROJECT ENG: JJ	DRAWN BY: NDS			
CHECKED BY: JJ	APPROVED BY:			
PROJECT NO: 135636				

Appendix A – Background Information

Sample Architectural Drawings (Ware Malcomb)
Topographic Survey (R-PE)



SITE PLAN NOTES

1

PROPERTY LINE

2

2.75x6.00m PARKING STALL, PAINTED PARKING STRIPPING PER CITY STANDARDS.

3

PRINCIPLE ENTRY – TO HAVE AUTOMATIC DOOR OPERATOR INSTALLED AND BE KEPT CLEAR OF ANY BARRIERS OR OBSTRUCTIONS.

4

1500mm MIN. WIDE SIDEWALK TYPICAL U.N.O – TO BE POURED CONCRETE, UNIT PAVING, OR PERMEABLE PAVEMENT

5

DRIVE-IN RAMP, SEE CIVIL DRAWING FOR SLOPE %

6

ACCESSIBLE PARKING SIGNS CENTERED AT THE END OF ALL ACCESSIBLE PARKING SPACES, TO BE MIN MOUNTED 1.0M (MAX 2.0M) ABOVE PARKING LOT SURFACE, POLE MOUNTED AND DESIGNED IN ACCORDANCE WITH SECTION 11 OF REG. 581 WITHIN THE HIGHWAY TRAFFIC ACT. ALL SIGNAGE AT 'TYPE A' SPACES TO IDENTIFY SPACE AS "VAN ACCESSIBLE"

7

CONCRETE APRON – SEE CIVIL DWGS.

8

LANDSCAPE AREA – SEE LANDSCAPE DWGS.

9

PROVIDE CONCRETE FILLED PROTECTION BOLLARDS AT BOTTOM OF STEEL STAIRS AT EACH GUARDRAIL.

10

TYPICAL SHARED ACCESSIBLE PARKING STALLS, PAINTED PARKING STRIPING PER CITY STANDARDS. EACH PAIR OF SHARED STALLS TO HAVE (1) TYPE A (3.40x6.00m) & (1) TYPE B (2.75x6.00m) STALL C/W A 1.5m PAINTED AISLE – REFER TO SCHEDULE 'K' TOWN OF CALEDON STANDARDS AND DETAIL A/A1.2 C/W ACCESSIBLE PARKING SIGNAGE

11

150mm WIDE CURB TYPICAL

12

LOADING SPACE – L.S. (3.5m x 14.0m)

13

FIRE DEPARTMENT CONNECTION / SIAMESE

14

TRUCK LOADING DOCK, TYP.

15

FIRE ACCESS ROUTE W/ 12.0m TURNING RADIUS () PROVIDE FIRE ROUTE SIGNAGE AS REQUIRED BY TOWN OF CALEDON BY-LAW BL-2015-058, AS PER DETAIL B/A1.2.

16

PEDESTRIAN WALKWAY WITH PAINTED LINE PER TOWN OF CALEDON STANDARDS.

17

LINE OF CANOPY ABOVE

18

PROPOSED LOCATION OF ELECTRICAL ROOM

19

PROPOSED LOCATION OF MECHANICAL ROOM

20

HATCHED AREA DENOTES HEAVY DUTY ASPHALT. TYPICAL FOR ALL AREAS REQUIRING FIRE TRUCK OR TRACTOR TRUCK ACCESS. FIRE ACCESS ROUTE WILL BE DESIGNED TO SUPPORT A LOAD OF NOT LESS THAN 11,363 kg PER AXLE AND HAVE A CHANGE IN GRADIENT OF NOT MORE THAN 1 IN 12.5 OVER A MINIMUM DISTANCE OF 15 M.

21

FIRE HYDRANT

22

ROAD CURB AND SIDEWALK TO BE CONTINUOUS THROUGH THE DRIVEWAY. DRIVEWAY GRADE TO BE COMPATIBLE WITH EXIST. SIDEWALK AND A CURB DEPRESSION WILL BE PROVIDED AT EACH ENTRANCE. SITE ENTRANCE PER CITY STANDARD DRAWING NO. 402, OPSD 350.010. SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 80.27 OF THE IAS.

23

DETECTABLE TACTILE WARNING SURFACE. CONFORMING TO 2012 O.B.C

24

ACCESSIBLE CURB RAMP

25

PEDESTRIAN RAIL SET INTO RETAINING WALL WHERE GRADE CHANGE GREATER THAN 0.60m. PROVIDE CONCRETE-FILLED STEEL BOLLARD AT END OF RETAINING WALL – SEE CIVIL DWGS.

26

AMENITY AREA – REFER TO LANDSCAPE DWGS

27

ACCESSIBLE RAMP

28

LOCATION OF BICYCLE RACK – SEE LANDSCAPE DWGS.

29

RETAINING WALL – SEE CIVIL DWGS.

OVERALL SITE PLAN

SCALE: 1:750

1

N

CONSTRUCTION NORTH TRUE NORTH

PROJECT DATA		
TOR21-0032-00 HEART LAKE ROAD - OVERALL SITE		
SITE STATISTICS		
Zoning Category	MP/MS	
Proposed Use	Warehouse	
Building Classification	Group F2 (O.B.C. A- 3.1.2.1.(1))	
GROSS SITE AREA	65,226.64m²	702,093.03 ft²
Zone Permitted Use (CALEDON BY-LAW NO. 2006-50)		
Proposed Use	Warehouse	
Regulations (Prestige Industrial, Exceptions - 462)		
	Proposed	Required
Min. Lot Area	65,226.64m²	0.8ha
Min. Lot Frontage (m)	219.13	30.0m min
Min. Front Yard Building Setback (m)		15.0(W), 6.0(E)
Min. Interior Side Yard Building Set back (m)		N/C
Min. Exterior Side Yard Building Set back (m)		7.5
Min.Rear Yard Building Setback (m)		14.0
Min.Landscape Buffer		3.0
BUILDING HEIGHT	12.5	18m max
BUILDING FLOOR AREA		
Warehouse		
Future Accessory Office		
TOTAL BUILDING GFA	29,876.29m²	
BUILDING COVERAGE	45.80%	max 50%
PARKING REQUIREMENT		
	PROPOSED	REQUIRED
Warehouse		
1st 7000m² @ 1.0/60 m²		78
7000m² - 20,000m² @ 1.0/45 m²		90
OVER 20,000m² @ 1.0/168 m²		59
Total No. of Parking Spaces	227	227
Total No. of Accessible Parking Spaces	7	7
Parking Stall Dimensions	STANDARD - 2.75m X 6.0m ACCESSIBLE TYPE A - 3.4m X 5.2m TYPE B - 2.75m X 6.0m	
Loading Space	4	4
Loading Space Dimensions	3.5m X 14.0m	
Dock High Doors	67	N/A
Drive-In Doors	2	
Landscape area		min 10%

SITE LEGEND

NEW HEAVY DUTY PAVEMENT (HATCHED)

NEW LANDSCAPED AREA (HATCHED)

FIRE ACCESS ROUTE MIN. 12.0M TURNING RADIUS

MAN DOOR ENTRY

TRUCK LOADING DOCK DOOR

DRIVE IN DOOR

PROPOSED FIRE HYDRANT (VERIFY LOCATION W/CIVIL DWGS)

EXISTING FIRE HYDRANT (VERIFY LOCATION W/CIVIL DWGS)

FIRE ROUTE SIGNAGE 300M X 45CM – AS PER TOWN OF CALEDON BY-LAW 2015 – REFER TO DETAIL 2/A1.0

RC-93 BARRIER-FREE PARKING SIGNS FOR ALL ACCESSIBLE PARKING SPACES

SIAMESE CONNECTION (VERIFY LOCATION W/CIVIL DWGS)

DENOTES CATCHBASIN (SEE CIVIL DWGS)

DENOTES MANHOLE (SEE CIVIL DWGS)

DEPRESSED CURB(SEE DETAIL 2/A1.0)

LOADING SPACE (3.5m X 9.0m) TYP.

NO. OF PARKING SPACES

EXTERIOR WALL LIGHTS (SEE PHOTOMETRICS DWGS)

EXTERIOR LIGHTS POLES (SEE PHOTOMETRICS DWGS)

BICYCLE PARKING

WARE MALCOMB

Leading Design for Commercial Real Estate

architecture
planning
interiors
graphics
civil engineering

180 bass pro mills drive, unit 103
vaughan, ontario, L4K 5W9
p 905.760.1221
f 905.248.3344
a business name of WMA Inc.

XXXXXX

HEART LAKE ROAD

XXXXX HEART LAKE ROAD

CALEDON, ON

OVERALL SITE PLAN

REMARKS

DATE

PA / PM:

AM

DRAWN BY:

JOB NO.:

TOR21-0032-00

SHEET

A1.0

2021-11-24_ISSUED FOR SPA

