

Functional Servicing Report

Proposed Residential Development

**Rural Condominium Subdivision
Heritage Line
Part of Lots 13 and 14
Concession 6**

D.M. Wills Project No. 21-10985



D.M. Wills Associates Limited

Partners in Engineering, Planning and
Environmental Services
Peterborough

November 2022

Prepared for:

**Alina Stewart and Shawn Elmhirst
2564669 Ontario Inc. /
520039 Ontario Limited**

Summary of Revisions

Revision No.	Revision Title	Date of Release	Summary of Revisions
0	ZBA	September 2021	First Submission
1	ZBA	June 2022	Second Submission
2	ZBA	November 2022	Third Submission

This report has been formatted considering the requirements of the Accessibility for Ontarians with Disabilities Act.

Table of Contents

1.0	Introduction	1
1.1	Site Location / Study Area	1
2.0	Site Grading and Servicing.....	3
2.1	Site Grading	3
2.2	Sanitary Servicing	3
2.3	Storm Servicing	4
2.4	Water Servicing.....	4
2.5	Utility Servicing	5
3.0	Conclusion.....	5

List of Figures

Figure 1 – Site Location Map.....	2
-----------------------------------	---

List of Appendices

Appendix A – Draft Plan	
Appendix B – Preliminary Servicing and Grading Plan	
Appendix C – Water Capacity Analysis	
Appendix D – Correspondence	

1.0 Introduction

D.M. Wills Associates Limited (Wills) has been retained by 2564669 Ontario Inc. / 520039 Ontario Limited to prepare a Functioning Servicing Report (FSR) for the property located at Heritage Line, Part of Lots 13 and 14, Concession 6 in the Township of Otonabee-South Monaghan. The Site is located north of 5th Street, south of Edwards Drive, on the east side of Heritage Line. The proposed development is a rural subdivision with 16 single detached houses. The purpose of this report is to provide sufficient information to establish that the proposed development is feasible. The FSR will provide guidance for future detailed design of sanitary (septic), domestic water, stormwater and utility servicing of the Site.

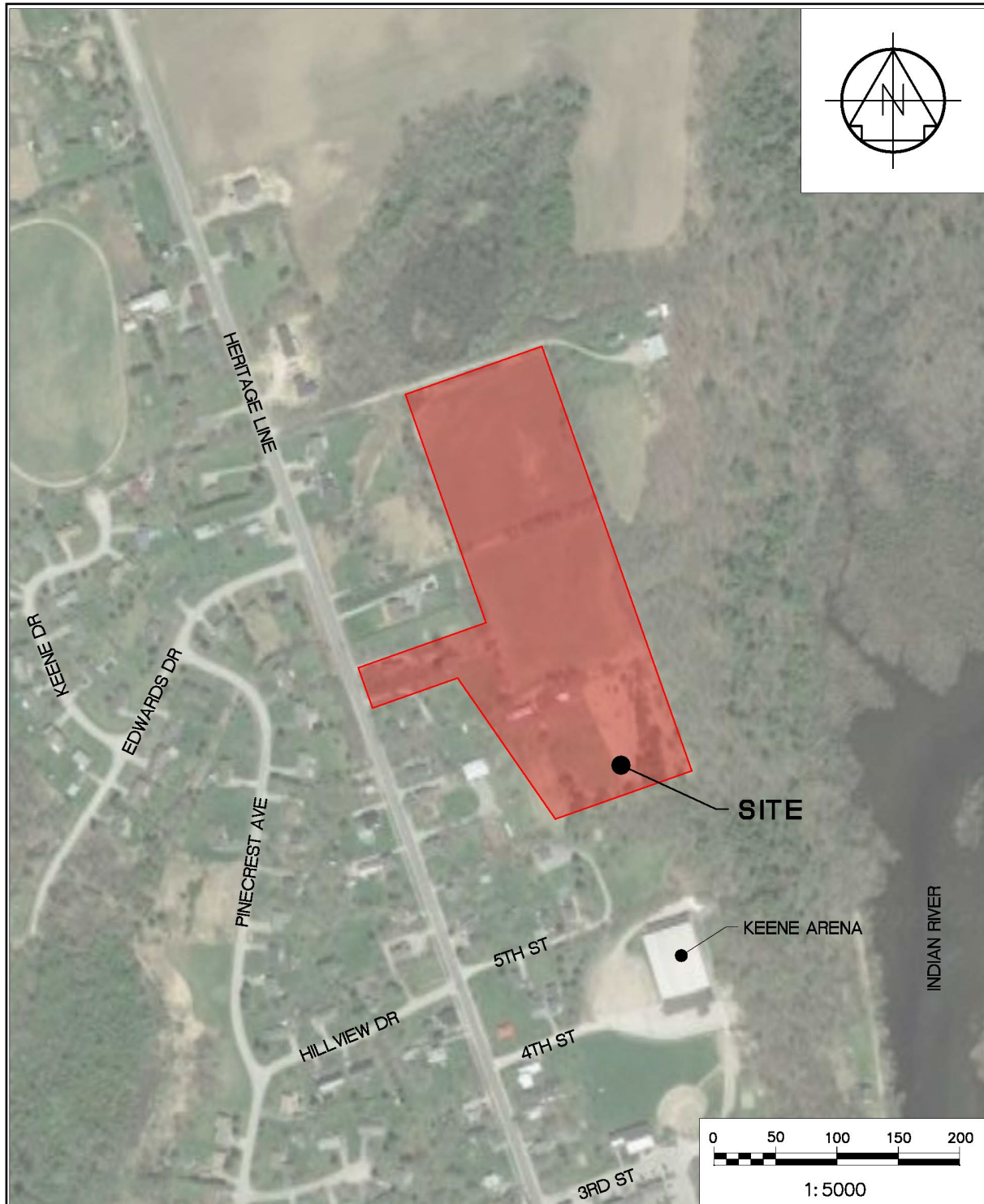
1.1 Site Location / Study Area

The Site is legally defined as Part of Lots 13 and 14, Concession 6, Geographic Township of Otonabee, now in the Township of Otonabee-South Monaghan, County of Peterborough. The surrounding land use is low-density residential to the west, open space to the south, general commercial to the north and the Indian River and wooded Environmental Protection zones to the east (see Figure 1 – **Site Location Map**).

The Site has an existing barn and stable. The 5.63 ha Site is currently zoned for future development with unevaluated wetlands located outside of the legal boundary to the north-west and south-east limits of the Site.

A Draft Plan prepared by Wills defines 16 new single detached houses (**Appendix A – Draft Plan**). A private common element condominium entrance is proposed from Heritage Line to provide access to all the properties.

Figure 1 – Site Location Map



2.0 Site Grading and Servicing

2.1 Site Grading

A topographic survey of the existing Site contours was provided by Elliott and Parr, dated April 29, 2021. There is approximately 18 m of elevation change down to the south-east wetland and approximately 6 m of elevation change toward the existing wetland to the north-west of the Site.

The design relies on a proposed urban roadway within the common element and includes a 2-lane paved roadway, asphalt walking path and infiltration ditches. The grading within the common element will collect drainage and direct it towards the north and south cul-de-sacs. The cul-de-sacs will drain through easements along lot lines and ultimately outlet toward the existing wetlands (for more information regarding storm water management refer to the stand-alone **Preliminary Storm Water Management Report** prepared by Wills, dated October 2022). Proposed grading outside the common element will make use of existing topography wherever possible.

Lot grading will follow the existing topography of the Site. Once building footprints have been established, detailed lot grading including side yard and apron swales will be detailed to direct water away from the dwelling unit and toward the infiltration basins and wetland areas. Refer to **Appendix B – Preliminary Servicing and Grading Plan**.

2.2 Sanitary Servicing

There is no existing sanitary sewer infrastructure located in the Village of Keene. The existing soil conditions are capable of supporting private septic systems for each house (refer to the **Hydrogeological Study** prepared by Wills, dated November 18, 2022).

Each septic system will be sized for the individual dwelling unit and will be comprised of a septic tank and a primary tile field. The septic tank provides the first level of sewage treatment by separating the solids and liquids as well as providing space for the solids to break down. The primary tile field provides the second level of treatment by way of filtration. Liquids exiting the septic tank enter the tile field; the wastewater then percolates into the existing soils or granular structure. Refer to **Appendix B – Preliminary Servicing and Grading Plan**.

2.3 Storm Servicing

There is no existing storm sewer outlet for the Site. Storm servicing will be accommodated through swales and ditches conveying rainfall to the existing wetlands. A 450 mm diameter driveway culvert will be required to access each lot. Refer to the **Preliminary Storm Water Management Report** prepared by Wills, dated October 2022.

2.4 Water Servicing

The existing 150 mm diameter municipal watermain, serviced from the Keene Heights Drinking Water System, terminates at the intersection of Edwards Drive and Heritage Line approximately 125 m north of the Site entrance. An external watermain extension along the west side of Heritage Line will be required to service the Site. The proposed watermain will extend within the common element road to service all the proposed lots within the Site. Wills has reviewed the available Annual Water Reports (dated 2009-2021) for the Keene Heights Drinking Water System and confirmed there is available capacity to support the proposed development. The calculation used to determine that there is sufficient capacity compares the current Average Maximum Daily Flows against the number of dwellings currently being serviced. We use this ratio to calculate the 37 dwellings currently being serviced have an Average Maximum Daily Flow of 0.78m³/day/dwelling. Therefore, we can determine that the additional 16 dwellings we are proposing to add to the drinking water system will increase the Average Maximum Daily Flow by approximately 13m³/day. (Refer to **Appendix C – Water Capacity Analysis**).

- Maximum capacity of the Keene Heights Drinking Water System = 66 m³/day
- Number of existing units serviced by Keene Heights Drinking Water System = 37
- Average maximum existing daily flow for last 10 years = 29 m³/day
- Number of proposed units = 16
- Average maximum existing daily flow per unit = 29 m³/day ÷ 37 units = 0.78 m³/day
- Average maximum proposed daily flow = 0.78 m³/day x 16 units = 12.5 m³/day
- Total maximum daily flow rate = existing flow + proposed flow
= 29.0 m³/day + 12.5 m³/day
= 41.5 m³/day
- Residual capacity within the Keene Heights Drinking Water System = maximum capacity producible – maximum daily flow rate calculated
= 66 m³/day – 41.5 m³/day
= 24.5 m³/day

Therefore, based on the above calculations, the Keene Heights Drinking Water System has sufficient capacity to provide drinking water to the existing 37 units plus the 16 proposed units. (Refer to **Appendix C – Water Capacity Analysis**).

2.5 Utility Servicing

Currently hydro is available via overhead aerial cable located on the east side of Heritage Line at the Site entrance. The adequacy of the overhead hydro will be determined by an electrical consultant during the detailed design stage. (Refer to **Appendix D – Correspondence** for plans from Hydro One).

Currently telecommunications are readily available as buried fibre on the east side of Heritage Line at the Site Entrance. (Refer to **Appendix D – Correspondence** for plans from Nexicom).

Currently gas is readily available and located on the east side of Heritage Line at the Site entrance. (Refer to **Appendix D – Correspondence** for plans from Enbridge).

3.0 Conclusion

Servicing for the proposed development is feasible.

1. Stormwater runoff will be accommodated by a system of infiltration ditches and swales that divert water to ultimately outlet into the existing wetlands.
2. Sanitary servicing will be accommodated by individual septic systems (treatment, tanks and tile fields).
3. Domestic water servicing will be provided by extending the existing municipal watermain infrastructure from the Heritage Line and Edwards Drive intersection.
4. Utilities to service the development are readily available within the Heritage Line right-of-way.

If you require any further information, or have any questions, please do not hesitate to contact the undersigned.

Respectfully submitted,



Joseph D. Fleming, C.E.T.
Site Development Group Leader



Mitch Bell
Municipal Project Designer

JDF/MB/jh

Statement of Limitations

This report has been prepared by D.M. Wills Associates Limited on behalf of 2564669 Ontario Inc. / 520039 Ontario Limited to address the requirements of the Township of Otonabee-South Monaghan.

The conclusions and recommendations in this report are based on available background documentation and discussions with applicable agencies at the time of preparation.

The report is intended to determine the feasibility of the proposed development with respect to sanitary, water, stormwater and utility servicing of the subject lands. The design information provided in this report is preliminary in nature and should not be used for construction purposes.

Any use that a third party makes of this report other than a functional servicing report for the proposed development is the responsibility of such third parties. D.M. Wills Associates Limited accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or action taken based on using this report for purposes other than a functional servicing report for the subject property located on Heritage Line.

Appendix A

Draft Plan



SUMMARY CHART
SECTION 51(17) PLANNING ACT

(a) THE BOUNDARIES OF THE LAND PROPOSED TO BE SUBDIVIDED, CERTIFIED BY AN ONTARIO LAND SURVEYOR;	AS REFERENCED ON DRAFT PLAN
(b) THE LOCATIONS, WIDTHS AND NAMES OF THE PROPOSED HIGHWAYS WITHIN THE PROPOSED SUBDIVISION AND OF EXISTING HIGHWAYS ON WHICH THE PROPOSED SUBDIVISION ADJUTS;	AS REFERENCED ON DRAFT PLAN
(c) ON A SMALL KEY PLAN, ON A SCALE OF NOT LESS THAN ONE CENTIMETRE TO 100 METRES, ALL OF THE LAND ADJACENT TO THE PROPOSED SUBDIVISION THAT IS OWNED BY THE APPLICANT OR IN WHICH THE APPLICANT HAS AN INTEREST, EVERY SUBDIVISION ADJACENT TO THE PROPOSED SUBDIVISION AND THE RELATIONSHIP OF THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED TO THE BOUNDARIES OF THE TOWNSHIP LOT OR OTHER ORIGINAL GRANT OF WHICH THE LAND FORMS THE WHOLE PART;	AS REFERENCED ON DRAFT PLAN
(d) THE PURPOSE FOR WHICH THE PROPOSED LOTS ARE TO BE USED;	PROPOSED USE OF LOTS: LOTS 1-16 SINGLE DETACHED UNITS
(e) THE EXISTING USES OF ALL ADJOINING LANDS;	AS REFERENCED ON DRAFT PLAN
(f) THE APPROXIMATE DIMENSIONS AND LAYOUT OF THE PROPOSED LOTS;	AS REFERENCED ON DRAFT PLAN
(h) IF ANY AFFORDABLE HOUSING UNITS ARE BEING PROPOSED, THE SHAPE AND DIMENSIONS OF EACH PROPOSED AFFORDABLE HOUSING UNIT AND THE APPROXIMATE LOCATION OF EACH PROPOSED AFFORDABLE HOUSING UNIT IN RELATION TO OTHER PROPOSED RESIDENTIAL UNITS;	
(g) NATURAL AND ARTIFICIAL FEATURES SUCH AS BUILDINGS OR OTHER STRUCTURES OR INSTALLATIONS, RAILWAYS, HIGHWAYS, WATERCOURSES, DRAINAGE DITCHES, WETLANDS AND WOODED AREAS WITHIN OR ADJACENT TO THE LAND PROPOSED TO BE SUBDIVIDED;	
(h) THE AVAILABILITY AND NATURE OF DOMESTIC WATER SUPPLIES;	REFER TO FUNCTIONAL SERVICING REPORT
(i) THE NATURE AND POROSITY OF THE SOIL;	REFER TO GEOTECHNICAL REPORT
(j) EXISTING CONTOURS OR ELEVATIONS AS MAY BE REQUIRED TO DETERMINE THE GRADE OF THE HIGHWAYS AND THE DRAINWAYS OF THE LAND PROPOSED TO BE SUBDIVIDED;	REFER TO PRELIMINARY GRADING AND SERVICING PLAN
(k) THE MUNICIPAL SERVICES AVAILABLE OR TO BE AVAILABLE TO THE LAND PROPOSED TO BE SUBDIVIDED; AND	REFER TO FUNCTIONAL SERVICING REPORT AND STORMWATER MANAGEMENT PLAN
(l) THE NATURE AND EXTENT OF ANY RESTRICTIONS AFFECTING THE LAND PROPOSED TO BE SUBDIVIDED, INCLUDING RESTRICTIVE COVENANTS OR EASEMENTS. 1994, c. 23, s. 30; 1996, c. 4, s. 28 (3); 2016, c. 25, Sched. 4, s. 8 (1).	NO RESTRICTIONS ON SITE

LAND USE SCHEDULE

10985 - HERITAGE LINE, KEENE

LOT/BLOCK	LOT AREA (ha/acre)	FRONTAGE (m)	INTENDED USE
1	0.27/0.67	58.5	SINGLE DETACHED DWELLING
2	0.24/0.59	24.2	SINGLE DETACHED DWELLING
3	0.45/1.11	22.0	SINGLE DETACHED DWELLING
4	0.74/1.83	29.10	SINGLE DETACHED DWELLING
5	0.33/0.82	51.6	SINGLE DETACHED DWELLING
6	0.37/0.91	52.8	SINGLE DETACHED DWELLING
7	0.28/0.64	71.5	SINGLE DETACHED DWELLING
8	0.30/0.74	44.1	SINGLE DETACHED DWELLING
9	0.22/0.54	38.3	SINGLE DETACHED DWELLING
10	0.20/0.49	35.5	SINGLE DETACHED DWELLING
11	0.22/0.54	42.60	SINGLE DETACHED DWELLING
12	0.20/0.49	39.6	SINGLE DETACHED DWELLING
13	0.23/0.57	26.0	SINGLE DETACHED DWELLING
14	0.22/0.54	22.2	SINGLE DETACHED DWELLING
15	0.22/0.54	22.3	SINGLE DETACHED DWELLING
16	0.22/0.54	22.4	SINGLE DETACHED DWELLING
NORTH COMMON ELEMENT	0.16/0.40		STORMWATER DRAINAGE/STORAGE
ROAD COMMON ELEMENT	0.77/1.90		ROADWAY SERVICING DEVELOPMENT
TOTAL SITE AREA =			5.63 ha / 13.91 acre

LEGAL DESCRIPTION

PART OF LOTS 13 & 14
CONCESSION 6
GEOGRAPHIC TOWNSHIP OF OTONABEE
NOW IN THE
TOWNSHIP OF OTONABEE-SOUTH MONAGHAN
COUNTY OF PETERBOROUGH

SURVEYOR'S CERTIFICATE

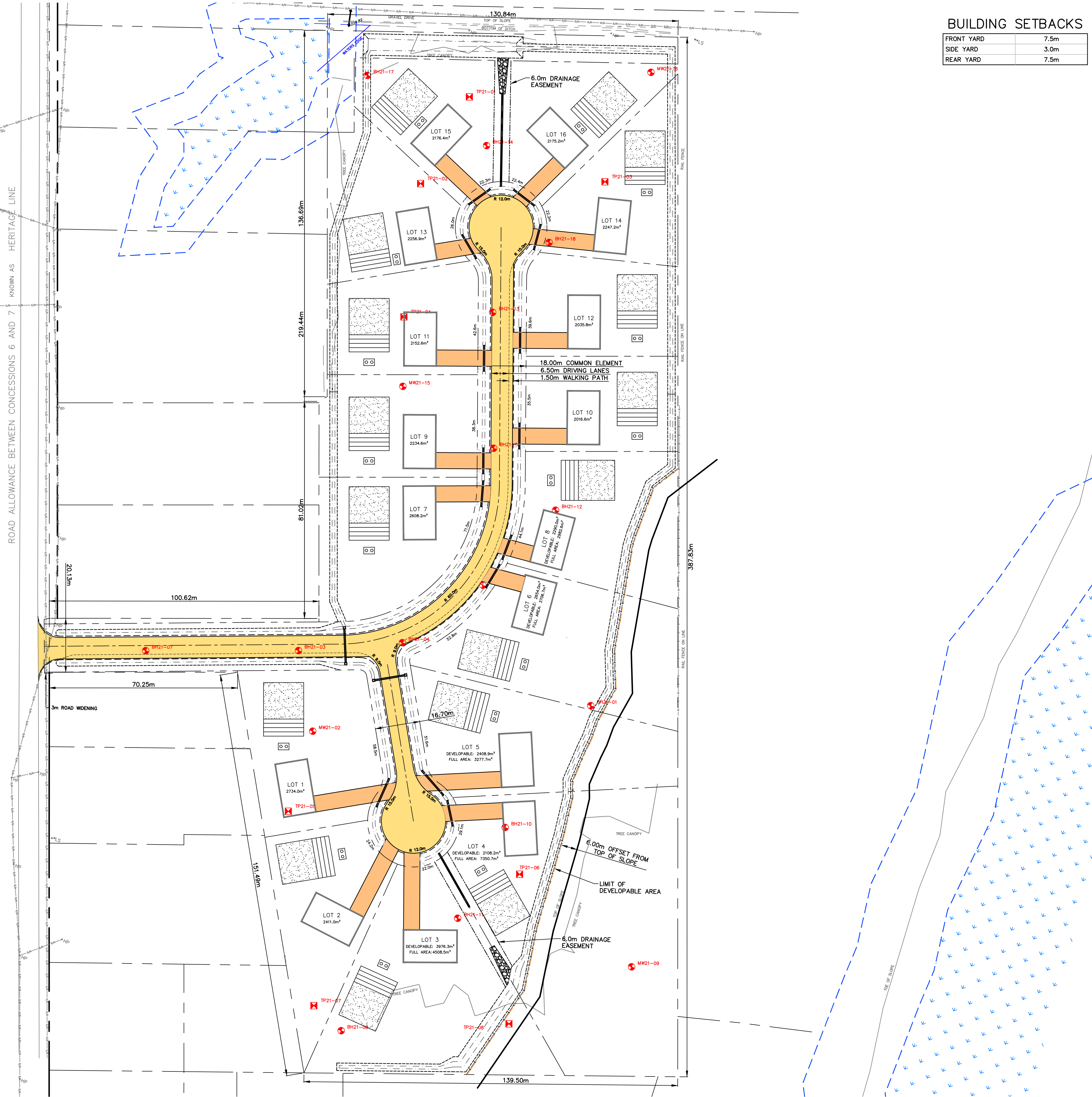
I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AS SHOWN ON THIS PLAN, AND THEIR RELATIONSHIP TO THE ADJACENT LAND ARE ACCURATELY AND CORRECTLY SHOWN.

DATE SHAWN M. O'CONNOR
ONTARIO LAND SURVEYOR

OWNER'S CERTIFICATE

I AUTHORIZE D.M. WILLS ASSOCIATES LIMITED TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE COUNTY OF PETERBOROUGH FOR APPROVAL CERTIFY THAT:

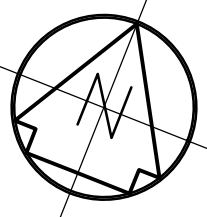
DATED THIS DAY OF 2022



BUILDING SETBACKS

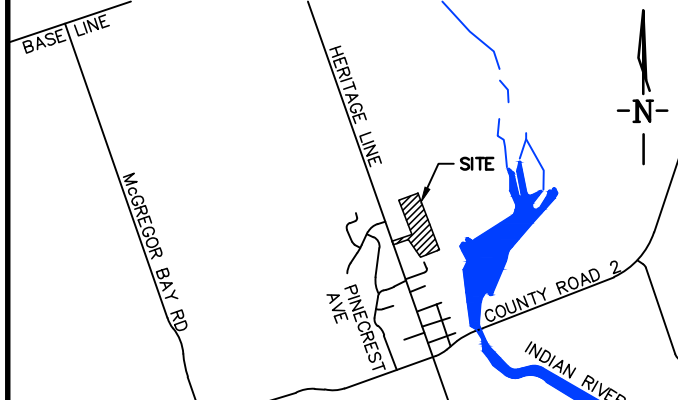
FRONT YARD	7.5m
SIDE YARD	3.0m
REAR YARD	7.5m

BM1 - 206.93m
N: 4902490.35m
E: 728461.29m
KEENE PUBLIC SCHOOL, TABLET
IN NORTHEAST FACE OF
CONCRETE FOUNDATION WALL



TRUE NORTH

KEY PLAN



REVISIONS

No.	Description	Date
1	ZBA - 2ND SUBMISSION	22/06/29
1	ZBA - 1ST SUBMISSION	21/09/02

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSS 100 SERIES

	PROPOSED HEAVY DUTY ASPHALT
	PROPOSED MEDIUM DUTY ASPHALT
	UNEVALUATED WETLAND
	EX. BUILDING
	EX./PR. EDGE OF PAVEMENT
	EX./PR. ROAD CENTERLINE
	EX./PR. EDGE OF SHOULDER/GRAVEL
	EX./PR. WATER VALVE
	EXISTING HYDRO POLE
	EX. OVERHEAD HYDRO
	EX. UNDERGROUND HYDRO
	EX./PR. DITCH
	PR. SWALE
	PR. CULVERT
	PR. CATCH BASIN
	EX./PR. WATERMAIN
	R.O.W
	PROPERTY LINE
	EXISTING VEGETATION
	PROPOSED HOUSE WITH 2 CAR GARAGE
	SEPTIC TANK
	TILE FIELD AND MANTLE

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9
P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

HERITAGE LINE
RESIDENTIAL

KEENE, ONTARIO

Drawing Title

DRAFT PLAN

Drawn By: M.B.	SCALE: Horiz. 1:750	Vert. -
Designed By: M.B.	Issue Date: JUNE 28, 2022	
Checked By: J.D.F.	Project No.: Z1-10985	Sht. No.
Engineer: A.M.	Dwg File No.: 10985-SP	400

NOT FOR CONSTRUCTION

Appendix B

Preliminary Servicing and Grading Plan



Appendix C

Water Capacity Analysis





WILLS

Date: November 17, 2022
Project: 10985 - Heritage Line Residential

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, ON K9J 0B9
P. 705.742.2297 F. 705.741.3568

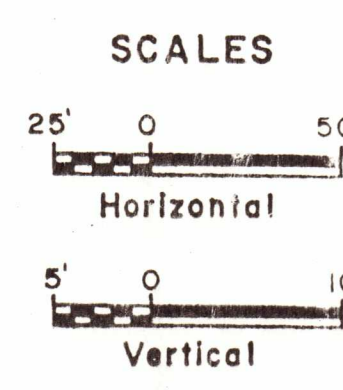
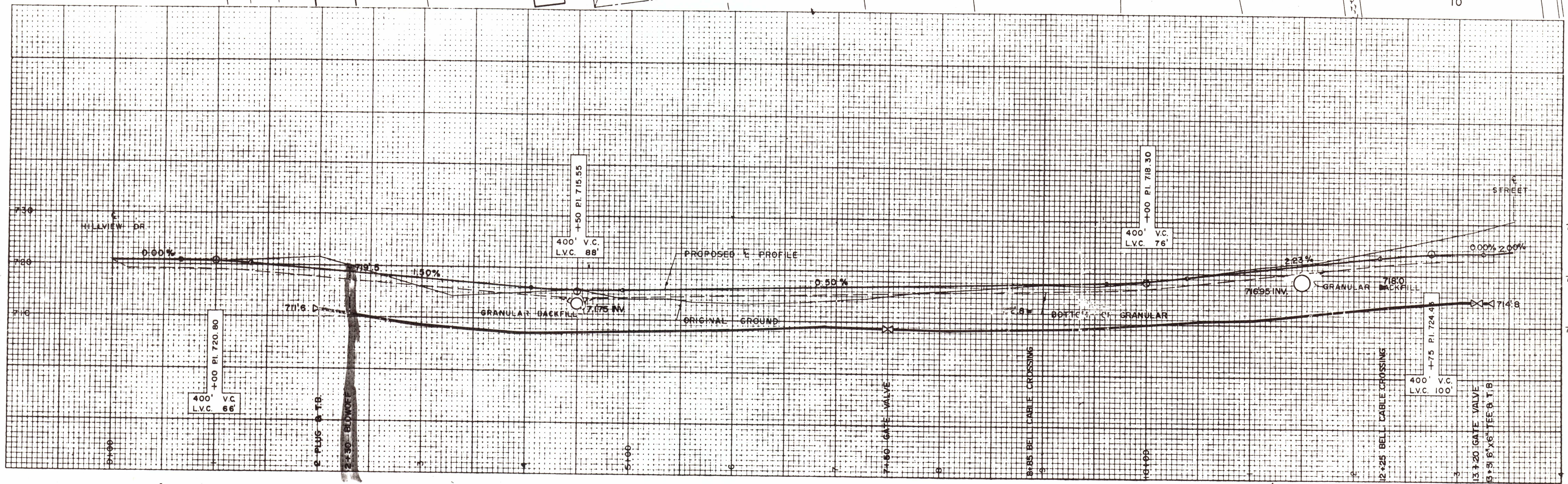
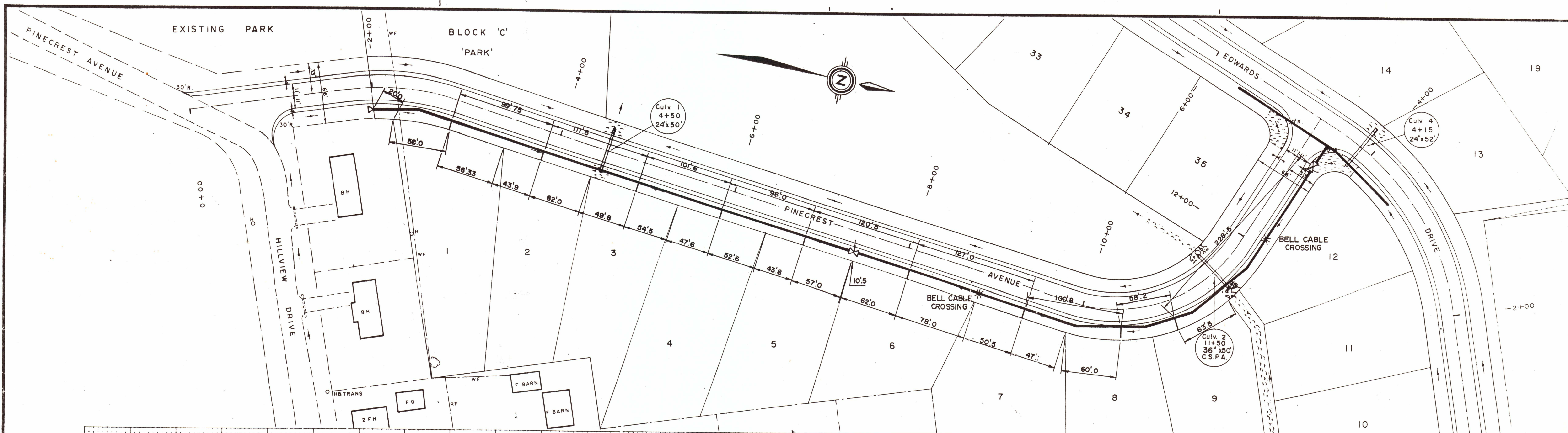
Water Capacity Analysis

Year	Maximum Daily Flows Per Month												Average Max Daily Flow (m³/d)	Max Capacity (m³/d)
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
2011	31	27	27	28	34	33	53	43	25	28	27	24	32	66
2012	34	30	30	31	36	37	40	29	40	34	31	34	34	66
2013	26	29	31	29	40	43	37	31	26	32	30	31	32	66
2014	23	21	20	21	29	41	27	21	22	20	18	17	23	66
2015	20	17	19	19	36	21	27	24	22	24	20	19	22	66
2016	20	19	30	18	36	29	35	28	25	25	23	18	26	66
2017	19	18	18	20	30	31	25	30	27	27	29	27	25	66
2018	23	24	23	26	35	39	46	49	39	33	24	32	33	66
2020	23	22	23	26	37	40	38	32	27	26	25	24	29	66
2021	23	22	24	26	51	55	33	42	22	28	19	19	30	66
Notes: - Using the existing Average Maximum Daily Flow information of 29m³/day gathered since 2011, we can determine, based on the plant currently servicing 37 dwellings, that each dwelling uses an average maximum flow of 0.78m³/day. Using this value we can predict that the additional 16 dwellings proposed in our design will increase the average maximum daily flow by approximately 12.5m³/day. Therefore, the post-development average maximum daily flow is calculated to be 42m³/day.											Existing (Pre-Development):		29	Servicing 37 dwellings
											Proposed:		13	Servicing 16 dwellings
											Total (Post-Development):		42m³/d	Servicing 53 dwellings

Appendix D

Correspondence

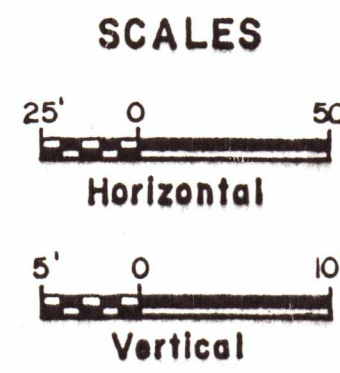
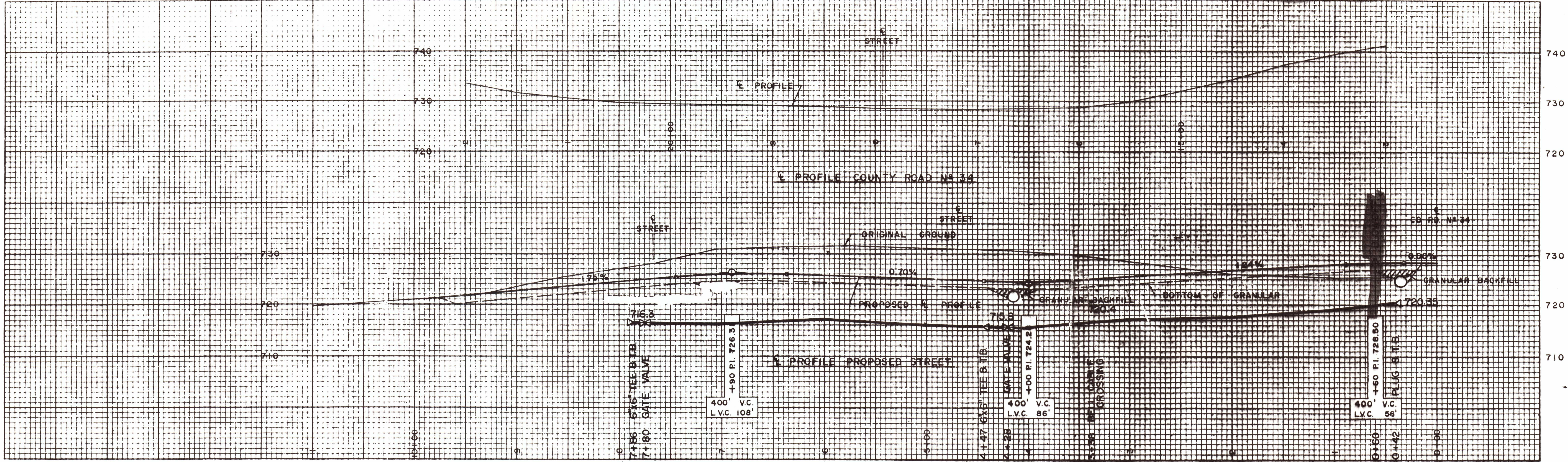
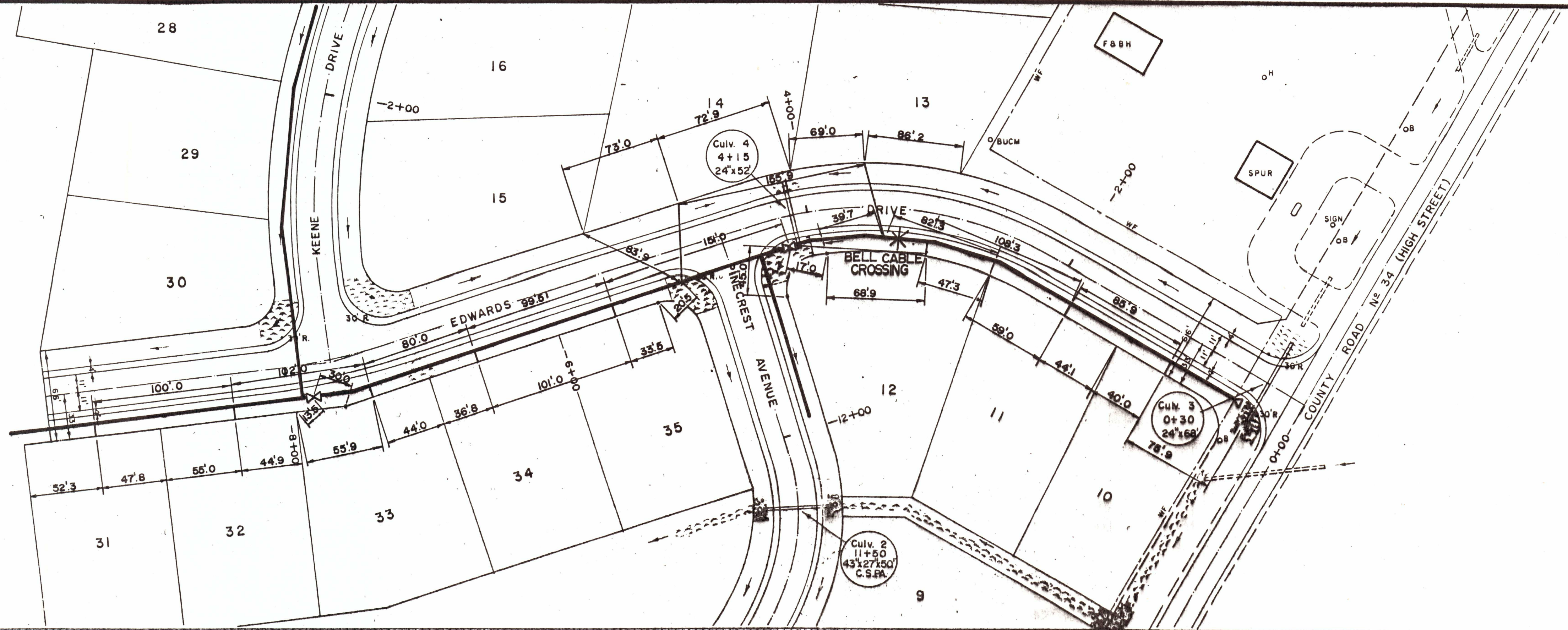
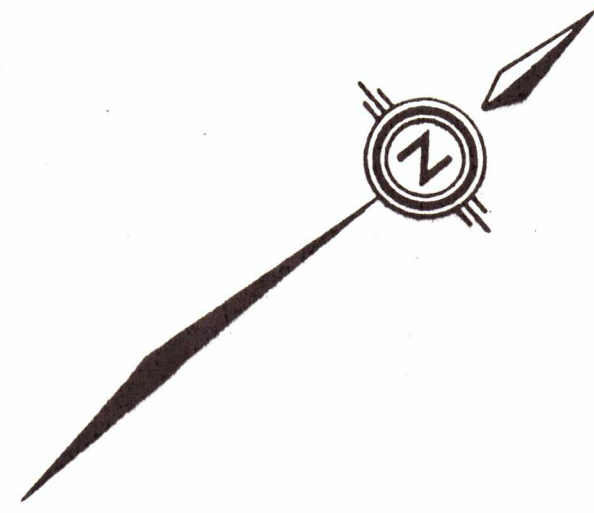




totten sims hubicki associates limited
CONSULTANTS
 COBOURG WHITBY KINGSTON TORONTO MUSKOKA

DESIGN	
DRAWN	
CHECKED	
APPROVED	
DATE	08-03-82
BY	AS BUILT
REVISIONS	

KEENE HEIGHTS LIMITED	DATE JUNE, 1975
WATER SUPPLY SYSTEM	PROJECT 2384
VILLAGE OF KEENE	DRAWING
PINECREST AVENUE	G4

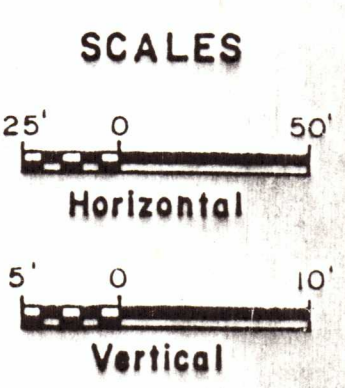
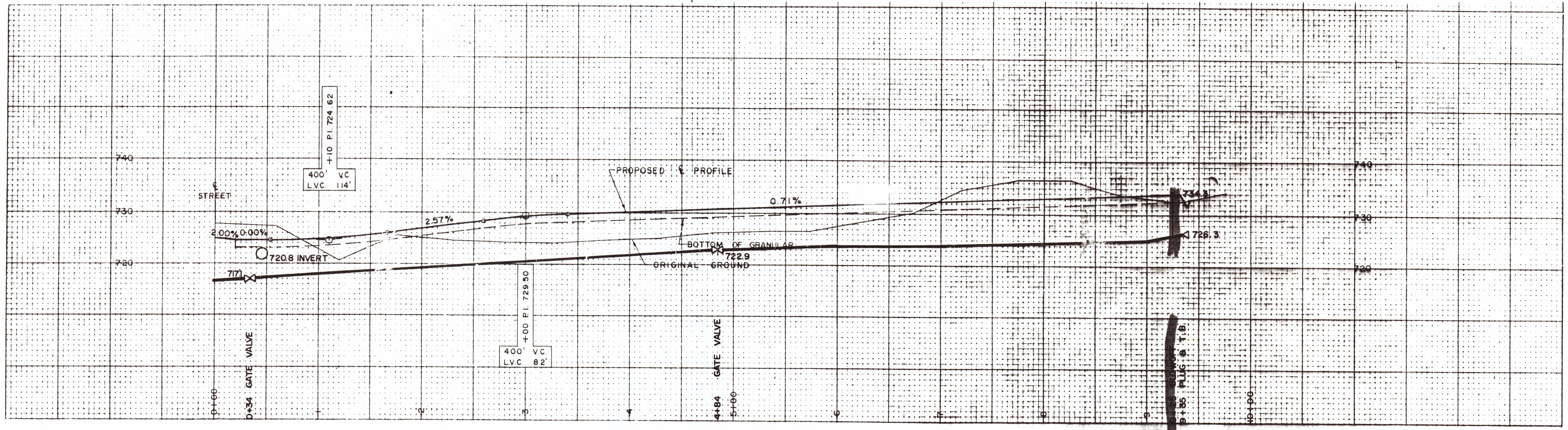
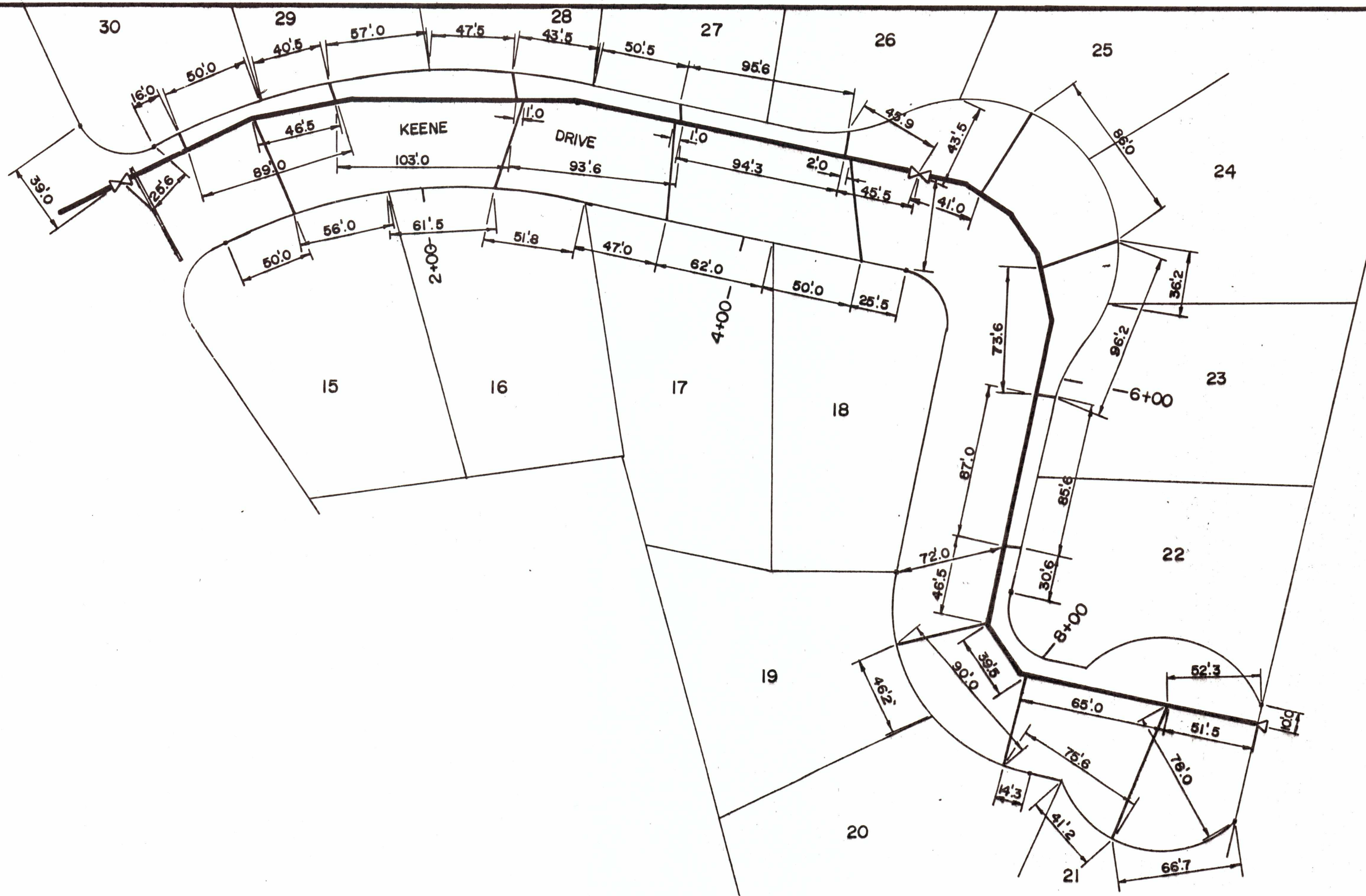


totten sims hubicki associates limited
CONSULTANTS
COBOURG WHITBY KINGSTON TORONTO MUSKOKA

DESIGN	
DRAWN	
CHECKED	
APPROVED	
1 03-82 K.H.	AS BUILT
No. DATE BY	REVISIONS

KEENE HEIGHTS LIMITED
WATER SUPPLY SYSTEM
VILLAGE OF KEENE
EDWARDS DRIVE

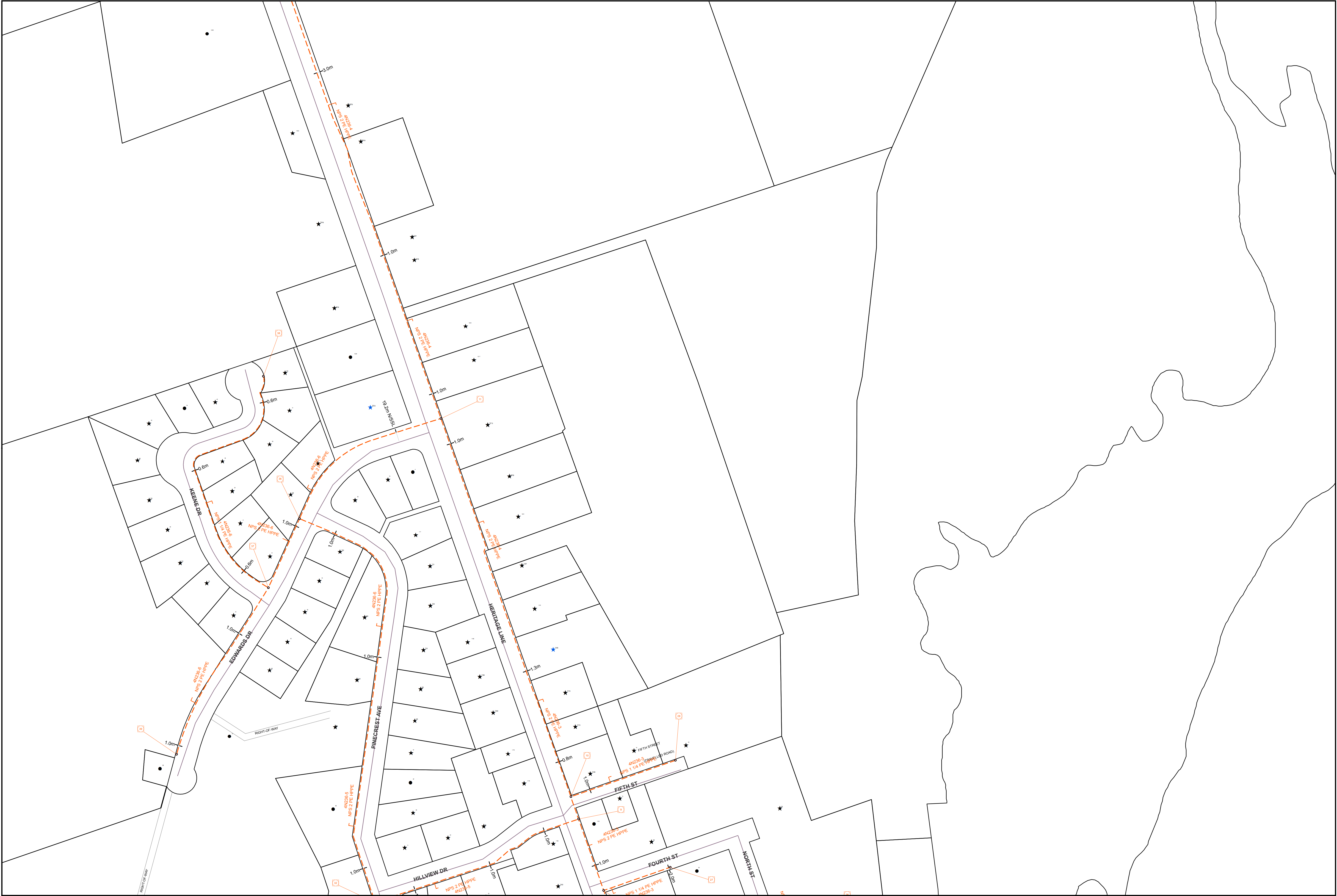
DATE JUNE, 1975
PROJECT 2384
DRAWING
G5



totten sims hubicki associates limited
CONSULTANTS
 COBOURG WHITBY KINGSTON TORONTO MUSKOKA

DESIGN	
DRAWN	
CHECKED	
APPROVED	
NO.	03-82 K.H.
DATE	AS BUILT
BY	REVISIONS

KEENE HEIGHTS LIMITED	DATE JUNE, 1975
WATER SUPPLY SYSTEM	PROJECT 2384
VILLAGE OF KEENE	DRAWING
KEENE DRIVE	G6



Plotted By: MoheswarRao Simadri

Date Plotted: 8/31/2021 2:57:31 AM

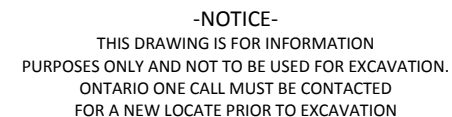
Note : Map is not to scale.



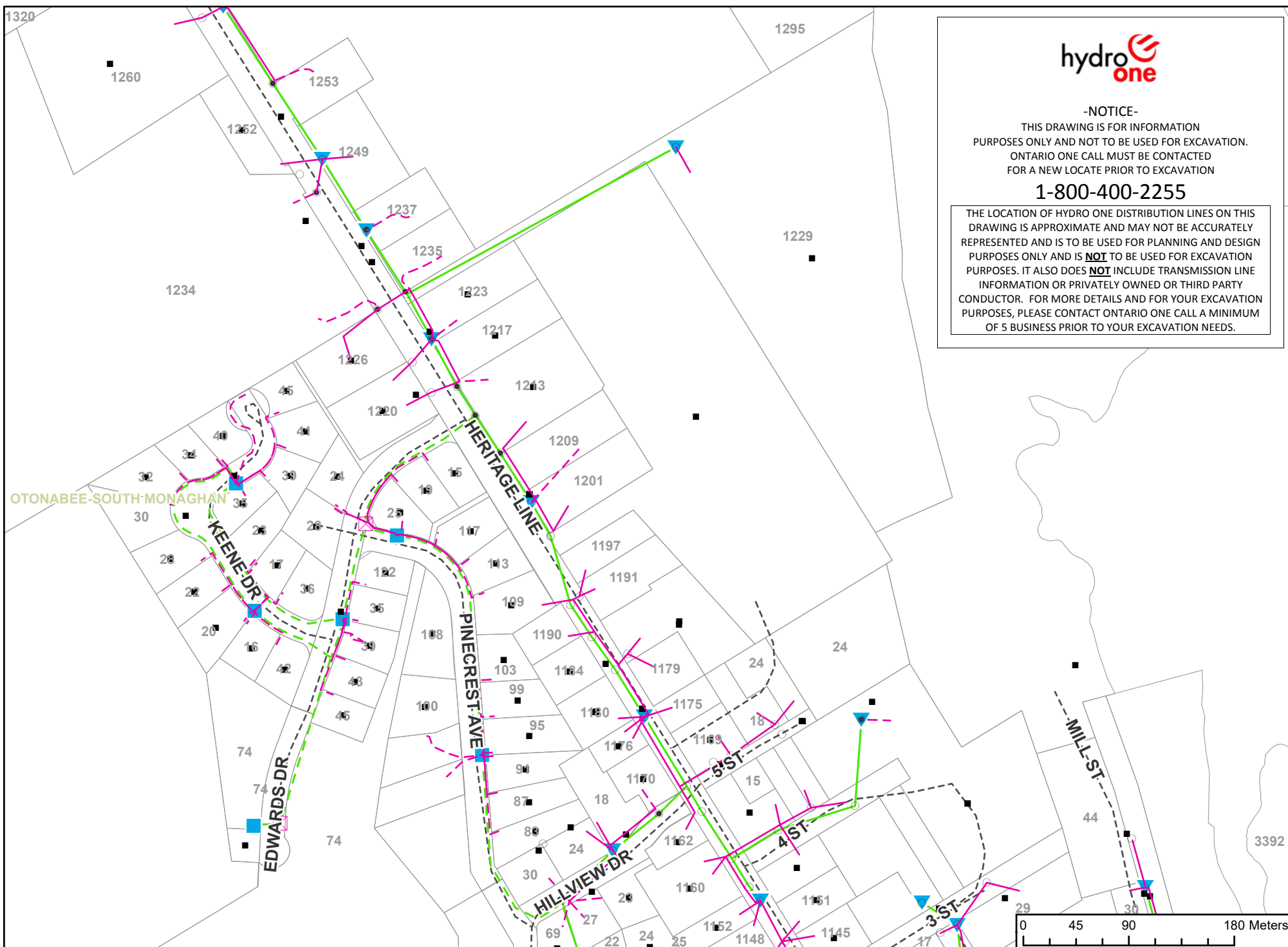
Plotted By: MoheswarRao Simadri

Date Plotted: 8/31/2021 2:58:40 AM

Note : Map is not to scale.



THE LOCATION OF HYDRO ONE DISTRIBUTION LINES ON THIS DRAWING IS APPROXIMATE AND MAY NOT BE ACCURATELY REPRESENTED AND IS TO BE USED FOR PLANNING AND DESIGN PURPOSES ONLY AND IS **NOT** TO BE USED FOR EXCAVATION PURPOSES. IT ALSO DOES **NOT** INCLUDE TRANSMISSION LINE INFORMATION OR PRIVATELY OWNED OR THIRD PARTY CONDUCTOR. FOR MORE DETAILS AND FOR YOUR EXCAVATION PURPOSES, PLEASE CONTACT ONTARIO ONE CALL A MINIMUM OF 5 BUSINESS PRIOR TO YOUR EXCAVATION NEEDS.





PRIMARY LOCATE SHEET

TICKET # 20213523870

NORMAL

PLANNING

Company: D.M. WILLS ASSOCIATES LIMITED

PHONE: (705)-742-2297 ext.

Requested By: MITCHELL BELL

Email: MBELL@DMWILLS.COM

Received Date: 08/27/2021 10:52

Excavation Date: 09/03/2021 00:00

Locate Address: HERITAGE LINE (COUNTY ROAD 34), EDWARDS DR

City: OTONABEE-SOUTH MONAGHAN

Cross Street: EDWARDS DR

Type Of Work: DESIGN AND PLANNING

Depth: 0

Area Marked ☒ Yes ☐ No

Site Meet : ☐ Yes ☐ No

Method of Field Marking: ☒ Paint ☐ Stakes ☒ Flags ☐ Other

Callers Remarks:

CORLOT=U REQUESTING MARK-UPS ONLY

WIDTH(m) = 0, DEPTH(m) = 0

LOT/UNIT#: NB OF SEGMENTS: 3 LATITUDE: 44.24700600 LONGITUDE: -78.16370650 DEPTH: 99.00 FT PUBLIC PROPERTY: NO MARK
& FAX: NO AREA IS NOT MARKED: YES MACHINE DIG: NO PRIVATE PROPERTY: NO SITE MEET REQ.: NO PREMARKED: NO
HAND DIG: NO DIRECTIONAL DRILLING: NO NXCOM01 NEXICOM TELECOMMUNIC H3AGE01 G-TEL FOR HYDRO ONE

Aerial copper cable on West side. Buried Fibre 3M east of road edge. Contact me for more info Adam 705-875-5687.

Do Not Reply to this email

Please accept this locate from Nexicom, valid for 60 days. If there are any questions, please contact
dispatch@nexicom.net or call 1-888-639-4266 ext 9111