

Miele Developments Inc.

967 and 973 Big Bay Point Road Proposed Residential Subdivision Hewitt's Creek Secondary Planning Area Functional Servicing Report

Prepared by:

AECOM

55 Cedar Pointe Drive, Suite 620

Barrie, ON, Canada L4N 5R7

www.aecom.com

705 721 9222

tel

705 734 0764

fax

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("AECOM") for the benefit of the Client ("Client") in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents AECOM's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

AECOM shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. AECOM accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

AECOM agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but AECOM makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by AECOM represent AECOM's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since AECOM has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, AECOM, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by AECOM and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

AECOM accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of AECOM to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

Quality Information

Distribution List

# Hard Copies	PDF Required	Association / Company Name
6		City of Barrie
1		MHBC
1		Miele Developments Inc.
1		AECOM

Revision History

Revision #	Date	Revised By:	Revision Description

Report Prepared By:



Craig West, P. Eng.



Scott Smith, C. Tech.



Report Reviewed By:



Randy Provencal, P. Eng.

Table of Contents

	page
1. INTRODUCTION	3
1.1 Background	3
1.2 Official Plan and Background Reports.....	3
2. TRANSPORTATION	4
2.1 General.....	4
2.2 External Roads	5
2.3 Internal Roads	5
3. WATER SERVICING	5
3.1 Background	5
3.2 Expansion of Existing Water Distribution System.....	5
3.3 Internal Water System	5
4. SANITARY SERVICING	6
4.1 General.....	6
4.2 Proposed Sanitary System.....	6
5. STORMWATER DRAINAGE.....	7
5.1 General.....	7
5.2 Existing Drainage.....	7
5.3 Proposed Drainage.....	8
5.4 Hewitt's Creek.....	8
5.5 Stormwater Management Facility.....	8
5.6 Preliminary Water Balance.....	8
5.7 Phosphorus Assessment	8
6. UTILITY / COMMUNICATION DISTRIBUTION.....	9
7. CONCLUSIONS	9

List of Figures

- Figure 1. Location Plan
- Figure 2. Road Network
- Figure 3. Watermain System
- Figure 4. Sanitary Sewers
- Figure 5. Storm Drainage
- Figure 6. Grading

List of Tables

Table 1. Summary of Pre and Post Development Peak Flows

Appendices

Appendix A. Draft Plan of Subdivision – 967 Big Bay Point Road – Dwg No. 1
Hewitt's Secondary Plan – Overall Development Plan – Fig 3
LMB / Blue Sky FSR – Preliminary Storm Drainage Plan – Fig 05
LMB / Blue Sky FRS – Preliminary Storm Drainage Plan – Fig 12
Hewitt's Secondary Plan Area Subwatershed Impact Study – Fig 11
Hewitt's Secondary Plan Area Subwatershed Impact Study – Fig 12

1. INTRODUCTION

1.1 Background

AECOM Canada Ltd. has been retained by Miele Developments Inc. to prepare a Functional Servicing Report (FSR) in support of the proposed subdivision herein referred to as 967 and 973 Big Bay Point Road. The combined 2 hectare parcel of land is located within the eastern portion of the City of Barrie within Phase 1 of the Hewitt's Secondary Plan and currently has one single detached dwelling on each of the properties. The location of the subject land is shown on Figure 1.

The subject land is legally described as Lot 19, Concession 12, former Geographic Township of Innisfil, now in the City of Barrie and is located at 967 and 973 Big Bay Point Road west of 20th Sideroad and east of Prince William Way. The site is bounded by a) Big Bay Point Road to the north b) future 1597229 Ontario Inc. residential development to the east and south c) existing residential development and future 961 Big Bay Ltd. residential development to the west.

The proposed development for 967 and 973 Big Bay Point Road is for 43 single detached homes (1.46 ha) and 0.55 ha of accompanying roads and 0.03 ha of future road widening as shown in Draft Plan of Subdivision Drawing No.1 prepared by MHBC in Appendix "A".

1.2 Official Plan and Background Reports

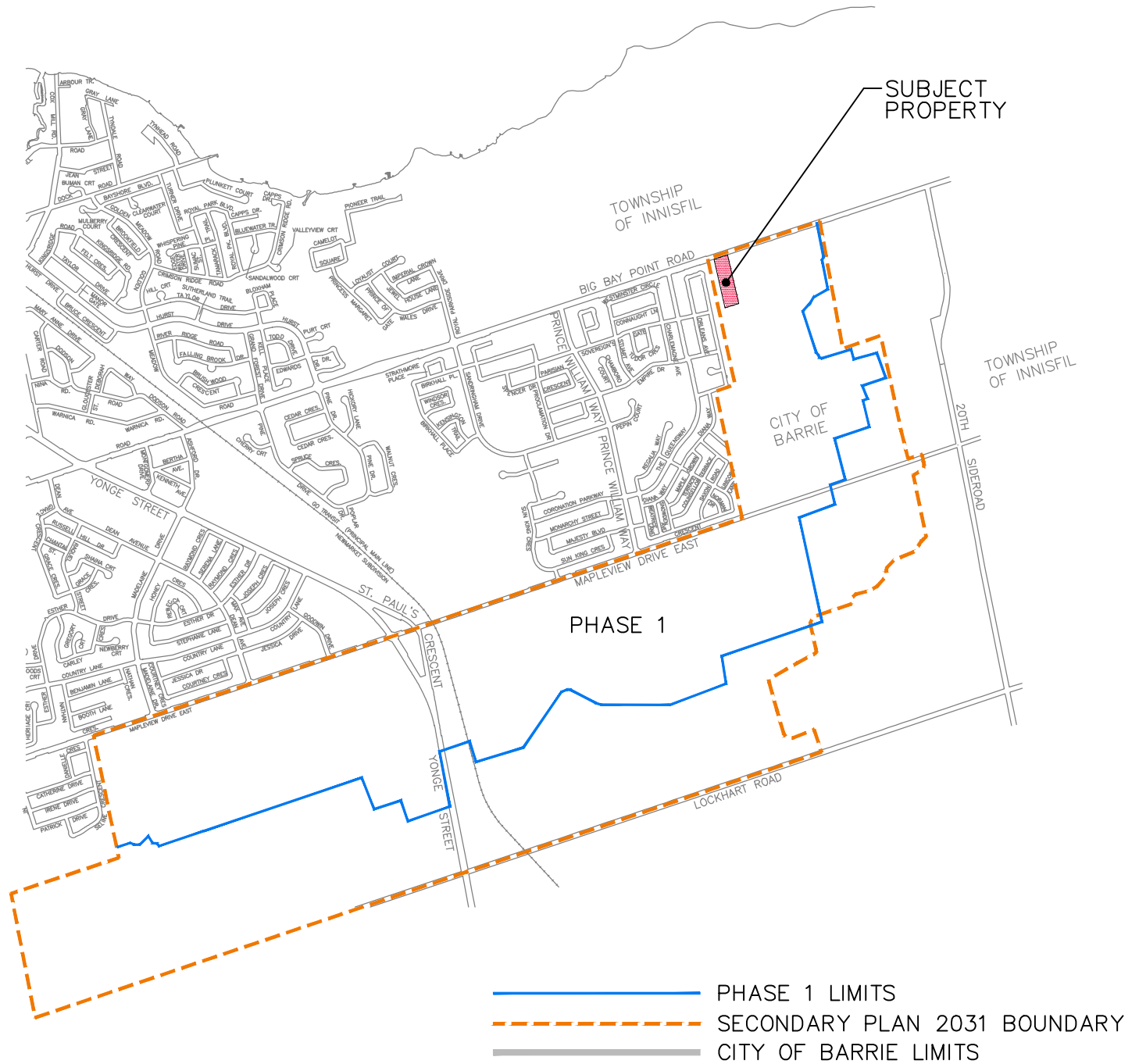
The site is located within the first development phase of the Hewitt's Secondary Plan and are designated residential. The subject lands (967 and 973 Big Bay Point Road) are located within the northeast limits of the Hewitt's Secondary Plan identified as land parcels "AA" and "BB" respectively as shown in, Hewitt's Secondary Plan Overall Development Plan Figure 3, as prepared by Jones Consulting Group LTD, in Appendix "A".

The current proposed plan of subdivision, as proposed by MHBC, is consistent with policies contained in the Provincial Policy Statement (2014) and conforms to the policies contained in Growth Plan for the Greater Golden Horeshoe (2017).

A proposed stormwater management pond is located on external lands to the east, owned by 1597229 Ontario Inc., and will accommodate the subject site as part of the proposed sub-watershed infrastructure and grading as shown in, Preliminary Storm Drainage Plan Figures 5 and 12, as prepared by R. J. Burnside and Associates Limited, in Appendix "A".

In addition, the following reports have been reviewed in association with this reporting:

- City of Barrie Secondary Plan and Background Studies & Infrastructure Master Plans prepared in co-ordination with the City of Barrie as follows:
 - o Wastewater Treatment Master Plan by Genivar Inc. – October 2013
 - o Wastewater Collection Master Plan by AMEC – October 2013
 - o Drainage and Stormwater Management Master Plan by AMEC – October 2013



PROJECT:

967 AND 973 BIG BAY POINT ROAD
BARRIE, ONTARIO

MIELE DEVELOPMENT, INC.
1677 BLYTHE ROAD
MISSISSAUGA, ONTARIO

AECOM

AECOM Canada Ltd.
55 Cedar Pointe Drive, Barrie, Ontario, Canada L4N 5R7
T705.721.9222 F705.734.0764

DRAWING:

LOCATION PLAN

No.	DATE	BY	ISSUES / REVISIONS
DRAWN BY:	EL	CHECKED BY:	SS / CW
DESIGNED BY:	SS/CW	APPROVED BY:	RP
SCALE:	N.T.S.	DATE:	JAN 2018
PROJECT No. :			60538386
DRAWING No.			FIG 1

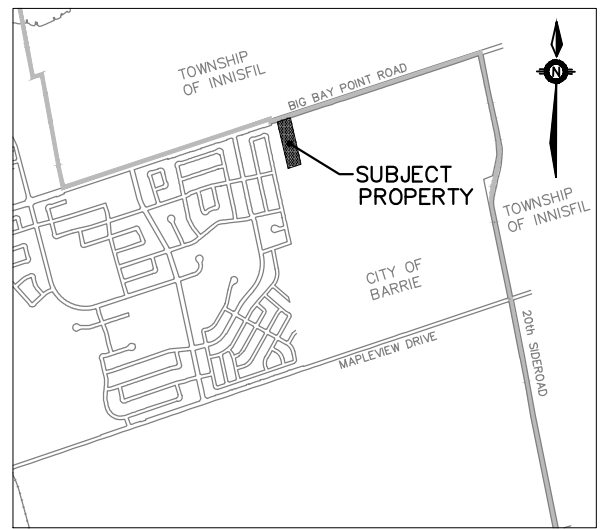
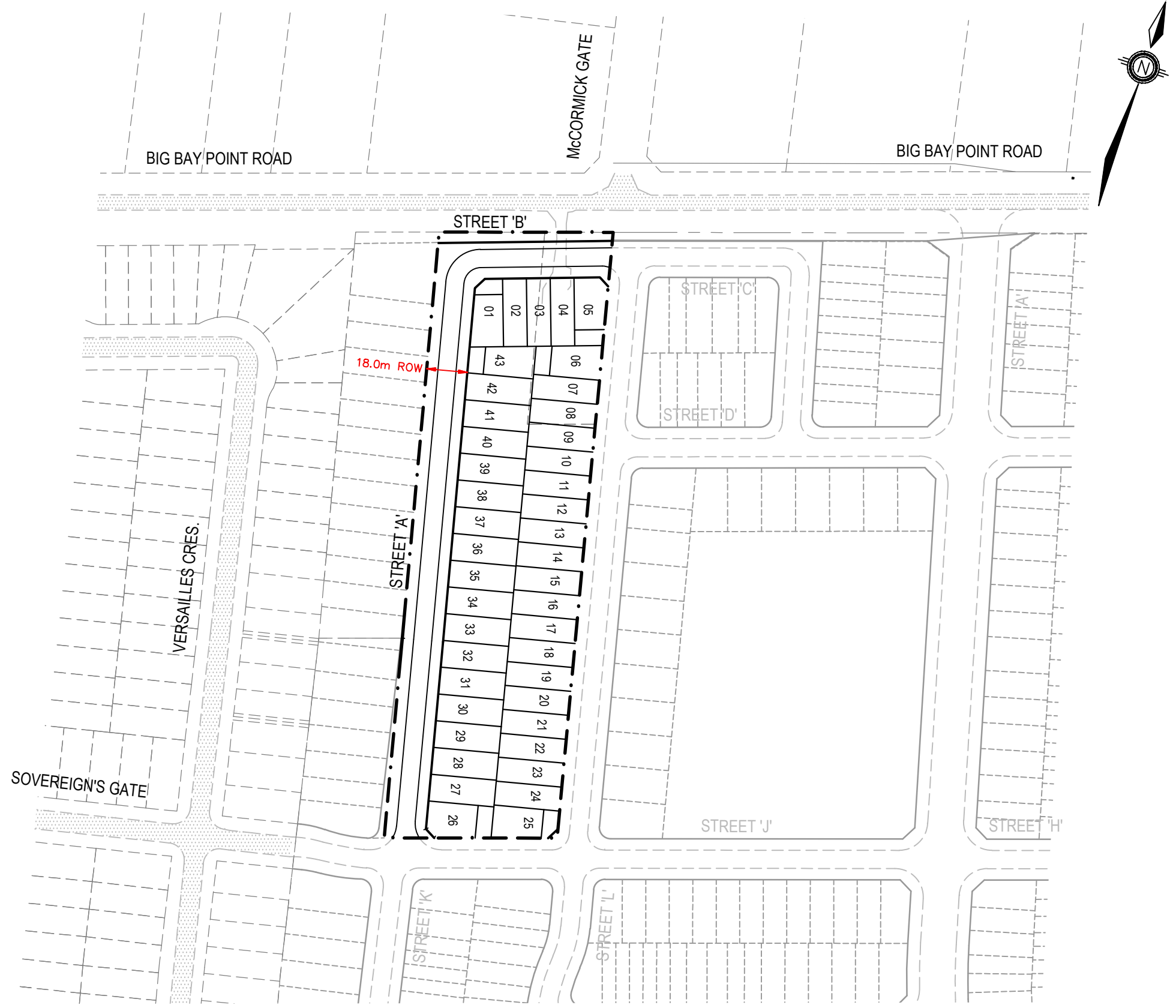
- o Water Supply Master Plan by Genivar Inc. – October 2013
 - o Water Storage and Distribution Master Plan by AMEC – October 2013
 - o Multi-Modal Active Transportation Master Plan by Genivar Inc. – January 2014
- Section 9.0 of Amendment No. 39 to the City of Barrie Official Plan for Hewitt's Secondary Plan, prepared by the City of Barrie in June 2014
 - Hewitt's Secondary Plan Area Municipal Class Environmental Assessment Study – Schedule C by Hatch Ltd. – June 2017
 - Hewitt's Secondary Plan Area Subwatershed Impact Study Lower's, Hewitt's and Sandy Cove Creeks (Hewitt's SIS) for Hewitt's annexed lands, prepared by Burnside – Addendum No. 1 - November 2017 Functional Servicing and Stormwater Management Report, LM Barrie & Blue Sky Development – R. J. Burnside and Associates Limited – June 2017
 - Functional Servicing & Stormwater Management Report – 961 Big Bay Point Road – C. F. Crozier & Associates Inc. – August 2017
 - Geotechnical Investigation, 967 Big Bay Point Road, prepared by Toronto Inspection Geo-Environmental Consultants, December 2017
 - Hydrogeological Investigation, 967 Big Bay Point Road, prepared by Watermark Environmental Ltd. December, 2017.
 - Master Transportation Study, Hewitt Landowners Group (HLG), Lea Consulting Ltd. – February 2017
 - Functional Design Review, 1597229 Ontario Inc., Lea Consulting Ltd. – February 2017
 - City of Barrie Engineering Standards, 2014
 - City of Barrie, Sanitary Sewer Collection System Policies and Design Guideline, October 2016
 - City of Barrie, Lot Grading and Drainage Standards and Design Manual (Draft), June 2016
 - City of Barrie, Storm Drainage and Stormwater Management Policies and Design Guidelines, November 2009
 - Stormwater Management Planning and Design Manual, Ministry of Environment (MOE), March 2003
 - LSRCA Technical Guidelines for Stormwater Management Submissions, June 2016.

2. TRANSPORTATION

2.1 General

The general alignment and associated level of service of the boundary road network are based primarily on infrastructure from the City of Barrie Hewitt's Secondary Plan Area Municipal Class Environmental Assessment Study, Schedule C, by Hatch Ltd., June 2017. The internal road layout of the 967 and 973 lands are shown in Figure 2 with the general external arterial roads shown on Figure 1. The proposed road network will be constructed in general accordance with typical Municipal Standards, and is generally consistent with the road pattern as set out in the Hewitt's Secondary Plan, Overall Development Plan.

A Functional Design Review (FDR) has been recently undertaken by LEA Consulting Ltd. for 1597229 Ontario Inc. for the proposed development lands immediately east and south of the subject site. The reporting included the local public street network and connection to Big Bay Point Road within the 1597229 Ontario Inc. lands. The subject site was generally included as part of the reporting with the expected minor variation of unit counts. Appropriate vehicular access to the subject land can be provided by the new public streets and intersection with Big Bay Point Road.



KEY PLAN
N.T.S.

LEGEND

- SUBJECT PROPERTY
- EXISTING ROAD
- PROPOSED 8m ROAD
- PROPOSED ROAD (BY OTHERS)

AECOM

AECOM Canada Ltd.
55 Cedar Pointe Drive, Barrie, Ontario, Canada L4N 5R7
T705.721.9222 F705.734.0764

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Do not scale this document. All measurements must be obtained from stated dimensions.

PROJECT:
967 AND 973 BIG BAY POINT ROAD
BARRIE, ONTARIO

MIELE DEVELOPMENT, INC.
1677 BLYTHE ROAD
MISSISSAUGA, ONTARIO

DRAWING:
ROAD NETWORK

DRAWN BY: EL	CHECKED BY: SS / CW	PROJECT No. : 60538386
DESIGNED BY: SS/CW	APPROVED BY: RP	DRAWING No.
SCALE: 1:2000	DATE: JAN 2018	FIG 2

LOCAL ROADS

- (18.0m WIDE RIGHT-OF-WAY, 2 TRAVELLED LANES)

2.2 External Roads

The major roadways in the vicinity of the site include Big Bay Point Road, Maplevue Drive, 20th Sideroad and Yonge Street. In direct access to the subject site will be provided by Big Bay Point Road which is designated as an Arterial Road. Big Bay Point Road, north of the site is currently a two lane cross-section with a posted speed limit of 50 km/hr.

2.3 Internal Roads

The subject site will be serviced by the development of the proposed internal road network, generally consistent with the road pattern, as set out in the Hewitt's Secondary Plan, Overall Development Plan. The proposed roads within the subject site have been identified as Street "A" and "B" which will form part of the extension/expansion of the proposed Street "C" of the proposed adjacent 1597229 Ontario Inc. site. The internal Street "A" and "B" are proposed as an urban 2-lane roadway within an 18-metre right-of-way.

3. WATER SERVICING

3.1 Background

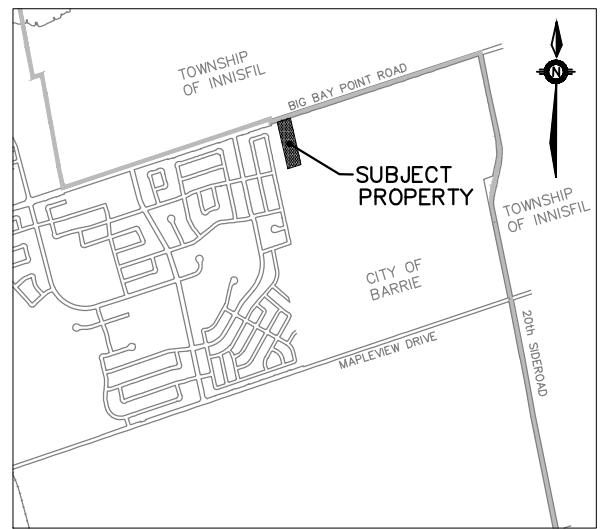
The subject property is located within the Hewitt's Secondary Plan Area. The existing water distribution network has, in general, expanded to accommodate development to date, within the original City limits, adjacent to the Hewitt's SPA. The extension of this network will accommodate the Hewitt's SPA and the subject property.

3.2 Expansion of Existing Water Distribution System

The proposed water distribution system sizing of trunk watermain to support the Hewitt's Secondary Plan Area has been established as part of the City of Barrie Master Plan. As part of the Hewitt's SPA Sub-watershed Impact Study (SIS), as prepared by R. J. Burnside, a Proposed Water Distribution Plan, Figure 12, was included. In the general vicinity of the subject site, the proposed watermain includes a 400mm diameter trunk watermain along Big Bay Point Road, a 300mm local trunk watermain extending north/south from Maplevue Drive through to Big Bay Point Road and local 300mm trunk watermain following the road network.

3.3 Internal Water System

Local watermain throughout the proposed planning area will consist of 150mm and 200mm watermain. A 150mm diameter local watermain is proposed along Street A and Street B as shown on Figure 3. The watermain will connect to the surrounding network watermain as part of the 1597229 Ontario Inc. proposed development. The proposed watermain are consistent with the overall master plan and Hewitt's SPA, SIS, Figure 12.



KEY PLAN
N.T.S.

LEGEND

- SUBJECT PROPERTY
- EXISTING WATERMAIN
- PROPOSED 150mmØ WATERMAIN
- PROPOSED WATERMAIN (BY OTHERS)
- PROPOSED TRUNK WATERMAIN (BY OTHERS)
- PROPOSED DC WATERMAIN (BY OTHERS)

LOCAL ROADS
• (18.0m WIDE RIGHT-OF-WAY, 2 TRAVELLED LANES)

AECOM

AECOM Canada Ltd.
55 Cedar Pointe Drive, Barrie, Ontario, Canada L4N 5R7
T705.721.9222 F705.734.0764

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Do not scale this document. All measurements must be obtained from stated dimensions.

PROJECT:

967 AND 973 BIG BAY POINT ROAD
BARRIE, ONTARIO

MIELE DEVELOPMENT, INC.
1677 BLYTHE ROAD
MISSISSAUGA, ONTARIO

DRAWING:

WATERMAIN SYSTEM

DRAWN BY: EL	CHECKED BY: SS / CW	PROJECT No. : 60538386
DESIGNED BY: SS/CW	APPROVED BY: RP	DRAWING No.
SCALE: 1:2000	DATE: JAN 2018	FIG 3

The specific size of the proposed watermain will be confirmed during the final detailed design to ensure the internal system design will provide adequate domestic supply and fire protection for the proposed development. The confirmation will also review any interim phasing of the proposed development in co-ordination with the adjacent developments. The water system will be designed in accordance with design standards of the City of Barrie and the Ministry of Environment and Climate Change.

Adequate supply and fire protection can be achieved by the proposed system. Existing watermain infrastructure is shown in Figure 3.

Figure 3.1 - Domestic Water Supply Design Criteria

Number of Units	43
Population Density (Low Density, City of Barrie Standards)	3.13 persons/unit
Residential Population	135
Domestic Water Design Flow (City of Barrie Design Standards - 2017)	225 L/person/day
Total Average Domestic Design Flow Rate (MOECC Standards)	0.35 L/sec
Max Day Peaking Factor (MOECC Design Guidelines – 2008)	2.75
Max Day Demand Flow	0.96 L/s
Peak Hour Factor (MOECC Design Guidelines – 2008)	4.13
Peak Hour Demand Flow	3.97 L/s
Fire Flow Demand (City of Barrie Design Standards – 2017)	76 L/s
Design Flow (Max Day + Fire Flow)	79.97L/s (80L/s)

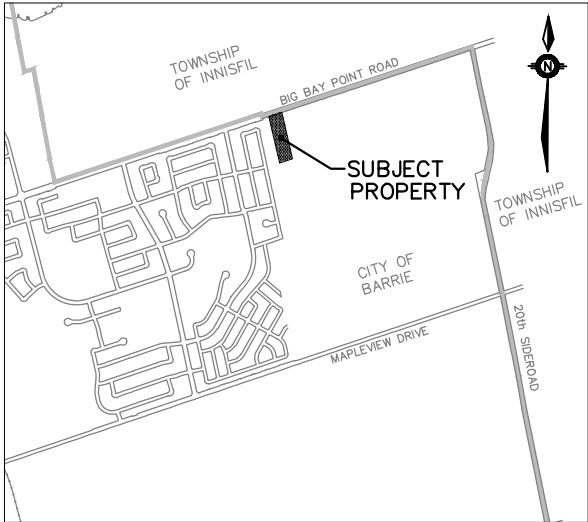
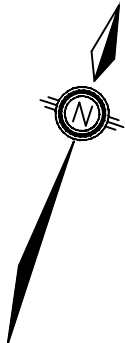
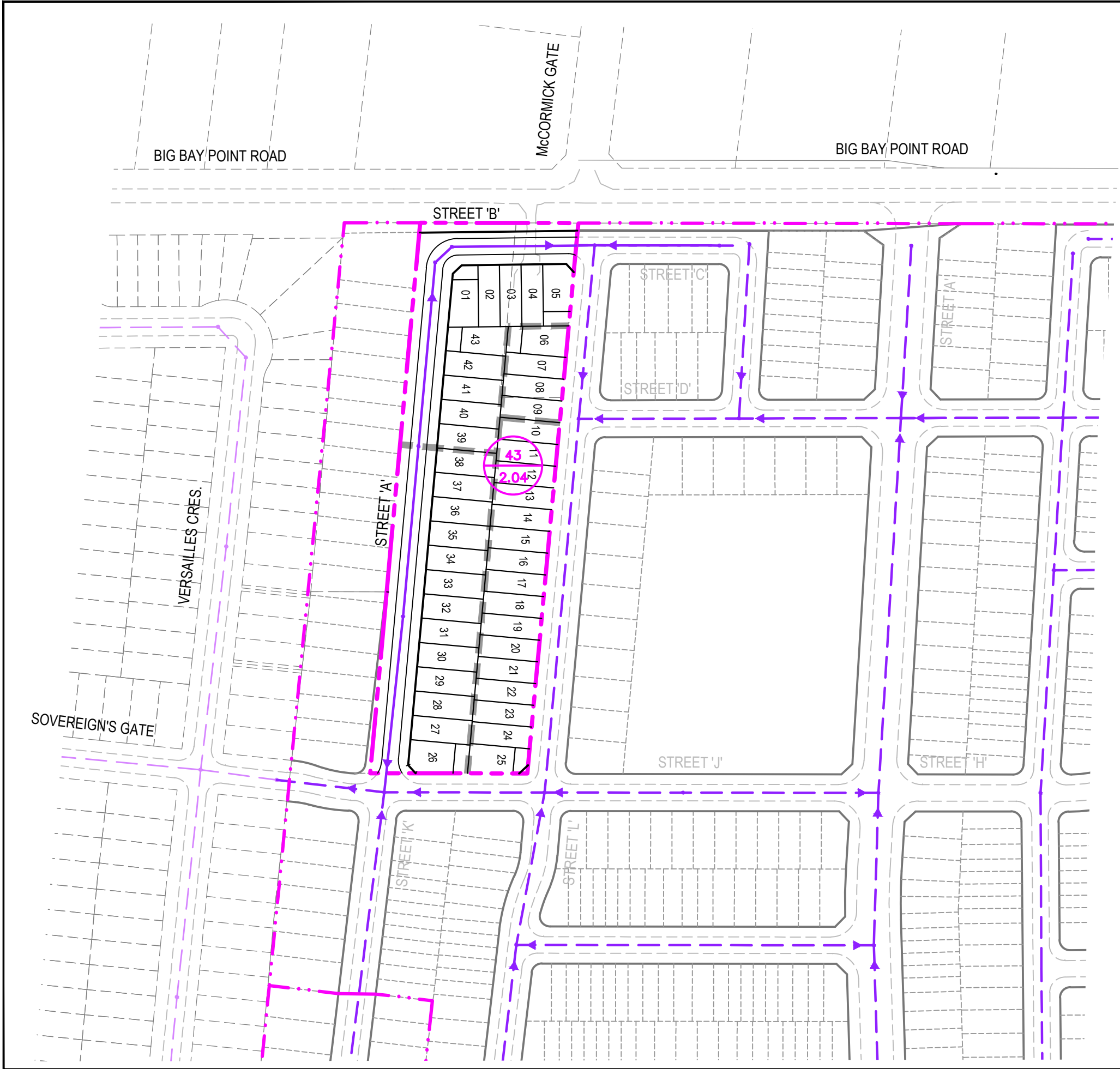
4. SANITARY SERVICING

4.1 General

The proposed subdivision is located within the Hewitt's Secondary Plan Area of the City of Barrie and contributes to the Hewitt's Creek Sanitary Drainage Area. The existing sanitary system has, in general, expanded to accommodate development to date, within the original City limits, adjacent to the Hewitt's SPA. The subject site is located within the northeast part of the Hewitt's SPA. The extension of the existing sanitary system, in this area, will accommodate this part of the SPA and the subject site. A Sub-watershed Impact Study was completed by R. J. Burnside and identified the proposed sanitary sewers within the Hewitt's SPA. The extension of the existing sanitary sewer on Sovereigns Gate will serve as the proposed outlet for the subject site.

4.2 Proposed Sanitary System

The proposed sanitary sewage from the subject site, as shown in Figure 4, is proposed to drain by gravity along Street "A" and Street "B". In general, the sanitary flow from the subject site will outlet to the local connecting street



KEY PLAN
N.T.S.

- LEGEND**
- SUBJECT PROPERTY/
SANITARY DRAINAGE BOUNDARY
 - EXISTING SANITARY SEWER
 - PROPOSED SANITARY SEWER
 - PROPOSED SANITARY SEWER
(BY OTHERS)
 - AREA SANITARY
DRAINAGE BOUNDARY
 - PROPOSED SANITARY SEWER
FLOW DIRECTION
 - No. OF UNITS
 - AREA IN HECTARES
(INCLUDES INDUSTRIAL
AND COMMERCIAL)

AECOM

AECOM Canada Ltd.
55 Cedar Pointe Drive, Barrie, Ontario, Canada L4N 5R7
T705.721.9222 F705.734.0764

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Do not scale this document. All measurements must be obtained from stated dimensions.

PROJECT:
967 AND 973 BIG BAY POINT ROAD
BARRIE, ONTARIO

MIELE DEVELOPMENT, INC.
1677 BLYTHE ROAD
MISSISSAUGA, ONTARIO

DRAWING:
SANITARY DRAINAGE

DRAWN BY: EL	CHECKED BY: SS / CW	PROJECT No. : 60538386
DESIGNED BY: SS/CW	APPROVED BY: RP	DRAWING No.
SCALE: 1:2000	DATE: JAN 2018	FIG 4

sewers and be conveyed through to the existing sanitary sewer at the east limits of the extension of Sovereigns Gate. The invert of existing 250 mm diameter sewer is at an elevation of approximately 255.53 with a capacity of 37.6 l/s, as identified in the Sub-watershed Impact Study. The existing sewer elevation accommodates gravity drainage from the site. The SIS estimated a peak flow to this connection point of 15.5 l/s which includes the subject site. The proposed peak sanitary flow generated by the 43 lots is estimated to be 3.50 l/s based on City of Barrie Standards using a Babbitt Peaking factor.

- Average Flow Rate – 225 l/cap/day
- Infiltration Rate – 0.1 l/s/ha
- Babbitt Peaking Factor – 9.4
- Population Density – 3.13 Persons/Unit

As part of the proposed expanded City lands a Wastewater Treatment Master Plan was prepared by Genivar Inc. which identified upgrades to existing Wastewater Treatment Plant and water efficiency improvements to accommodate the development of the annexation lands and daily capacity requirements including the subject site. The upgrades would be proposed in co-ordination with the staged expansion of the Hewitt's Secondary Plan Area.

5. STORMWATER DRAINAGE

5.1 General

Storm drainage for the development of the subject site is to be carried out in accordance with the City of Barrie Drainage and Storm Sewage Policies and Criteria, the Lake Simcoe Region Conservation Authority (LSRCA) Technical Guidelines for Stormwater Management Submissions (April 26, 2013), the Lake Simcoe Protection Plan, and the Ministry of Environment and Climate Change (MOECC) Stormwater Management Practices Planning and Design Manual (March 2003). In addition, storm drainage for the Phase IV development is to be carried out in accordance with the "Subwatershed Impact Study" (SIS) prepared by R.J. Burnside in September 2016 with Addendum in November 2017. The study outlines that area 16a will either require standalone LID's or overcompensation within the SWMF #16. (Refer to Fig 5 & 12 of Appendix A). Table 21 of the reporting outlines stormwater control by way of overcompensation in SWMF #16, which is consistent with the proposed development and grading. Alterations to the site plan and grading in the rectangular portion of Area 16a, along Big Bay Point Road, allow this area to drain to SWMF #16, and not directly to the storm sewer system on Versailles Crescent as previously reported in the SIS. Details of the right of way grading and lot grading will be established/refined at the detailed design stage. Figure 5 and 6 of this FSR show the proposed stormwater drainage and general grading for the subject site.

5.2 Existing Drainage

Existing drainage for the subject site generally flows in a Westerly direction towards the existing Hamptons on Big Bay Point Development storm sewer system located on Versailles Crescent.

The existing discharge point is a DCB on Versailles Crescent via. a 750mm dia. Pipe at 0.95% and invert of 258.62m (Between lots 381 and 382).

5.3 Proposed Drainage

The proposed drainage from SWMF #16 discharges at Versailles Crescent in the existing storm sewer system which extends westerly on Sovereigns Gate.

Since area 16 is identified as a Significant Groundwater Recharge Area (SGRA) and most suitable for LIDs, the SIS recommended LIDs be considered to reduce post-development peak flows to pre-development levels as well as provide quality control for area 16a. As noted in Section 5.1 the rectangular portion of Area 16a along Big Bay Point Road now drains to SWMF #16, due to road grade revisions. Drainage will flow overland from the approximate mid -point of Street 'A' to Street 'B', and finally to SWMF #16. Refer to Figures 5 and Figure 6.

5.4 Hewitt's Creek

The development lands are located within the Hewitt's Creek Watershed. Cumming Cockburn completed a Master Watershed Plan for the Lovers Creek and Hewitt's Creek in December 1995 for the Lake Simcoe Region Conservation Authority. The report reiterates the findings of the Hewitt's Creek Master Drainage Plan by Andrew Brodie and Associates (1985) in that all new developments within the Hewitt's Creek Watershed control post development runoff rates to pre-development levels for the 1 to 100-year design storm. The proposed Stormwater Management Facility will meet these criteria as outlined below.

5.5 Stormwater Management Facility

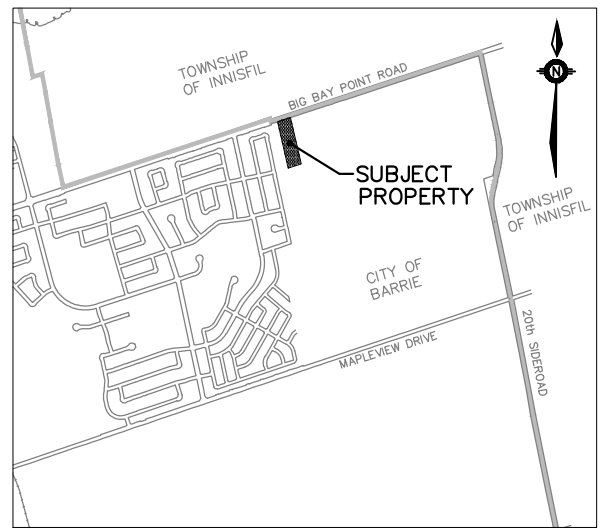
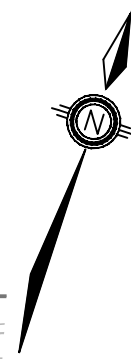
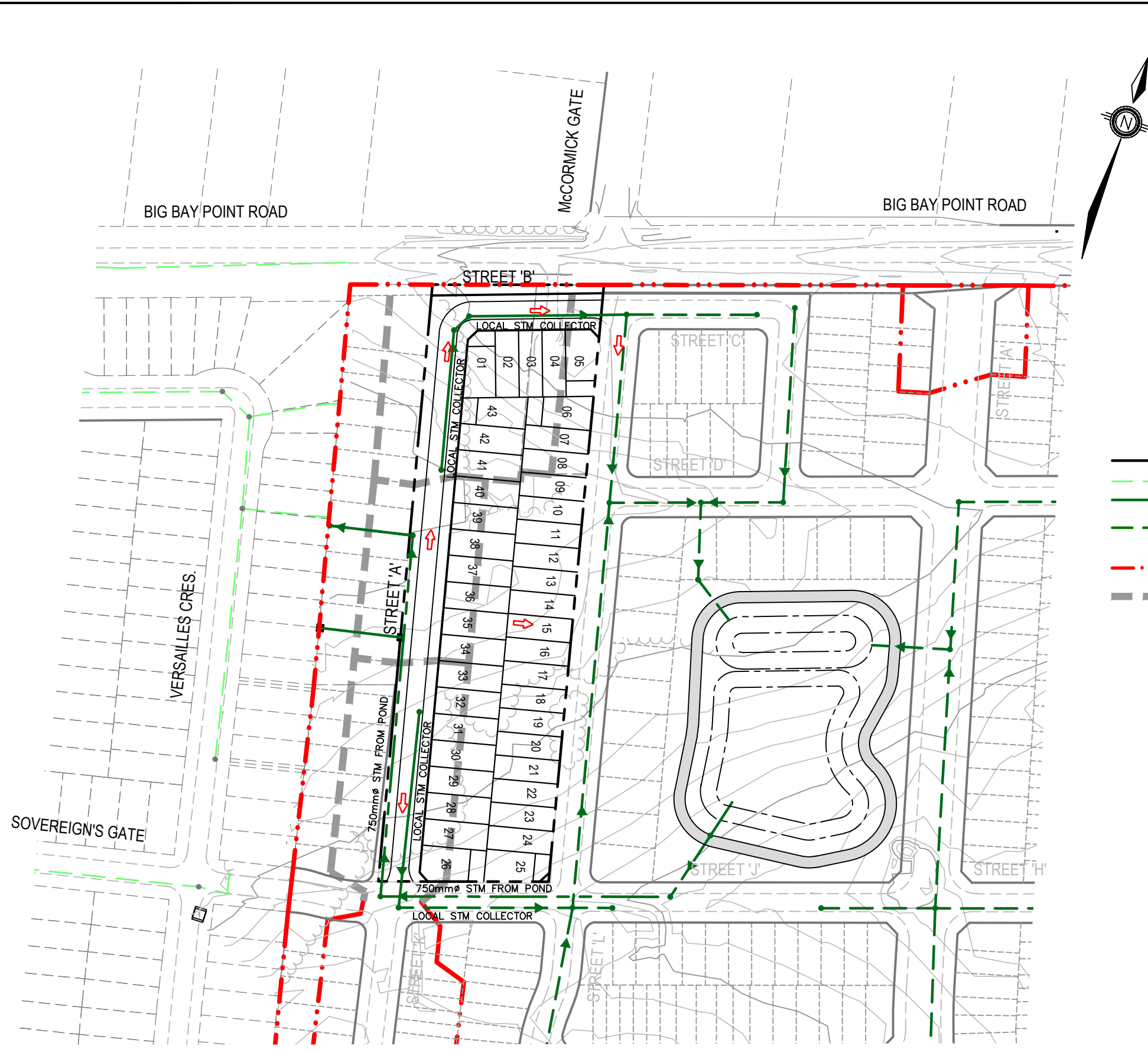
The proposed Stormwater Management Facility will control post-development peak flows to pre-development levels for storm events up to and including the 100-year storm event. SWMF #16 is designed with an infiltration basin and wet sediment fore bay per the "Functional Servicing and Stormwater Management Report LM Barrie & Blue Sky Development City of Barrie" report prepared by R.J. Burnside in January 2017 (Revised June 30, 2017). As there is no major storm overflow from the SWMF, the outlet pipe to Versailles Crescent was noted to be size to accommodate 100% of the 100 year design storm.

5.6 Preliminary Water Balance

Section 3.3 of the "Functional Servicing and Stormwater Management Report LM Barrie & Blue Sky Development City of Barrie" report prepared by R.J. Burnside in January 2017 (Revised June 30, 2017) confirms that the water balance for the site including the use of SWMF's and LID's achieves 'best efforts' for water balance for the site. The continuous simulation showed a net reduction in infiltration between existing and proposed of 15% for Hewitt's Creek and 18% for Sandy Cove Creek.

5.7 Phosphorus Assessment

The "Functional Servicing and Stormwater Management Report LM Barrie & Blue Sky Development City of Barrie" report prepared by R.J. Burnside in January 2017 (Revised June 30, 2017) established recommendations for phosphorus removal targeted at 80% total with a best effort target of 100% removal. These recommendations are



KEY PLAN
N.T.S.

LEGEND

- SUBJECT PROPERTY
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- FUTURE STORM SEWER (BY OTHERS)
- AREA STORM DRAINAGE BOUNDARY
- SUBJECT SITE STORM DRAINAGE BOUNDARY
- MAJOR SYSTEM FLOW DIRECTION

AECOM

AECOM Canada Ltd.
55 Cedar Pointe Drive, Barrie, Ontario, Canada L4N 5R7
T705.721.9222 F705.734.0764

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Do not scale this document. All measurements must be obtained from stated dimensions.

PROJECT:

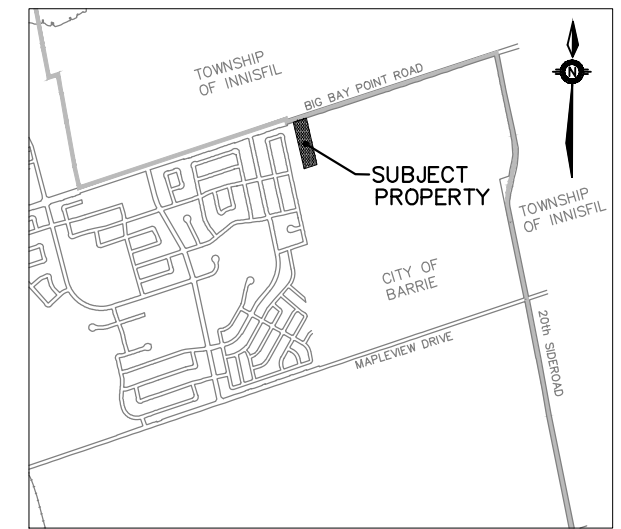
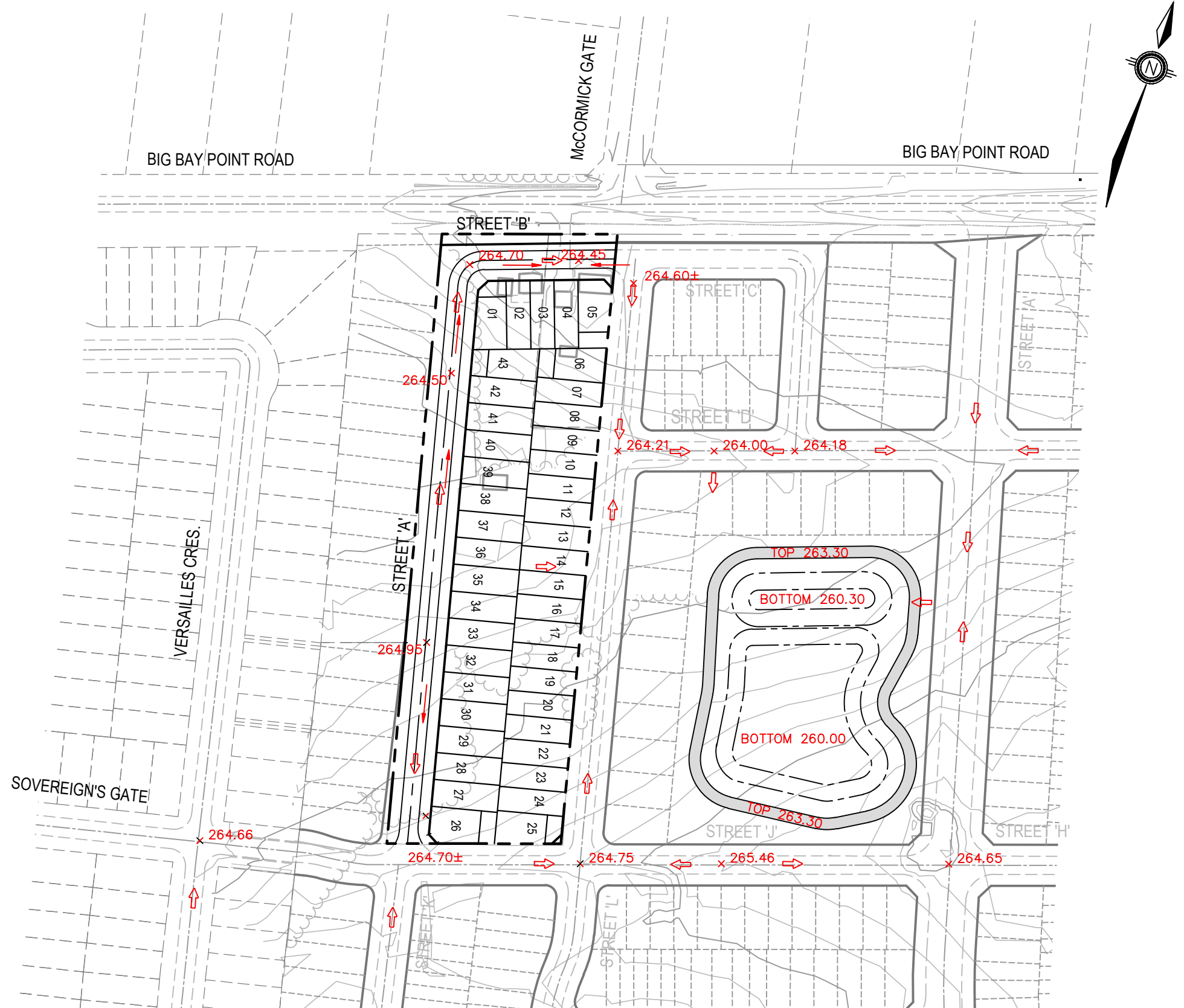
967 AND 973 BIG BAY POINT ROAD
BARRIE, ONTARIO

MIELE DEVELOPMENT, INC.
1677 BLYTHE ROAD
MISSISSAUGA, ONTARIO

DRAWING:

STORM DRAINAGE

DRAWN BY: EL	CHECKED BY: SS / CW	PROJECT No. : 60538386
DESIGNED BY: SS/CW	APPROVED BY: RP	DRAWING No.
SCALE: 1:2000	DATE: JAN 2018	FIG 5



KEY PLAN
N.T.S.

- LEGEND
- SUBJECT PROPERTY
 - MAJOR SYSTEM FLOW DIRECTION
 - MINOR SYSTEM FLOW DIRECTION
 - x 264.65 PROPOSED GRADE

AECOM

AECOM Canada Ltd.
55 Cedar Pointe Drive, Barrie, Ontario, Canada L4N 5R7
T705.721.9222 F705.734.0764

This drawing has been prepared for the use of AECOM's client and may not be used, reproduced or relied upon by third parties, except as agreed by AECOM and its client, as required by law or for use by governmental reviewing agencies. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that modifies this drawing without AECOM's express written consent.

Do not scale this document. All measurements must be obtained from stated dimensions.

PROJECT:

967 AND 973 BIG BAY POINT ROAD
BARRIE, ONTARIO

MIELE DEVELOPMENT, INC.
1677 BLYTHE ROAD
MISSISSAUGA, ONTARIO

DRAWING:

GRADING

DRAWN BY: EL	CHECKED BY: SS / CW	PROJECT No. : 60538386
DESIGNED BY: SS/CW	APPROVED BY: RP	DRAWING No.
SCALE: 1:2000	DATE: JAN 2018	FIG 6

in accordance with LSRCA 2016 SWM Guidelines. The FSR report confirms that the overall site meets or exceeds the phosphorus removal targets established by the LSRCA. SWMF #16, being an infiltration type SWMF, has been attributed 100% total phosphorus removal credit. This SWMF receives flow from the subject site.

6. UTILITY / COMMUNICATION DISTRIBUTION

The extension/expansion of the existing utility distribution and telecommunication systems to support the development of the Hewitt's Secondary Plan Area will be addressed in co-ordinated stages involving the individual developers, providers and the City. Consultations between the HSPA Landowners Group and utility providers, Innpower (Hydro) and Enbridge have established confirmation of available supply. The subject property will be serviced by an internal underground hydro joint use utility trench distribution system.

7. CONCLUSIONS

The proposed Residential Development, located within the Phase 1 of the Hewitt's Secondary Plan Area, can be serviced in a feasible manner using appropriate design principles in Accordance with the City of Barrie, LSRCA, MOECC and Innpower Standards.

Site access will be accommodated by the internal local streets of the adjacent developments to the east and south and west with an indirect connection to Big Bay Point Road to the east of the site. The area will also be accommodated by Mapleview Drive and 20th Sideroad.

Water servicing will be provided by the extension east of the existing trunk watermain on Big Bay Point Road. The proposed water distribution system within the subject site and adjacent development road patterns will provide for adequate fire flow and domestic design flow requirements.

Sanitary servicing will be accommodated by the existing established sanitary sewer system located immediately to the southwest of the subject site. The site local sewer will connect to the proposed adjacent sanitary system and conveyed to the existing Sovereigns Gate sanitary.

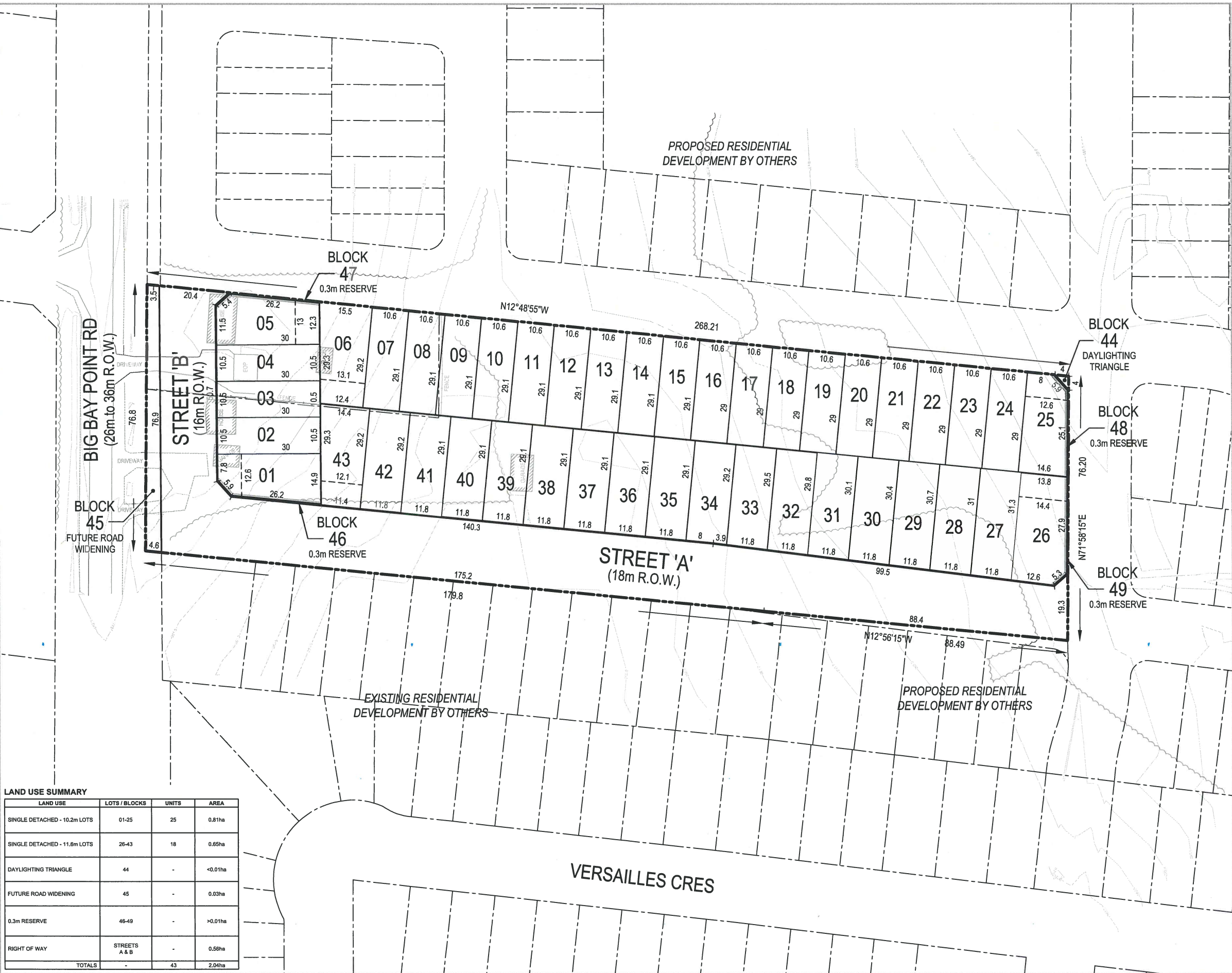
A proposed stormwater management facility (SWMF #16) located on adjacent development within the 1597229 Ontario Inc. land will accommodate the subject site requirements in accordance with the City of Barrie Drainage and Storm Sewage Policies and Criteria and the Lake Simcoe Region Conservation Authority (LSRCA). Post development run-off rates will be controlled to pre-development levels for the 1 to 100 year design flows. Storm flows from the site will be conveyed through the proposed SWM Facility and outlet to the existing storm system to the west of the property on Versailles Crescent. Phosphorous reduction/removal requirements of the site will be accommodated as part of the contributing area to the SWMF #16 which is designed as an infiltration type facility.

Utility and telecommunication requirements will be provided by the co-ordinated extension/expansion of the various utility/providers with the development area with specific requirements of the proposed subject site addressed within the local right of ways with joint use trenching.

This FSR report illustrates that the subject site can be adequately serviced from the perspective of stormwater, water supply, sanitary drainage, transportation and electrical supply. Existing/proposed systems will be extended to efficiently service the subject land. The Miele Developments Inc. land can be serviced in a feasible manner using appropriate design principles in accordance with the City of Barrie, LSRCA, MOECC and Innpower Standards.

Appendix **A**

- Draft Plan of Subdivision – 967 Big Bay Point Road – Dwg No. 1
- Hewitt's Secondary Plan – Overall Development Plan – Fig 3
- LMB / Blue Sky FSR – Preliminary Storm Drainage Plan – Fig 05
- LMB / Blue Sky FRS – Preliminary Storm Drainage Plan – Fig 12
- Hewitt's Secondary Plan Area Subwatershed Impact Study – Fig 11
- Hewitt's Secondary Plan Area Subwatershed Impact Study – Fig 12



LAND USE SUMMARY			
LAND USE	LOTS / BLOCKS	UNITS	AREA
SINGLE DETACHED - 10.2m LOTS	01-25	25	0.81ha
SINGLE DETACHED - 11.8m LOTS	26-43	18	0.65ha
DAYLIGHTING TRIANGLE	44	-	<0.01ha
FUTURE ROAD WIDENING	45	-	0.03ha
0.3m RESERVE	46-49	-	>0.01ha
RIGHT OF WAY	STREETS A & B	-	0.56ha
TOTALS	-	43	2.04ha

LEGAL DESCRIPTION

PART OF NORTH HALF OF LOT 19
CONCESSION 12
GEOGRAPHIC TOWNSHIP OF INNISFIL
CITY OF BARRIE
COUNTY OF SIMCOE

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE MACNAUGHTON HERMSEN BRITTON CLARKSON PLANNING LIMITED TO SUBMIT THIS PLAN FOR APPROVAL.

DATE: _____

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE: _____

KEY PLAN

LEGEND

- PROJECT BOUNDARY
- PROPOSED RIGHT OF WAY
- PROPOSED BLOCK LINE
- PROPOSED LOT LINE
- EXISTING/PROPOSED PARCEL FABRIC

REVISION No. DATE ISSUED / REVISION BY

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT R.S.O. 1990 C.P.13 AS AMENDED

A. AS SHOWN	E. AS SHOWN	J. AS SHOWN
B. AS SHOWN	F. AS SHOWN	K. ALL SERVICES AS REQUIRED
C. AS SHOWN	G. AS SHOWN	(WATER, SANITARY, STORMWATER, HYDRO)
D. 43 SINGLE RESIDENTIAL LOTS (SEE LAND USE SUMMARY)	H. MUNICIPAL WATER SUPPLY	L. AS SHOWN
	I. CLAY LOAM	

PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE
MHBC PLANNING

113 COLLIER STREET
BARRIE, ON L4M 1H2
P: 705.728.0045 F: 705.728.2010
WWW.MHBCPLAN.COM

STAMP

DATE Dec. 12, 2017

FILE No. 0853J

SCALE 1:500 (ARCH D)

DRAWN BY M.M.

CHECKED BY D.A.

OTHER

PROJECT

967 BIG BAY POINT ROAD

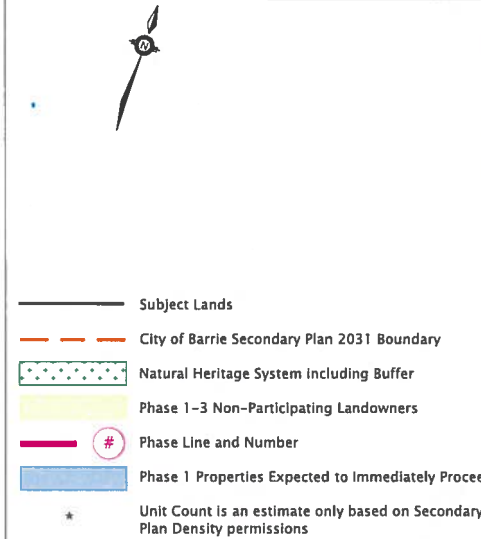
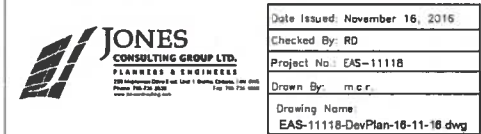
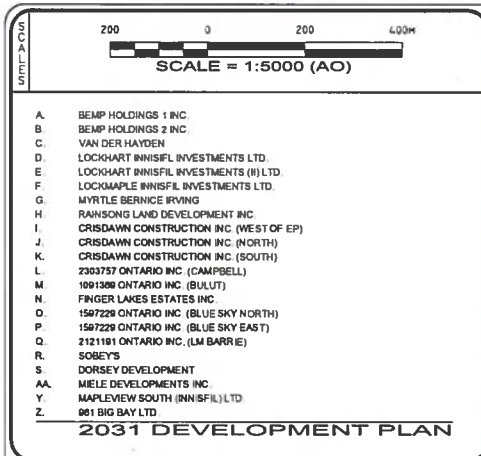
FILE NAME DRAFT PLAN OF SUBDIVISION

DWG No. 1 of 1

SCALE BAR 0 5 10 15 20 25 50 75 100m

MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

N:\Barrie\Wide - 967 (previously 1781) Big Bay Point Road - 0853J\Drawings\Draft Plan\CAD\0853J_DraftPlan_2017-12-12.dwg



Phase 1-3 Participating Landowner Unit Counts/Estimates																	
Map ID	Ownership Map #	Land Owner	Total Area (ha.)	Developable Area within Phase 1 COB Sec Plan	Total Area within 2031 Boundary (ha.)	Total Developable (ha.)	Developable Area within 2031 Boundary (2031) ha.	Phase 1	Phase 2	Phase 3	Phase 4	Total	Estimated Occupancy 2019	Estimated Occupancy 2020	Estimated Occupancy 2021	Estimated Occupancy 2022	Estimated Occupancy 2023
A	51	BEMP Holdings 1 Inc.	36.59	0.00	36.59	23.40	23.40	0	375	0	0	375					
B	53	BEMP Holdings 2 Inc.	19.44	19.44	19.44	19.44	19.44	535	0	0	0	535					
C	52	Van der Heyden	3.17	0.00	3.17	3.17	3.17	0	52.5	0	0	52.5					
D	56 & 58	Lockhart Innisfil Investments Ltd.	19.73	0.00	19.73	15.44	15.44	0	187	0	0	187					
E	56	Lockhart Innisfil Investments Ltd. II	32.19	0.00	32.19	19.65	19.65	0	402.5	0	0	402.5					
F	54, 57 & 60	Lockmeale Innisfil Investments Ltd.	65.56	58.57	65.56	58.57	58.57	1163.5	0	0	0	1163.5					
G*	58	Myrtle Bernice Irving	27.93	0.00	27.93	27.93	27.93	0	698.25	0	0	698.25					
H(a)	61	Ramsong Land Development Inc.	15.49	15.49	50.19	50.19	50.19	399	0	0	0	399					
H(b)	61	Ramsong Land Development Inc.	34.70	10.68	34.70	34.70	34.70	0	362.5	0	0	362.5					
I	63	Crisdawn Construction Inc.		18.43				669	0	0	0	669					
J	67 & 68	Crisdawn Construction Inc.	122.40	35.78	122.40	97.16	97.16	839	0	0	0	839					
K	74, 75 & 79	Crisdawn Construction Inc.		3.96				2.5	0	548.5	0	551					
L	64	2303757 Ontario Inc. (Campbell)	4.29	4.29	4.29	3.53	3.53	52	0	0	0	52					
M	73	1091388 Ontario Inc.	39.83	38.27	39.83	38.27	38.27	525	0	0	0	525					
N(a)*	77	Finger Lakes Estates Inc.	4.11	1.11	4.11	4.11	4.11	44.4	0	120	0	164.4					
N(b)*	77	Finger Lakes Estates Inc.	15.23	0.00	15.23	11.81	11.81	0	0	295.25	0	295.25					
O	84	1507229 Ontario Inc.	38.47	31.78	39.10	32.39	32.39	601	0	0	0	601					
P	86	1507229 Ontario Inc.	41.07	8.38	21.17	38.86	38.86	137.5	0	211.5	0	349					
Q	85	2121191 / LM Barrie	41.53	36.11	36.13	41.48	41.48	799.6	0	33	0	832.5					
R	87	Sobeys	8.18	8.18	8.18	8.18	8.18	0	0	0	0	0					
S	81, 82, & 83	Dorsey Development	80.23	0	0.00	51.88	0.00	0	0	0	267.5	267.5					
AA	88	Miele Developments Inc.	1.79	1.79	1.79	1.79	1.79	38				38					
Y*	89	Mapleview South (Innisfil) Ltd.	18.95	14.62	18.95	14.62	14.62	365				365					
Z	90	961 Big Bay Ltd.	0.64	0.64	0.64	0.64	0.64	14				14					
Total			651.81	361.75	587.05	562.72	511.08	6381	2078	1208	268	9935	1800	1330	1450	1350	1300

Phase 1-3 Non-Participating Landowner Unit Counts/Estimates															
Map ID	Ownership Map #	Total Area (ha.)	Developable Area within Phase 1 COB Sec Plan	Total Area within 2031 Boundary (ha.)	Total Developable (ha.)	Phase 1	Phase 2	Phase 3	Phase 4	Total					
T*	T	4.77	0.00	4.77	4.77	0	238.5	0	0	238.5					
U*	U	3.84	3.84	3.84	3.84	192	0	0	0	192					
V*	V	11.10	0.00	11.10	11.10	0	555	0	0	555					
W*	W	26.18	2.21	26.18	10.44	55.25	0	987.8	0	1042.85					
X	X	1.01	1.01	1.01	1.01	0	0	0	0	0					
BB	BB	0.26	0.26	0.26	0.26	6	0	0	0	6					
CC	CC	0.40	0.40	0.40	0.40	6	0	0	0	6					
Total		47.56	7.72	47.56	31.82	259.25	793.5	987.8	0	2040.35					

Hewitt's Secondary Plan
Overall Development Plan

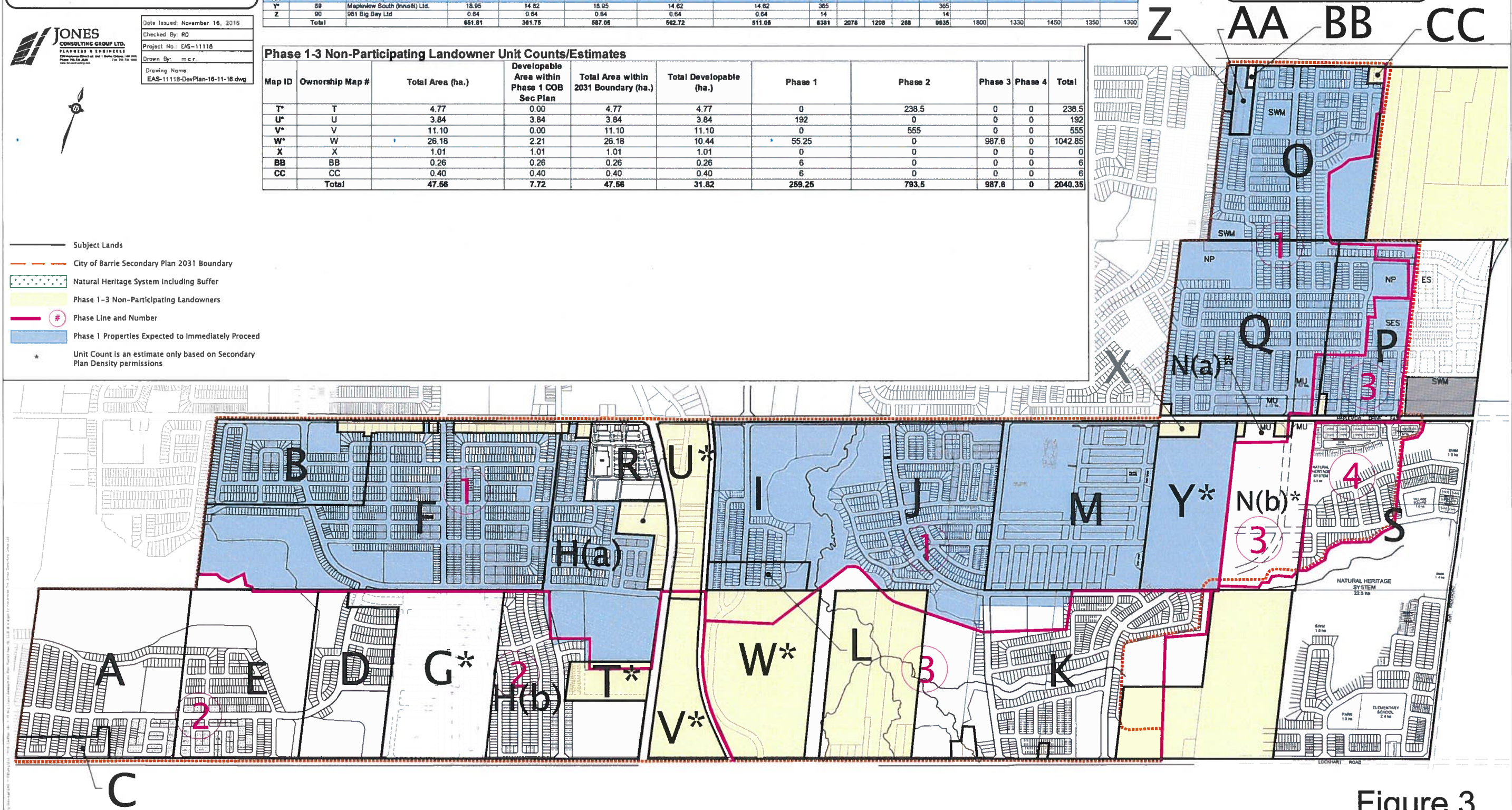
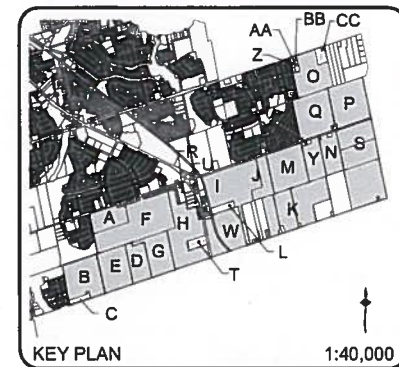
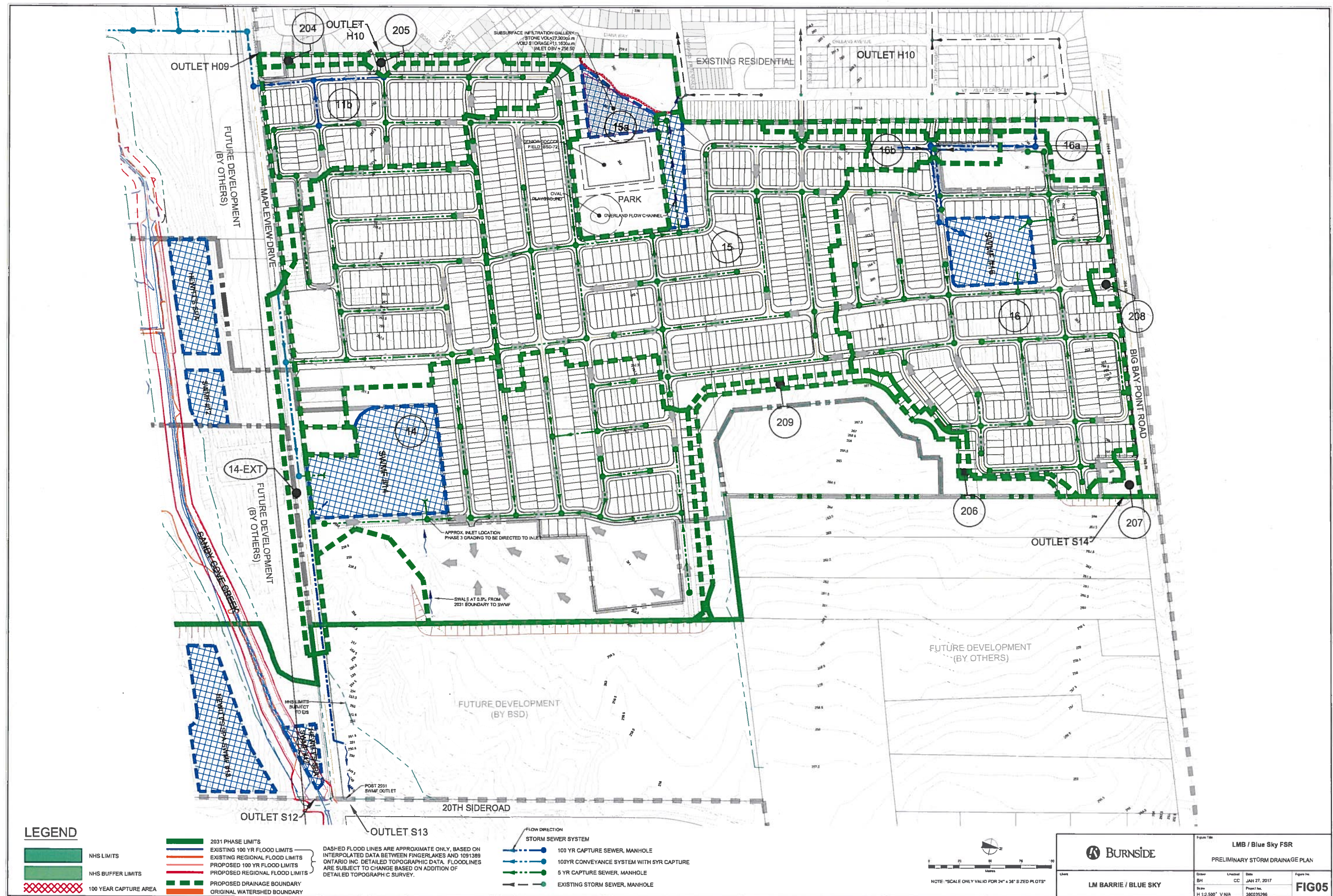
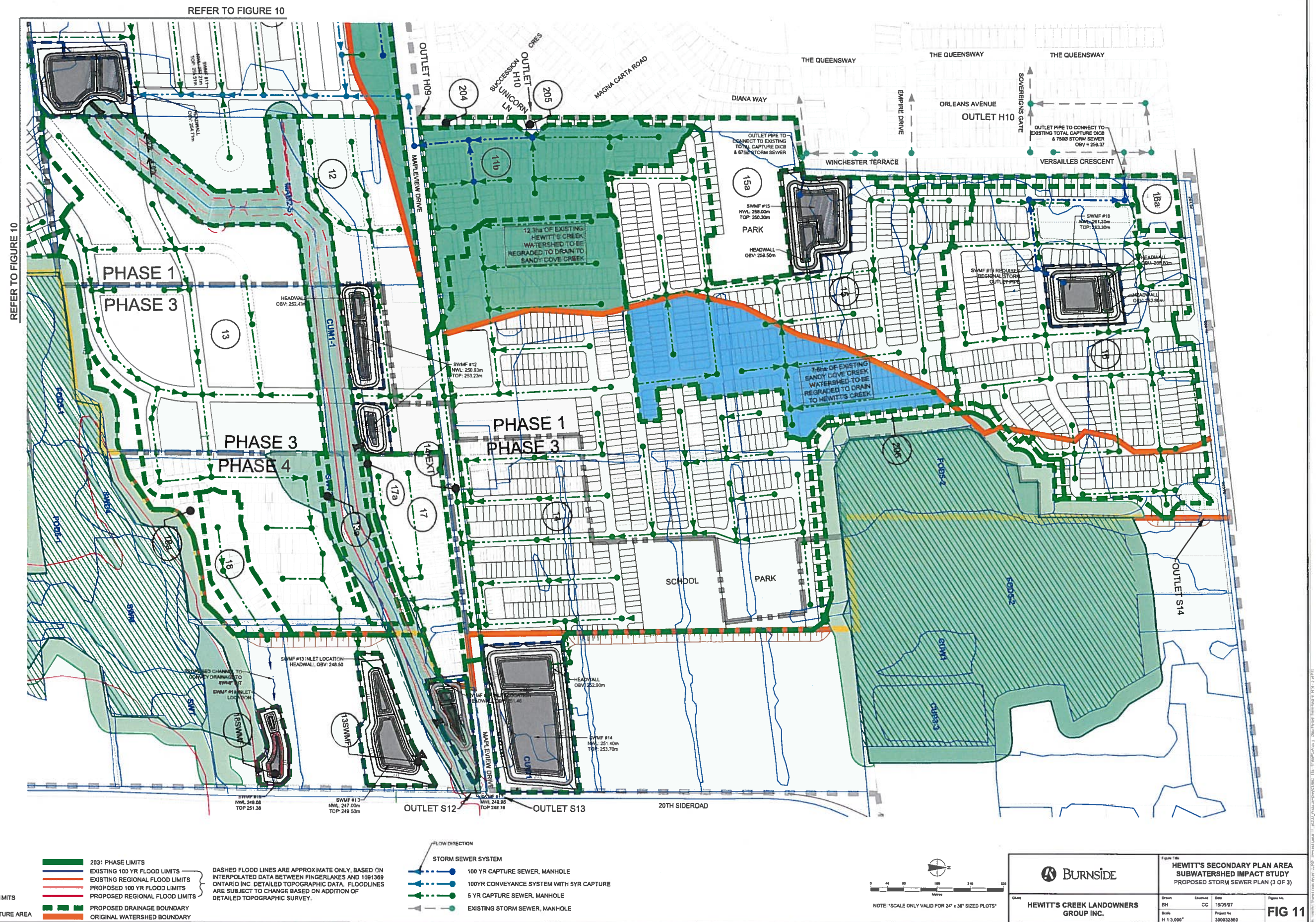
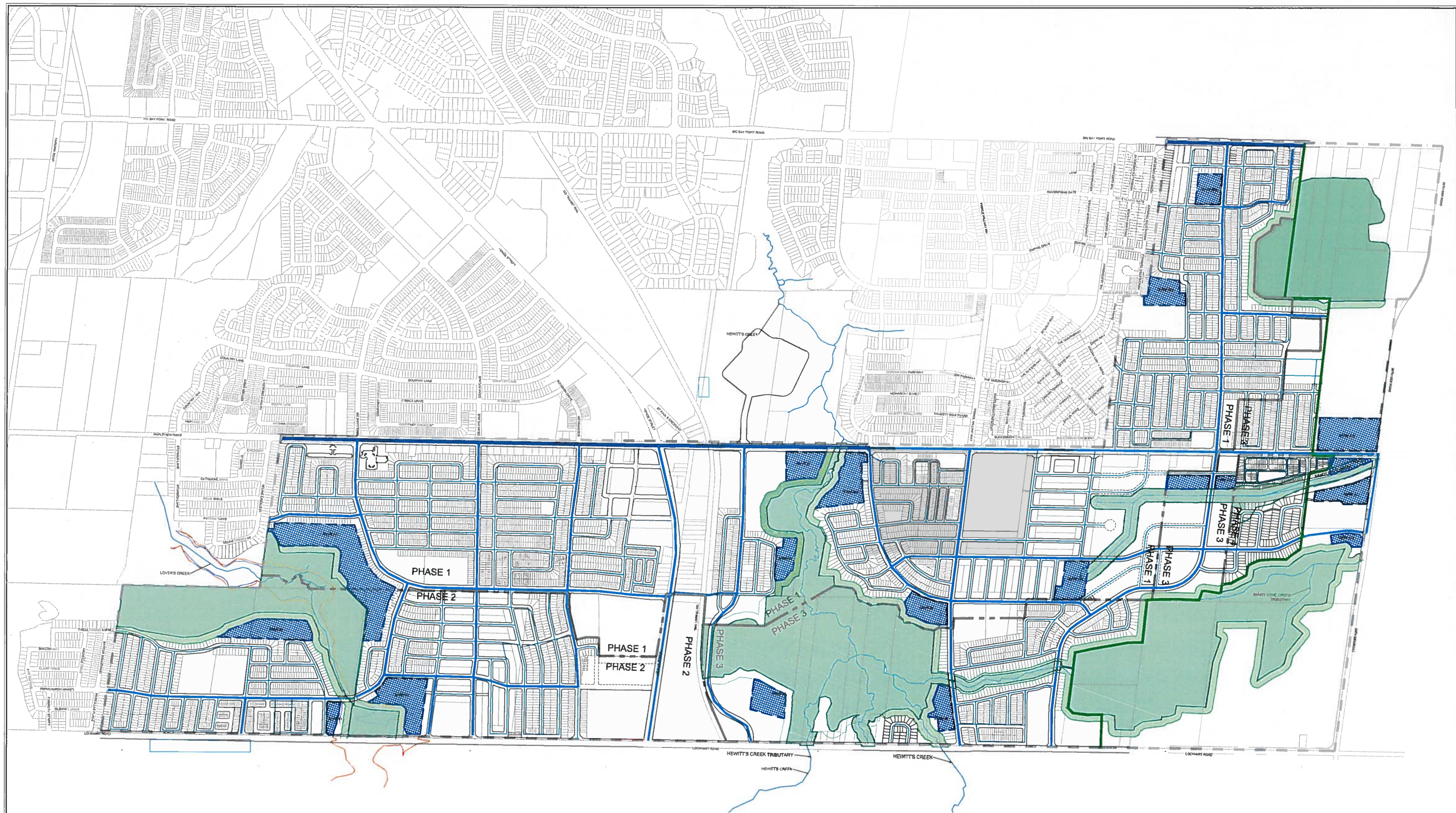


Figure 3

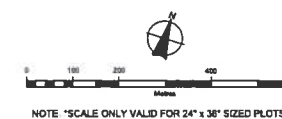






LEGEND

	DC TRUNK WATERMAIN		2031 PHASE LINE
	LOCAL TRUNK WATERMAIN		PHASING LIMITS
	LOCAL WATERMAIN		LIMIT OF HEWITT'S CREEK SECONDARY PLAN
	SURVEYED NHS LIMITS (2015)		STAKED 2015 NHS LIMITS
	NHS BUFFER LIMITS		NHS BUFFER LIMITS



		HEWITT'S CREEK LANDOWNERS GROUP INC.	
Client	HEWITT'S CREEK LANDOWNERS GROUP INC.	Drawn	AD
Check	BH	Date	15/01/28
Scale	1:14,000	Project No.	300032880
FIG 12		HEWITT'S SECONDARY PLAN AREA SUBWATERSHED IMPACT STUDY PROPOSED WATER DISTRIBUTION PLAN	

About AECOM

AECOM (NYSE: ACM) is built to deliver a better world. We design, build, finance and operate infrastructure assets for governments, businesses and organizations in more than 150 countries.

As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges.

From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, AECOM companies had revenue of approximately US\$19 billion during the 12 months ended June 30, 2015.

See how we deliver what others can only imagine at aecom.com and [@AECOM](https://twitter.com/AECOM).

Contact
Randy Provencal
Senior Project Manager
T 705-797-3277
E Randy.provencal@aecom.com