BURNSIDE

Overview of Servicing and Stormwater Management
Alta Subdivision Phase II
Town of The Blue Mountains

Prepared by

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3 Ronell Crescent
Collingwood, Ontario L9Y 4J6
Canada

September 2003

File No: PG 02 3898

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1.0 Introduction

R.J. Burnside & Associates Limited was retained by Tabera Limited to prepare an overview of the servicing and stormwater management issues for a 29.82 hectare parcel of land in the Town of The Blue Mountains, to be known as Alta Subdivision Phase II.

The subject lands are located on Part of Lots 23 and 24, Concession 4, Town of The Blue Mountains, former Township of Collingwood, in the County of Grey. Refer to Figure 1 for the general location of the proposed subdivision and Figure 2 for the preliminary concept plan.

This report has been prepared to support the Official Plan Amendment application, which is intended to change the designation from Deferred Development to Recreational Residential.

2.0 Background

The proposed development lies at the eastern limits of the Camperdown Service Area as defined in the Town of Blue Mountains Master Servicing Plan. Development in this area is to proceed with full municipal servicing. The current state of services in the Camperdown area is as follows:

- Existing developed areas within Camperdown are serviced by a 400mm and 350mm diameter transmission watermain, which originates in Thornbury and connects to the Craiglieth Service Area to the east. A watermain extends from Highway 26 onto Hidden Lake Road and Ward's Road servicing the Hidden Lake residential area.

- Municipal sanitary sewerage has yet to be established from the Thornbury Waste Water Treatment Plant to Camperdown.

The Town of Blue Mountains has undertaken to investigate municipal servicing requirements for the Lora Bay, Clarksburg, Thornbury and Camperdown areas through a Municipal Class Environmental Assessment process. This resulted in the preparation of "Comprehensive Environment Study Report for the Lora Bay, Clarksburg, Thornbury and Camperdown Service Areas, Phase 2 Report" prepared by MacViro engineering consultants in October 2002. An addendum report was released in March 2003 pursuant to the Camperdown / Lora Bay OMB mediation process.

3.0 Wastewater System

MacViro (October 2002 and March 2003) recommend wastewater generated from the Camperdown Service Area be conveyed to the Thornbury Waste Water Treatment Plant.

This will entail construction of trunk and local sewers and forcemain throughout the service area. The trunk sewer is expected to be phased and be located within the Highway 26 right-of-way.

The Town has received a request from Tabera Limited to change the boundary of the service area as it pertains to Phase II of Alta Subdivision. The developers suggested Alta Phase II be serviced by the Craigleith Waste Water Treatment Plant. This would be accomplished by conveying wastewater from Phase II into the Alta Phase I sewer system.

MacViro (October 2002 and March 2003) have acknowledged "consideration could be given to allowing a temporary pumping station to be constructed, which would be decommissioned once the Camperdown sewer is built". The costs to operate, maintain and decommission the pump station would have to be borne by the developer. Burnside have examined the recommendations in more depth.

It is anticipated that extension of the Camperdown sewer system to the Hidden Lake area is a number of years away. Since existing sanitary sewers presently exist on land abutting the subject property (i.e. Alta Phase I), changing the service area boundary for Alta Phase II appears to be a logical action. In this manner, the development timing of Alta Phase II will rest with resolving available capacity/ allocation issues of the Craigleith Waste Water Treatment Plant as opposed to reliance on the extension of the sanitary sewer system from the Thornbury Waste Water Treatment Plant, a distance of over 8 kilometers. It is anticipated that the capacity/ allocation issue at the Craigleith Waste Water Treatment Plant will be resolved before sanitary services are extended to the Hidden Lake area. Burnside recommends that a review of the service area boundary as it affects Alta Phase II be addressed as part of the Municipal Environmental Assessment for Craigleith, which is scheduled to be undertaken in the next month and completed in the next six to eight months.

As illustrated on Figure 3, the pump station would be located near the lowest area of the development and the wastewater pumped to the existing gravity sewer on Alta Road in Alta Subdivision Phase I.

There is an existing pump station located in Alta Subdivision Phase I (constructed in 2002). Burnside confirms that it has been sized to handle the additional flow from the proposed Phase II. Ultimately, the wastewater conveyance system from Phase I outlets to the Arrowhead Pump Station on Arrowhead Road. The design capacity of the Arrowhead Pump Station is 321 L/s. Flow measurements are required at the Arrowhead Pump Station to determine the actual operating capacity, however, due to the minor flows (estimated as 15.2 l/s per MOE guidelines) generated by this development it is anticipated that adequate reserve capacity will be available in the Arrowhead Pump Station.

4.0 Water Supply

The Camperdown area is serviced by the Thornbury Water Filtration Plant, which also services areas within Thornbury, Craigleith and limited portions of Lora Bay and Clarksburg. The Thornbury Water Filtration Plant is owned and operated by the Town of The Blue Mountains. It is also noted that water transfer from the Town of Collingwood is providing supply to the Town of The Blue Mountains.

Alta Subdivision Phase II will be serviced with municipal water by completing a watermain loop from the existing 200mm diameter watermain on Alta Road to the 150mm diameter watermain on Hidden Lake Road (refer to Figure 4). This will ensure proper flows for circulation and fire protection.

All internal lots can be serviced with internal watermain loops from the proposed feeder main on Alta Road.

5.0 Stormwater System

The stormwater management design of the proposed development will incorporate the policies and criteria of a number of agencies including the Ministry of Environment (MOE), Town of The Blue Mountains (TBM), Niagara Escarpment Commission (NEC) and the Grey Sauble Conservation Authority (GSCA). Generally, water quantity control (post-development to pre-development peak flow attenuation), water quality control ("enhanced" level protection) and erosion control will be required by the various agencies. There will also be requirements for appropriate setbacks from existing watercourses and implementation of construction sediment controls.

5.1 Existing Conditions

The subject lands generally fall from south to north, with gradient ranging from 2.0 to 30.0%. The site is topographically broken into five areas: the escarpment face located on the south portion of the site; an intermediate plateau on which proposed Street A is located; a second ridge located north of Street A; the "flatlands" on which balance of the development will rest; and finally, the Nipissing Ridge located north of the "flatlands" which abut Hidden Lake Road.

There are several existing drainage corridors (i.e. ravines, watercourses, ditches, swales etc.) that cross Alta Phase II which originate on the escarpment face. These watercourses accumulate and eventually outlet to the roadside ditch adjacent to Hidden Lake Road. The majority of flow then crosses under Hidden Lake Road via an 800 mm and 900 mm diameter culvert and through an existing residential development, ultimately crossing under Highway 26 and outletting to Georgian Bay, while some flow bypasses the culverts

and continues along the road side ditch to Highway 26 and eventually to Georgian Bay. As illustrated in Figure 5, there is also an external drainage area of approximately 9.8 ha located south of Alta Phase II.

The site lies with in Watercourse 21 and 22 as defined by the Grey Sauble Conservation Authority. The proposed development should not adversely affect either watercourse.

5.2 Proposed Drainage

New development with the Town of The Blue Mountains is to utilize an urban cross section consisting of storm sewer (5 –year capacity) and mountable curb and gutter. Alta Phase II will be implemented in this fashion, consistent with the road network for Alta Phase I.

It will be necessary to also incorporate cross culverts and drainage corridors/ channels within the development to maintain overland flow of external drainage areas through the proposed development to the existing respective outlets.

Figure 6 reflects a conceptual arrangement of overland flow routes and storm sewer alignment, for illustrative purposes only. Appropriate setbacks from the existing ravines and watercourses will need to be incorporated into the plan which may affect the lotting configuration and potentially the road alignment.

Also reflected in Figure 6 is the recommended location of the stormwater management facility.

The SWM pond location will allow for gravity sewers, overland flow routes to be easily maintained and shall aid in sediment control practices.

It should be noted that there are several existing drainage corridors that cross the subject property that will need to be incorporated into the development plan. This will ensure that the external drainage areas do not enter the proposed stormwater conveyance system or the stormwater management facility. This could involve maintaining and/or enhancing some of the existing drainage corridors. Corridor enhancement may limit the number of corridors required, however, such details are for final design.

5.3 Stormwater Management Facility

The design of the stormwater management system including the storm conveyance system and a detention-runoff flow control structure must accommodate a balance between the level of service required and facility cost. The level of service requirements arise from a need to provide obstruction free access to structures, municipal facilities,

roads and transportation areas while at the same time prevent damage to public and private property by sewer surcharge and/ or flooding.

Different alternatives for the stormwater management of Alta Subdivision Phase II must be considered. At this preliminary stage, it appears that a wet pond is most appropriate in order to address land use requirements, groundwater table, soil type and site topography.

The quality control role will be achieved by retention of runoff from frequent intense rainfalls transporting pollutants washed from the area surface. The Ministry of the Environment Stormwater Management Planning and Design Manual, March 2003, provides guidelines for quality control volumes that are required.

During preliminary design stage, the subject area will require stormwater modeling to determine what volume is required for the quantity storage.

Basically, pond storage requirements will be based on the following criteria:

- Pond volume will be adequate for storage of additional runoff volume corresponding to flow rates above existing rates.
- Pond volume will be adequate for erosion quantity control based on 24-hour detention for the 25mm storm event.
- Pond volume will be adequate for storage of quality control volume as required in the MOE Guidelines based on level of protection and site imperviousness.

The specific land requirement of the Stormwater Management facility will be confirmed during preparation of the rezoning and draft plan approval process.

6.0 Utilities

Alta Subdivision Phase II can be serviced by all required utilities from extension of same from Phase I. The network of utilities can complete feed loops by connecting to existing services on Hidden Lake Road.

7.0 Conclusion

Based on the general servicing overview of the 29.82 ha parcel referred to as Alta Phase II, Burnside concludes that the subject lands can be adequately serviced.

Phase I of Alta Subdivision is presently serviced with the required utilities, municipal water distribution system and a wastewater conveyance system, all designed with

additional capacity to accept flows from Phase II. Extension of these services will enable adequate services for Alta Subdivision Phase II.

Internal servicing of Alta Subdivision Phase II will consist of gas, hydro, cable T.V., watermains, wastewater conveyance and a stormwater management facility.

Respectfully submitted,

R. J. Burnside & Associates Limited

Ian McCutcheon

Christopher F. Crozier, P.Eng.

DAI/dh
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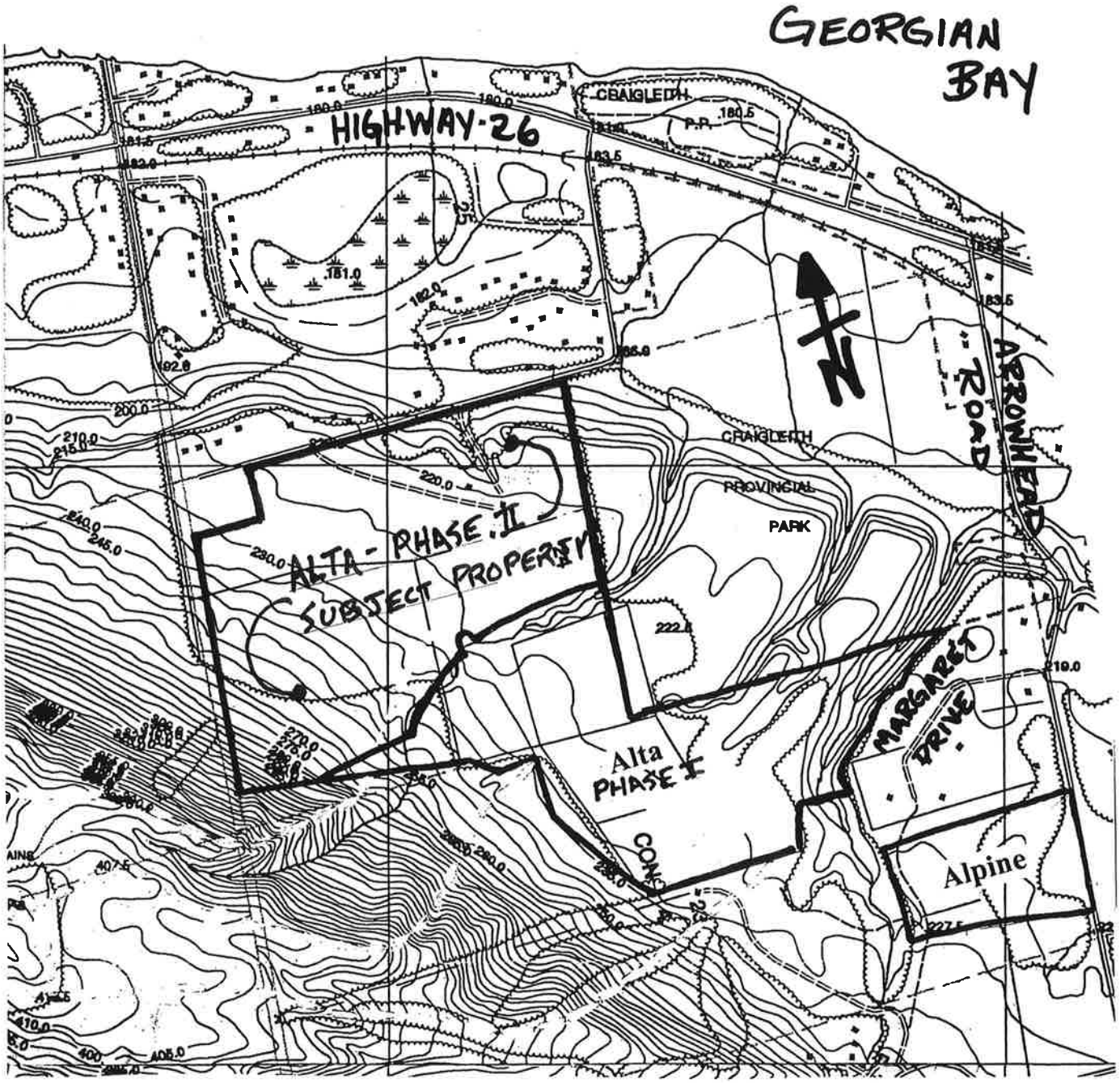
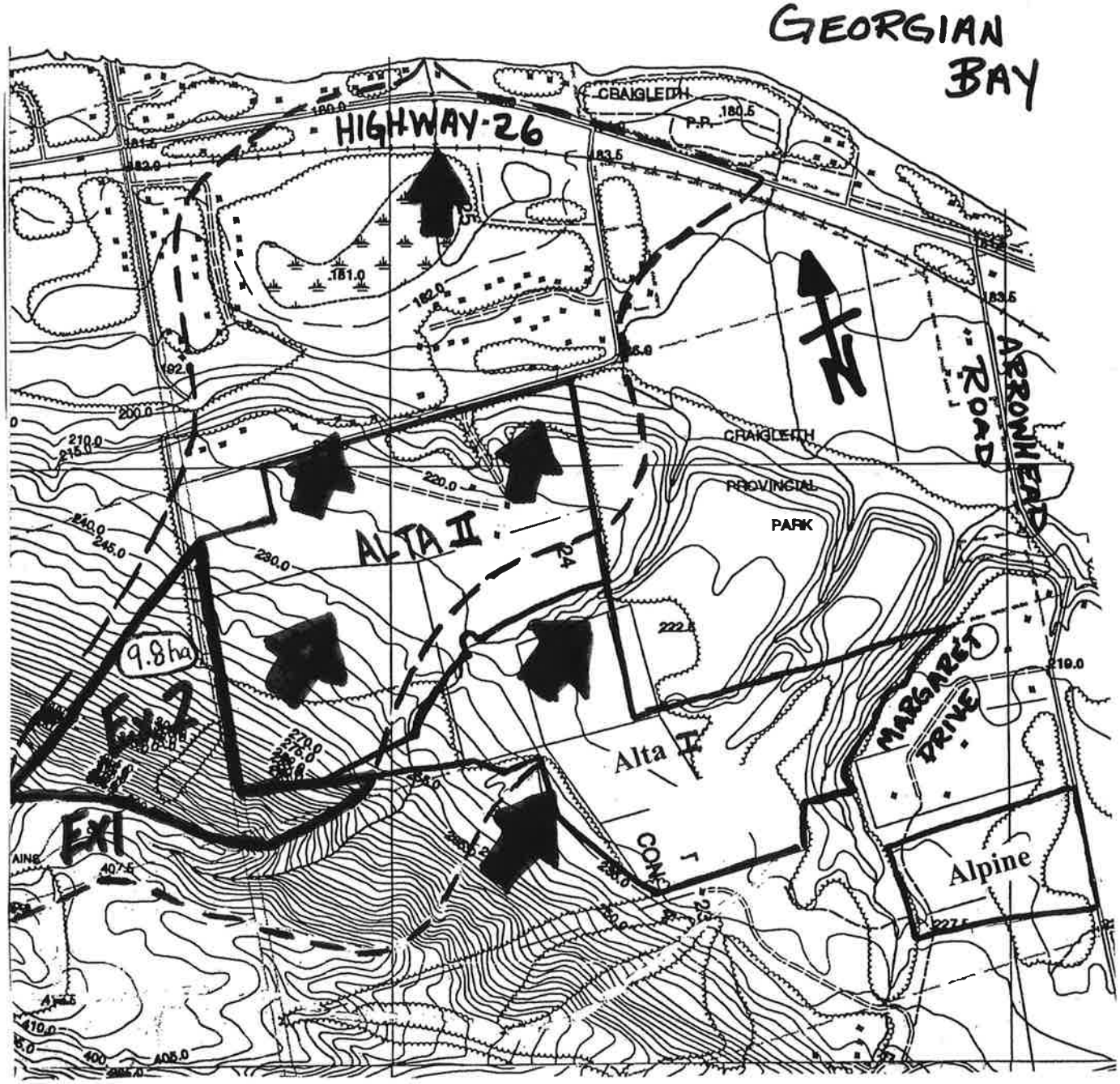
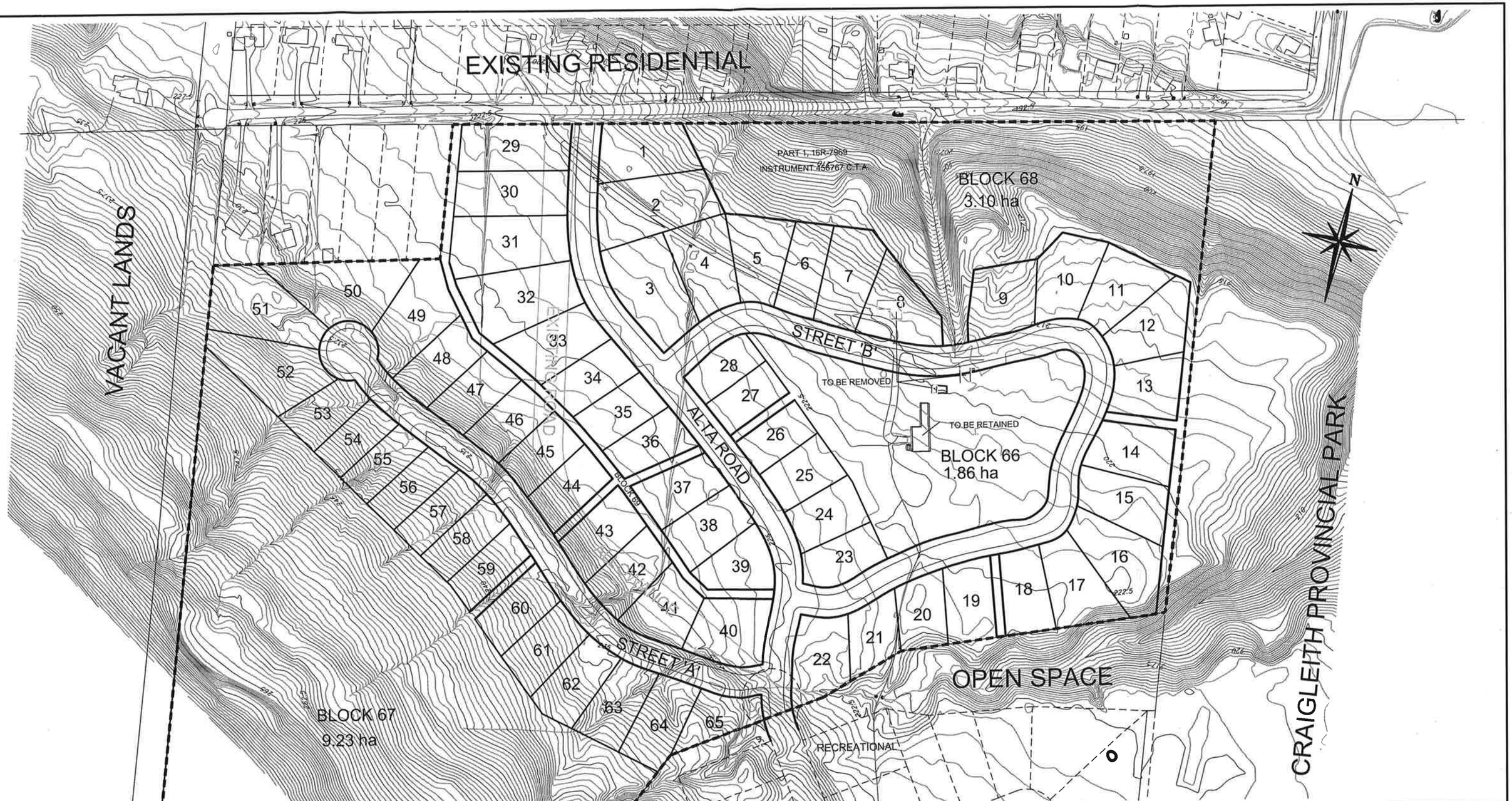


	Project Title ALTA SUBDIVSION–PHASE II TOWN of THE BLUE MOUNTAINS	BURNSIDE R. J. Burnside & Associates Limited 3 Ronell Crescent, Collingwood, Ontario telephone (705) 446-0515 fax (705) 446-2399		
	Drawing Title SITE LOCATION	Drawn By I.M.	Checked By D.I.	Figure No. 1
		Scale 1:10000	Project No. PG 02 3898	



Project Title: ALTA SUBDIVSION–PHASE II TOWN of THE BLUE MOUNTAINS	BURNSIDE R. J. Burnside & Associates Limited 3 Ronell Crescent, Collingwood, Ontario telephone (705) 446-0515 fax (705) 446-2399		
Drawing Title: GENERALIZED DRAINAGE PATTERNS	Drawn By: I.M.	Checked By: D.I.	Figure No.: 5
	Scale: 1:10000	Project No.: PG 02 3898	



Project Title

ALTA SUBDIVSION – PHASE II

TOWN of THE
BLUE MOUNTAINS

Drawing/Project Title

PRELIMINARY LAYOUT
CONCEPT

BURNSIDE
R. J. Burnside & Associates Limited
3 Ronell Crescent, Collingwood, Ontario
telephone (705) 446-0515 fax (705) 446-2399

Drawn By	Checked By	Figure No.
I.M.	D.I.	2
Scale	Project No.	
1: 2500	PG 02 3898	

EXISTING RESIDENTIAL

HIDDEN LAKE ROAD

N

VACANT LANDS

PART 1, 16R-7969
INSTRUMENT 456767 C.T.A.

PROPOSED GRAVITY SANITARY SEWER

BLOCK 68
3.10 ha

PROPOSED SANITARY PUMP STATION

NOTE: SERVICES BASED ON PRELIMINARY ROAD ALIGNMENT AND LOT CONFIGURATION. PRELIMINARY LAYOUT FOR ILLUSTRATION PURPOSES ONLY.

STREET 'B'

ALTA ROAD

EXISTING ROAD

ALLOWANCE

BLOCK 69

BLOCK 66
1.86 ha

STREET 'A'

PROPOSED SANITARY FORCEMAIN

OPEN SPACE

RECREATIONAL

CRAIGLEITH PROVINCIAL PARK

BLOCK 67
9.23 ha

CONNECT TO EX. 150mmø SANITARY FORCEMAIN

EX. GRAVITY SANITARY SEWER, DRAINS TO PUMP STATION LOCATED ON OAK COURT.

PROPOSED GRAVITY SANITARY SEWER

PROPOSED SANITARY FORCEMAIN

EXISTING SANITARY FORCEMAIN

Project Title
ALTA SUBDIVSION – PHASE II

TOWN of THE
BLUE MOUNTAINS

Drawing/Project Title
WASTEWATER CONVEYANCE SYSTEM

BURNSIDE
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telephone (705) 446-0515 fax (705) 446-2399

Drawn By	Checked By	Figure No.
I.M.	D.I.	3
Scale	Project No.	
1: 2500	PG 02 3898	

EXISTING RESIDENTIAL

HIDDEN LAKE ROAD

CONNECT TO EX. 150mmø WATERMAIN

CUL-DE-SAC W/M TO BE LOOPED

PART 1, 16R-7969
INSTRUMENT 456767 C.T.A.

BLOCK 68
3.10 ha

VACANT LANDS

STREET 'B'

ALTA ROAD

EXISTING ROAD

ALLOWANCE

STREET 'A'

BLOCK 66
1.86 ha

PROPOSED WATERMAIN

BLOCK 67
9.23 ha

EX. HYDRANT & VALVE

OPEN SPACE

RECREATIONAL

CONNECT TO EX. 200mmø WATERMAIN

CRAIGLEITH PROVINCIAL PARK

N

NOTE: SERVICES BASED ON PRELIMINARY ROAD ALIGNMENT AND LOT CONFIGURATION. PRELIMINARY LAYOUT FOR ILLUSTRATION PURPOSES ONLY.

PROPOSED WATERMAIN

EXISTING WATERMAIN

Project Title
ALTA SUBDIVSION – PHASE II

TOWN of THE
BLUE MOUNTAINS

Drawing/Project Title
WATER DISTRIBUTION SYSTEM

BURNSIDE
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telephone (705) 446-0515 fax (705) 446-2399

Drawn By	Checked By	Figure No.
I.M.	D.I.	4
Scale	Project No.	
1: 2500	PG 02 3898	

EXISTING RESIDENTIAL

HIDDEN LAKE ROAD

VACANT LANDS

PART 1, 16R-7969
INSTRUMENT 456767 C.T.A.

PROPOSED GRAVITY SANITARY SEWER

BLOCK 68
3.10 ha

STORMWATER MANAGEMENT FACILITY

N

STREET 'B'

ALTA ROAD

BLOCK 66
1.86 ha

PROPOSED STORM SEWER

BLOCK 69

STREET 'A'

BLOCK 67
9.23 ha

OPEN SPACE

RECREATIONAL

CRAIGLEITH PROVINCIAL PARK

NOTE: SERVICES BASED ON PRELIMINARY ROAD ALIGNMENT AND LOT CONFIGURATION. PRELIMINARY LAYOUT FOR ILLUSTRATION PURPOSES ONLY.

PROPOSED STORM SEWER

OVERLAND FLOW DIRECTION

Project Title	ALTA SUBDIVSION – PHASE II TOWN of THE BLUE MOUNTAINS
Drawing/Project Title	STORMWATER MANAGEMENT SYSTEM

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Drawn By I.M.	Checked By D.I.	Figure No. 6
Scale 1: 2500	Project No. PG 02 3898	