

THIS SUBDIVISION AGREEMENT made (in quadruplicate) the 5th day of March A.D., 1985.

BETWEEN:

WILF HALL LTD., a Company incorporated under the laws of the Province of Ontario, having its Head Office in the Township of Dalhousie, in the County of Lanark,

hereinafter called the "Owner"

of the FIRST PART;

and

CORPORATION OF THE TOWNSHIP OF BATHURST,

hereinafter called the "Township"

of the SECOND PART.

WHEREAS the lands to which this agreement applies are more particularly described in Schedule "A" attached hereto and shown on the Plan of Subdivision attached as Schedule "B";

AND WHEREAS the Owner purports to be the registered Owner of the said lands and has applied to the Ministry of Municipal Affairs and Housing for approval of the Plan of Subdivision, draft approval of which has been given subject to the condition that this agreement be entered into.

AND WHEREAS the Owner has determined that the local name of the subdivision shall be "Bennett Lake Estates".

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises and the sum of ONE (\$1.00) DOLLAR of lawful money of Canada now paid by the Township to the Owner (receipt whereof is hereby acknowledged) and in consideration of the mutual covenants hereinafter expressed the parties hereto covenant and agree one with the other as follows:

DEFINITIONS:

1. IN THIS AGREEMENT:

"Plan" or "Plan of Subdivision" or "Subdivision" means the proposed plan of subdivision submitted by the Owner for approval and includes the lands described in Schedule "A" and shown or described in Schedule "B".

"Township Engineer" includes any engineer designated by the Council of the Township.

"Phase One" means Lots 1 to 16, inclusive and Lots 41 and 42 as they appear on Schedule "B".

"Phase Two" means Lots 17 to 32, inclusive as they appear on Schedule "B".

"Phase Three" means all remaining Lots as they appear on Schedule "B".

"Road Superintendent" means the Road Superintendent for the Township.

SCHEDULES:

2. The following Schedules are attached hereto and form part of this agreement:

"A" Description of lands to which this agreement applies.

"B" Draft Plan of Subdivision. It is acknowledged by the parties that if the subdivision agreement is registered after the Plan is approved and registered, the draft Plan of Subdivision shall be removed and a written description of the lands shall be included.

"C" Schedule of lands for municipal purposes.

"D" Terrain Analysis and Ecological Sensitivity Report by Water and Earth Science Associates Ltd.

PHASING:

3. The Owner covenants with the Township to phase the development of this Plan of Subdivision over a minimum of three years, it being the intention that Phase One may be developed and lots within Phase One may be sold during the first year after the Plan is registered, and any time thereafter. Phase Two may be developed and lots may be sold during the second year after the registration of the Plan and any time thereafter. Phase Three may be developed and lots may be sold during the third year after the registration of the Plan and any time thereafter.

ROADS:

4. The Owner agrees that:

(a) The roads known as Burke Road, Oak Drive, Pine Street, Meadow Lane, and Scott Street on the Plan are and shall remain private roads until assumed by the Corporation of the Township of Bathurst by By-Law.

(b) It is acknowledged by the Owner on behalf of itself, its heirs, successors, and assigns, and on behalf of the owner or owners from time to time of the lots on Schedule "B" that the roads will not be accepted by the Township unless and until they are, at the expense of the owners of the lots on the said subdivision, brought up to standards acceptable to the Ministry of Transportation and Communication in order that the Township will qualify for road maintenance subsidy.

(c) The Owner covenants on behalf of itself, its heirs, successors, and assigns, and on behalf of the owner or owners of each lot described on Schedule "B" to be responsible for road maintenance and to pay its proportionate share of road maintenance, it being understood that maintenance for the road shall be paid by all owners of the lots on Schedule "B" in equal shares. Until the lots on Schedule "B" are all sold, the Owner covenants to pay the portion of the road maintenance applicable to the unsold lots.

(d) The purchasers of each of the lots on the attached Subdivision Plan shall be made aware of the provisions of this agreement as it pertains to the Subdivision Roads, by the Owner at the time of each purchase.

(e) The Owner covenants not to sell any lot on the Plan until it has built a road to the said lot, it being understood that the Township shall not be obliged to issue a building permit for any lot unless and until the road leading to the said lot has been built.

(f) The Township agrees to assume the said roads by By-Law at the next regular Township Council meeting after the said roads have been approved by the Township Engineer and the Ministry of Transportation and Communications.

(g) The Owner agrees on behalf of itself, its successors and assigns, the owner or owners of the lot or lots on the plan that all driveway approaches and entrances to each lot shall be constructed in accordance with Township entrance policy prior to the issuing of a building permit for the lot.

LANDS FOR MUNICIPAL PURPOSES:

5. The Owner further agrees to grant in fee simple, free of charge and free of all encumbrances, unto the Township, the lands set forth in Schedule "C" hereto for municipal purposes other than roads, as indicated on the attached draft Plan of Subdivision, or cash in lieu of lands as set out in Schedule "C" hereto. The deeds for the said lands and easements shall be delivered to the Township's Solicitor by the Owner before the approval of the said Plan is requested from the Township, with the registered number of the Plan left blank for later filling in. The cost of registration shall be paid by the Owner. The Township will cooperate with the Owner in acquiring

DRAINAGE:

6. The Owner covenants not to interfere with any existing drain or water course without the written permission of the Township. The Owner agrees that the granting of such permission shall not relieve the Owner of responsibility for any damage caused by such interference and the Owner will indemnify and save the Township harmless against any claims brought against the Township relating to such damage; provided that the Township will give the Owner opportunity to defend any such claim.

SHORELINE MODIFICATION:

7. The Owner agrees and does hereby covenant that no filling or dredging of the shore or bed of Bennett Lake and Fall River will be undertaken without the written permission of the District Manager, Ministry of Natural Resources, Carleton Place.

HYDRO INSTALLATIONS:

8. In this section, "supply of hydro service to a lot" means supply of hydro service on a road adjacent to a lot. The parties hereto acknowledge that hydro service may be installed upon all of the roads shown on Schedule "B". The Owner agrees to arrange for installation of hydro services along the said roads in one stage or in a number of stages and the owner agrees that hydro service will be supplied to all of the lots in Phase One prior to the sale of any lot in Phase Two, it being the understanding that the Township shall not be obliged to issue a building permit for any lot in Phase Two until hydro is supplied to all of the lots in Phase One.

Similarly the Owner agrees that hydro service will be supplied to all of the lots in Phase Two prior to the sale of any lot in Phase Three, it being the understanding that the Township shall not be obliged to issue a building permit for any lot in Phase Three until hydro is supplied to all of the lots in Phase Two.

The Owner agrees that hydro service will be supplied to all of the lots in Phase Three, and agrees that no lot in Phase Three will be sold without having hydro supplied to it, it being the understanding that the Township shall not be obliged to issue a building permit for a lot in Phase Three until hydro is supplied to the said lot.

ACCEPTANCE OF WORKS:

9. Before applying for final acceptance of any of the works or any part thereof, the Owner shall supply the Township with a Statutory Declaration that all accounts for work and materials have been paid except normal guarantee holdbacks, and that there are no claims for liens or otherwise in connection with such work done or materials supplied for or on behalf of the Owner.

10. When the works set out in this agreement or any part thereof have been executed in accordance with this agreement and specifications, and all Township accounts have been paid, the Council shall pass a resolution accepting the completed work.

11. Upon the said resolution being passed the ownership of the works shall vest in the Township and the Owner shall have no claim or rights thereto, other than those accruing to it as the owner of the lands abutting on streets on which the works were installed.

WELLS AND SEPTIC SYSTEMS:

12. The Owner covenants on behalf of itself, its successors and assigns, that private wells and sewage systems located on each lot shall be constructed as recommended in the Terrain Analysis and Ecological Sensitivity Report attached hereto as Schedule "D".

13. The Owner covenants on behalf of itself, its successors or assigns, (the owner or owners from time to time of the Lot or Lots shown on Schedule "B") as follows:

- (a) To follow the recommendations contained in the report attached hereto as Schedule "D";
- (b) That lots shall be made suitable for the installation of sewage systems prior to or at the building permit stage to the satisfaction of the Leeds, Grenville and Lanark District Health Unit in accordance with Ontario Regulation 374/81 made under the Environmental Protection Act;
- (c) To inform all prospective purchasers of these requirements at the time of offer of sale and purchase.

LAND DEDICATION AND EASEMENTS:

14. The Owner shall forthwith convey to the Township the one (1') foot reserves on Schedule "B", it being understood that the Owner shall retain the right to convey a right-of-way over the reserves to the owner of the lands adjacent to the reserves. The Township covenants not to provide any right-of-way over the one (1') foot reserves without the consent of the Owner.

PAYMENT OF TAXES:

15. (a) The Owner agrees to pay all arrears of taxes outstanding against the property herein described before the approval of the said Plan is required.

(b) The Owner further undertakes and agrees to pay all taxes levied or which may be levied on the said lands on the basis and in accordance with assessment and the collector's roll entries appearing from time to time, until such time as the lands herein being subdivided can be assessed according to the registered Plan.

BUILDING RESTRICTIONS:

16. The Owner agrees with the Township that the Owner shall not make any application for and the Township shall not be bound to issue to the Owner any building permits for structures to be erected on lots on the said Plan of Subdivision to which this agreement applies, until all of the lands required to be conveyed to the Township and the deeds therefor have been lodged with the Township Solicitor, and the Owner agrees to indemnify and save harmless the Township from any and all claims, demands and causes of action arising out of the provisions of this paragraph.

REGISTRATION OF AGREEMENT:

17. This agreement shall be registered by the Township Solicitor at the expense of the Owner immediately following the registration of the said Plan, and the registered duplicate of this agreement and any deed or deeds of conveyance to the Township shall be lodged with the Township Clerk.

PAYMENT OF ACCOUNTS:

18. The Owner covenants and agrees to pay to the Township an amount equal to all legal fees and disbursements and planning fees and disbursements incurred by the Township for advice with regard to the subdivision, the preparation of this subdivision agreement, and all documents required to be prepared pursuant to it. Copies of the accounts for such services of the Township Solicitor and Township Planner shall be delivered by the Township to the Owner forthwith on receipt of such accounts for the Township Solicitor and Township Planner and the Owner covenants and agrees that it shall pay forthwith to the Township or its nominee as accounts are rendered by the Township Engineer, including amounts for inspection and review of the final Plan prior to approval thereof by the Township and all on-site inspections carried out by the said Engineer, the amount of such accounts.

COVENANTS RUNNING WITH LAND:

19. The covenants entered into by the Owner in paragraphs 4, 6, 7, 12 and 13 are intended to be binding upon future owners of the individual lots shown on Schedule "B" and accordingly shall run with and be a charge upon the lands.

CANCELLATION OF AGREEMENT:

20. In the event that the Plan of Subdivision has not been registered within three (3) years from the date of this agreement, the Township may at its option cancel this agreement upon notice to the Owner.

NOTICES:

21. Any notices required to be given hereunder may be given by registered mail addressed to the other party at its principal place of business and shall be effective as of the date of deposit thereof in the post office.

SCHEDULE "A"

ALL AND SINGULAR those certain parcels or tracts of land and premises situate, lying and being in the Township of Bathurst, in the County of Lanark and Province of Ontario, and being composed of all those portions of Lots 2, 3, and 4, Concession 9, in the said Township of Bathurst, designated as Part 1, Plan 27R2626.

SCHEDULE "B"

ALL IN SINGULAR those certain parcels or tracts of lands and premises situate, lying and being in the Township of Bathurst and County of Lanark, Province of Ontario and being Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50 and blocks 51, 52, 53, 54, and Burke Road, Meadow Lane, Scott Street, Pine Street and Oak Drive all on Plan *PL-30*

SCHEDULE "C"

1. LANDS FOR MUNICIPAL PURPOSES OTHER THAN PUBLIC HIGHWAYS:
BLOCKS 53 and 54.

2. LANDS ON ACCOUNT OF FIVE PERCENT (5%)

In total the Owner shall pay to the Township the sum of Six Thousand (\$6,000) Dollars. The sum of Two Thousand (\$2,000) Dollars shall be paid by the Owner to the Township prior to the sale of any lot within Phase I of the Plan of Subdivision, it being understood that the Township shall be at liberty to refuse to issue a building permit for any lot in Phase I of the Plan prior to the payment of the said Two Thousand (\$2,000) Dollars.

The sum of Two Thousand (\$2,000) Dollars shall be paid by the Owner to the Township prior to the sale of any lot within Phase II of the Plan of Subdivision, it being understood that the Township shall be at liberty to refuse to issue a building permit for any lot in Phase II of the Plan prior to the payment of the said Two Thousand (\$2,000) Dollars.

The sum of Two Thousand (\$2,000) Dollars shall be paid by the Owner to the Township prior to the sale of any lot within Phase III of the plan of subdivision, it being understood that the Township shall be at liberty to refuse to issue a building permit for any lot in Phase III of the Plan prior to the payment of the said Two Thousand (\$2,000) Dollars.

3. LANDS FOR PUBLIC HIGHWAYS:

BURKE ROAD

OAK DRIVE

MEADOW LANE

SCOTT STREET

PINE STREET

SCHEDULE "D"
TO A SUBDIVIDER'S AGREEMENT BETWEEN
WILF HALL LTD. and CORPORATION OF THE TOWNSHIP OF BATHURST

BENNETT LAKE SUBDIVISION
PART OF LOTS 2, 3, AND 4, CONCESSION IX
TOWNSHIP OF BATHURST, COUNTY OF LANARK
TERRAIN AND HYDROGEOLOGICAL ANALYSIS

October 1983

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1.0 INTRODUCTION

Water and Earth Science Associates Ltd. were asked by Mr. Wilf Hall the owner of part of Lot 2, 3, and 4 Concession IX, Township of Bathurst to conduct a terrain and hydrogeological analysis for a proposed cottage and backlot subdivision. The location of the subdivision is shown on the large plan which is appended to this report.

In order to establish the suitability of this property for development on individual services (ie. wells and septic tank systems) and to provide planning and environmental guidelines as dictated by terrain conditions the following site factors were studied:

1. The distribution of bedrock and surficial materials.
2. Topography and drainage.
3. Hydrogeological characteristics of the bedrock aquifer.
4. The characteristics of terrain units and their potential to attenuate septic tank effluent.
5. The most suitable design of well and septic tank systems.

We have worked closely throughout this study with Dr. Ted Mosquin (Biologist) and the firm of Haigis, McNabb, DeLew Ltd. of Ottawa (Planners) to insure that our findings and recommendations are reflected in the final draft plan of the subdivision. The results of our investigations are presented in the following report.

1.1 Study Methods

First a site reconnaissance of the property was made and published literature about the geology, hydrogeology and physiography of this region were compiled and reviewed. An aerial photo interpretation of the property was made using photos from the Ministry of Natural Resources and the Federal Department of Energy, Mines and Resources. The property was mapped using geological field techniques at a scale of 1:2,000. At this time a draft plan of the subdivision was field checked twice to verify property boundaries and the location of the road. A number of shallow test pits were dug by hand into the surficial sediments to permit determination of their lithology and distribution. The shore of Bennett Lake was investigated by boat. All published well logs from existing homes in the area were collected and analysed to establish the potential of aquifers within the property.

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Finally, planning documents and government regulations were reviewed as a basis for the recommendations included in this report.

1.2 Topography and Drainage

The Hall property is located in the northern section of the Frontenac Axis physiographic region. This area is made up of glacially scoured Precambrian rocks which have a unique set of physiographic characteristics. These can be summarized as follows:

1. A rugged topography oriented north-south along the direction of glacial ice movement.
2. Steep north-south bedrock controlled slopes and escarpments.
3. Thin soil materials on rocky highlands and considerably thicker soil materials in lowland areas and valleys.
4. An immature, disconnected and ephemeral drainage pattern with numerous local depressions where water accumulates during the wetter seasons of the year.
5. A steep rocky and irregular shoreline with swampy and marshy lands in low energy zones.

The topography of the site varies from an elevation high of 208.5 metres on lot 4 (see appended plan) to the present level of Bennett Lake which is about 158.5 metres A.S.L. The pronounced ridge and valley topography is generally more rugged in the eastern part of the property where 20 metres of elevation difference is common between high and low areas. The western part of the land is more open and gently rolling and much of the lowland terrain has been cleared and cultivated for farm use.

2.0 SITE GEOLOGY

The Bennett Lake subdivision is underlain by granite and granite gneiss bedrock of Precambrian age. Bedrock outcrops

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throughout the property on hill top areas and along the edges of steeper slopes. Bedrock surface is striated, polished and fractured, and shows evidence of plucking from glacial ice movement. The pronounced north south oriented ridge and valley topography characterizes the property. Steep slopes of 30 to 50 percent make up the rock escarpments which characterize areas of the site. These site features are mapped on Figure 1.

Surficial deposits consist almost entirely of glacial till ground moraine. This material is made up of fine-grained sand and small angular pebbles with a silty sand matrix. A typical grain size analysis of this material would have a 50 percent clay silt content, 38 percent fine sand content, and 12 percent coarse fraction. The hydraulic conductivity of this material would be about 5×10^{-4} cm/sec but will vary laterally across the site. In general the till unit is usually only a few centimeters to 50 cm thickness on ridgetops but thickens near the base of slopes and in valley bottoms to a 3 to 5 m thick range. Most of the areas of low slope and thick soil materials have been cleared and cultivated on the site.

It is probable that this subdivision was once covered by marine waters of the Champlain Sea. Several small depressions are filled with clay material which is lithologically similar to marine clay which is distributed throughout eastern Ontario. Due to the low permeability of this material these areas are poorly drained and have developed unique vegetation types. These deposits are restricted in area and are of geological interest only. In some lowland areas organic soils, muck and thin peat deposits have been developed. Their distribution is also restricted to small pockets in lowland areas. Soils formed on the sandy till ground moraine are poorly developed and are usually from 10 to 20 metres thick. These materials have a very poor potential for agricultural production on the upland areas of the property but an improved agricultural capability in lowland which has been cleared and cultivated.

Four terrain units can be identified on the property. These are mapped on Figure 1. A terrain unit is a land area with unique combination of physiography and geological properties. The terrain units identified on this property are:

1. Gently sloping thick sandy till. (UNIT T)
2. Rolling areas where thin till overlies bedrock. (UNIT tT)
3. Areas where greater than 50% of the land surface is exposed bedrock. (UNIT R)
4. Thin depressional areas where clay has been deposited. (UNIT C)

3.0 HYDROGEOLOGY

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The Precambrian bedrock represent the only aquifer on the subdivision property. In general, surficial materials will not provide adequate groundwater yields for domestic residences using dug wells because the overburden thickness is too thin and discontinuous in nature to provide sufficient groundwater storage. In places in the thick till terrain (UNIT C) a dug well may be able to be constructed to provide the limited amount of groundwater needed for seasonal residents. Water wells of this type need frequent recharge events however and would probably provide sporadic and unreliable yields especially during late dry summer months.

Knowledge of the recharge characteristics, water supply potential and groundwater quality of the Precambrian aquifer is an important factor in the planning of any development on this site. A brief discussion of these points follows.

3.1 Recharge Characteristics

Groundwater movement in Precambrian rock is controlled by variations in topography between highlands and lowland areas and the pattern and extent of the fracture system present. In other words, precipitation which falls on upland recharge areas will flow downwards into the saturated groundwater zone below the water table and hence, in a lateral direction towards lowland swamp and stream discharge zones.

Saturated hydraulic gradients in Precambrian terrain are impossible to measure without detailed drilling data. Gradients in the unsaturated near surface fracture system, however, should reflect surface topography variations and the orientation of fracture patterns closely and should vary considerably in this area (0.1 to 0.3). Infiltration rates and groundwater flow velocities should be high in this terrain but cannot be calculated because measurements of the bedrock fracture permeability have not been made.

Based on this information, wells should be located on highland areas for two reasons:

- a) septic tile weeping beds can then be located at lower elevations and will flow away from, not towards water wells.
- b) Wells will be recharged by precipitation and will be located at a sufficient distance from lowland marsh areas to avoid drawing water from these sources. Marsh water is often of poor quality due to high organic acid concentrations, low pH or colour and odour problems.

3.2 Aquifer Potential

The water wells for all wells recorded with the Ministry

of the Environment in Lots 1-10 of Concession 8-10 adjacent to Bennett Lake have been assembled and analyzed to provide an assessment of the groundwater supply potential in this region. These 7 well logs are included as an Appendix of this report.

Well yields in Precambrian granitic terrain vary as a function of the degree of fracture in this rock type. It should be noted that fractures usually decrease in density with depth along the metamorphic foliation and the joint pattern in granitic rocks. Well yields are usually not significantly increased if wells are drilled beyond 60 metres as a consequence.

Water was found from 9 to 44 metres below the ground surface (mean = 23 m) in these wells with a static level variation of 1.5 to 9.7 metres. The maximum depth of any well is only 45 metres in this area.

To evaluate well yields, each log was examined and classified as follows:

	Number of Wells
Poor yields (drawdowns were high, 25-75' after short term (1-2 hour) pump tests at 5 gpm or less)	3
Moderate yields (drawdowns were fairly low, less than 50' after short term pump tests at 5-10 gpm)	3
Good yields (drawdowns were low after short term pump tests at greater than 10 gpm)	1
Could not be evaluated due to incomplete data	0
TOTAL:	7

The following conclusions can be drawn from this analysis:

- a) all of the existing wells in this area have yields sufficient to service a domestic home or cottage (2 igpm or 9 litres per minute). Wells should be drilled and constructed as per the recommendations outlined in Section 4.1 to maximize the well yields and eliminate potential contamination problems.
- b) it is unlikely that high volume wells of 200 litres per minute or greater could be drilled on this site. Development planning does not include any high volume water usages in any case.

3.3 Water Quality

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The water quality of groundwater from existing wells in the Bennett Lake area is reported to be fresh, colourless and odourless. This is most likely the case on the study property. In general, the water quality of groundwater from Precambrian granite aquifers is excellent.

4.0 DEVELOPMENT POTENTIAL

Many of the seasonal dwellings in the potential subdivision may be serviced by pit privies with greywater leaching pits for wash water disposal. This is considered to be an environmentally sensible method of servicing this type of development. The use of low-phosphate detergents is suggested to reduce any possibility of eutrophication acceleration from cottages near water.

Lots on the thick till (UNIT T) terrain unit are suitable for septic tank installations in their natural state. The general guidelines of Ministry of the Environment Regulation 374 which governs septic tank design should be followed.

Due to the thin and permeable nature of the glacial till (UNITS tT and R) over much of the property, raised tile beds will be necessary on many lots. Tile beds should be placed where soil thickness is greatest. The same regulation covers the construction of this type of tile bed. The use of sand with a high ability to absorb phosphate is recommended, especially for water front lots. It should be noted that the sand pit owned by Wilf Hall at Macdonalds Corners has been tested by the Ministry of the Environment and the material in it has been found to have a high degree of suitability for use in raised tile beds. (Phosphorus Retention Capability of Granular Soils on the Precambrian Shield 1976, Ministry of the Environment Publication).

No development should take place in marsh areas or on poorly drained UNIT C terrain in the subdivision.

While the Fall River and Bennett lake is not considered to be a sensitive lake by the Ministry of the Environment (i.e does not have water chemistry of sufficient quality to support lake trout), we have incorporated the recommendations of the Ministry about sensitive lakes into the recommendations we have made about this development. Specifically these suggestions cover the use of high phosphate retention soils in raised beds and the preservation of a 30 meter vegetated buffer zone between septic beds and the waterfront.

This subdivision is recommended for development if the following suggestions about well and septic tank installations are followed.

4.1 Recommended Well Design

Dug wells may be constructed in some lots where overburden thickness is high. However, to minimize the risk of well water contamination and maximize well yields drilled wells are recommended. The following guidelines are suggested;

1. All wells should be drilled slowly to minimize blockage and sealing of the fine joints and fractures in the bedrock which are the source of water in the Precambrian bedrock. In addition, wells should be surged repeatedly during construction to maximize yields and avoid over deepened wells and high construction costs. A yield of 9 litres/minute (2 igpm) is more than adequate to service a seasonal residential dwelling.
2. All wells should be properly cement grouted at least one casing length (about 7.5 metres) into bedrock to seal fractures near the well which have a potential to permit contaminated surface water from recharging the well. A typical well design diagram is included in this report to graphically demonstrate this recommendation. The use of Pitless Adaptors, although not shown on this diagram is highly recommended.
3. Wells should be drilled at least 50 metres away from swamps and marshes to avoid the possibility of recharging wells with poor quality water.

4.2 Tile Field Design Recommendations

1. Septic tanks on some lots will require raised tile beds. (See design diagram). Imported sand material with a high phosphate retention capacity (i.e. high iron hydroxide content) and suitable permeability should be utilized for this purpose.
2. A 30 metre tile bed to waterbody spacing should be maintained everywhere on the site. This will minimize the risk of nutrient movement to Bennett Lake or the Fall River. In fact, due to the high waterfront slopes on many of the lots in this subdivision most cottages will be located a much greater distance than 30 metres from waterbodies.
- e. It is recommended that the capacity of septic tanks and the lengths of weeping tile used be calculated according to the Ministry of Environment regulation 374 which is the latest guideline to control the design of septic, leaching pits and privy systems.
4. It is recommended that tile bed to well spacings within individual lots be increased from 15 to 30 metres as a safety factor in order to minimize any risk of contamina-

tion of potable well water. Tile beds should be located below wells to permit effluent to flow away from and not towards water supplies.

5. Where slopes are high (5-10%), tile bed construction will require:
- that a 12 x 15' minimum area be infilled with semi-permeable material to reduce the slope to less than 1%, and
 - that a mantle of fill (6m minimum width by .6m depth) be constructed over the bed.

A design diagram is included to demonstrate these recommendations.

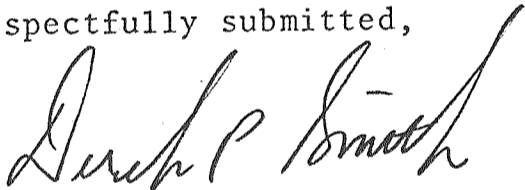
Tile bed construction on slopes of 10 - 25% is difficult and might require extensive remedial work with heavy construction machinery. These should be designed and approved on an individual basis.

4.3 Site Inspections

A lot by lot field survey of potential tile field locations was made upon completion of a concept plan by Haigis McNabb Deleuw Ltd. Viable tile bed sites are available on all lots shown on the plan.

It should be noted that inspection will be repeated with the Public Health Department once the draft plan has been submitted for approval.

Respectfully submitted,



Derek P. Smith, M.Sc., F.G.A.C.
Hydrogeologist

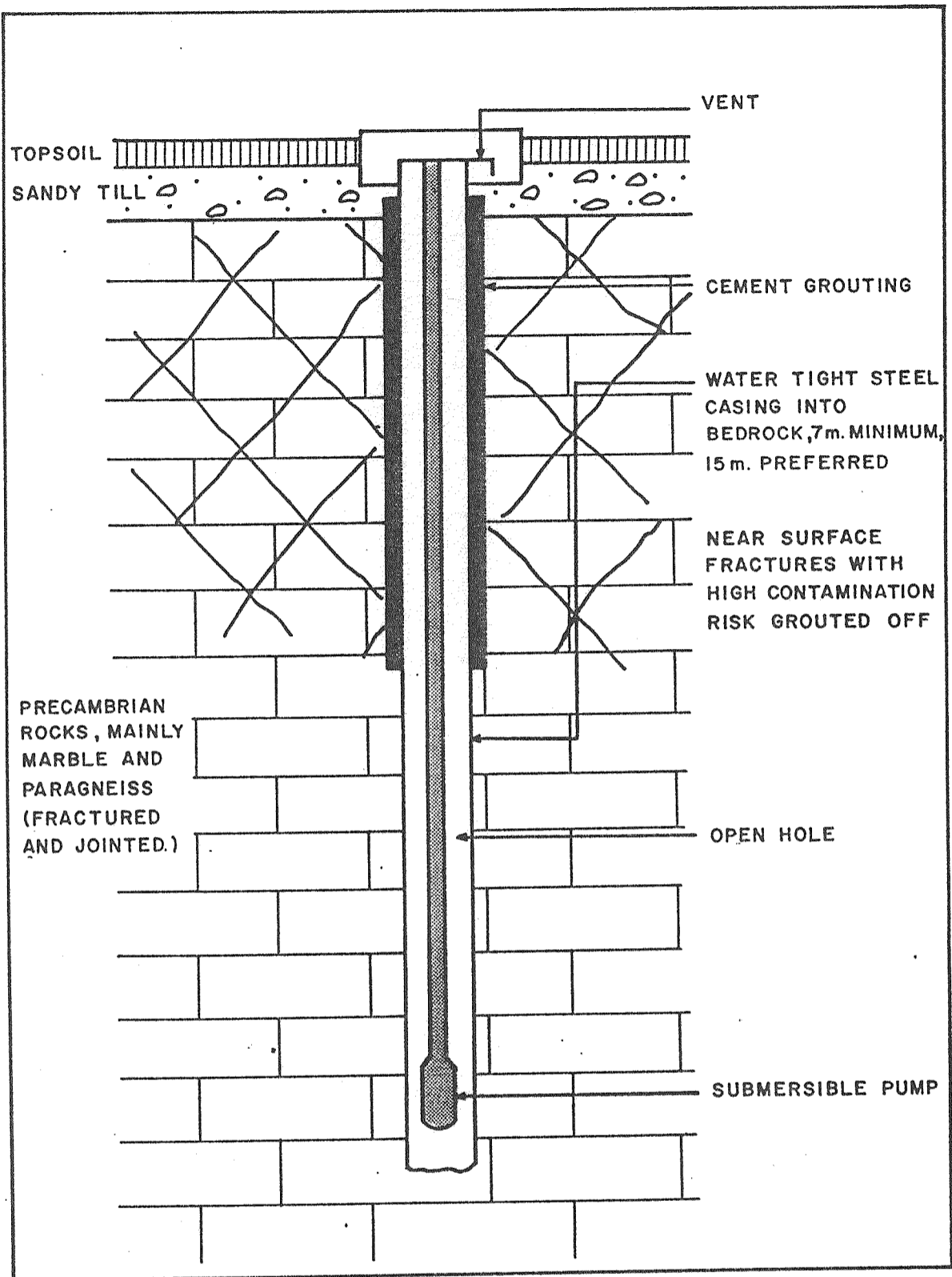
5.0 SELECTED REFERENCES

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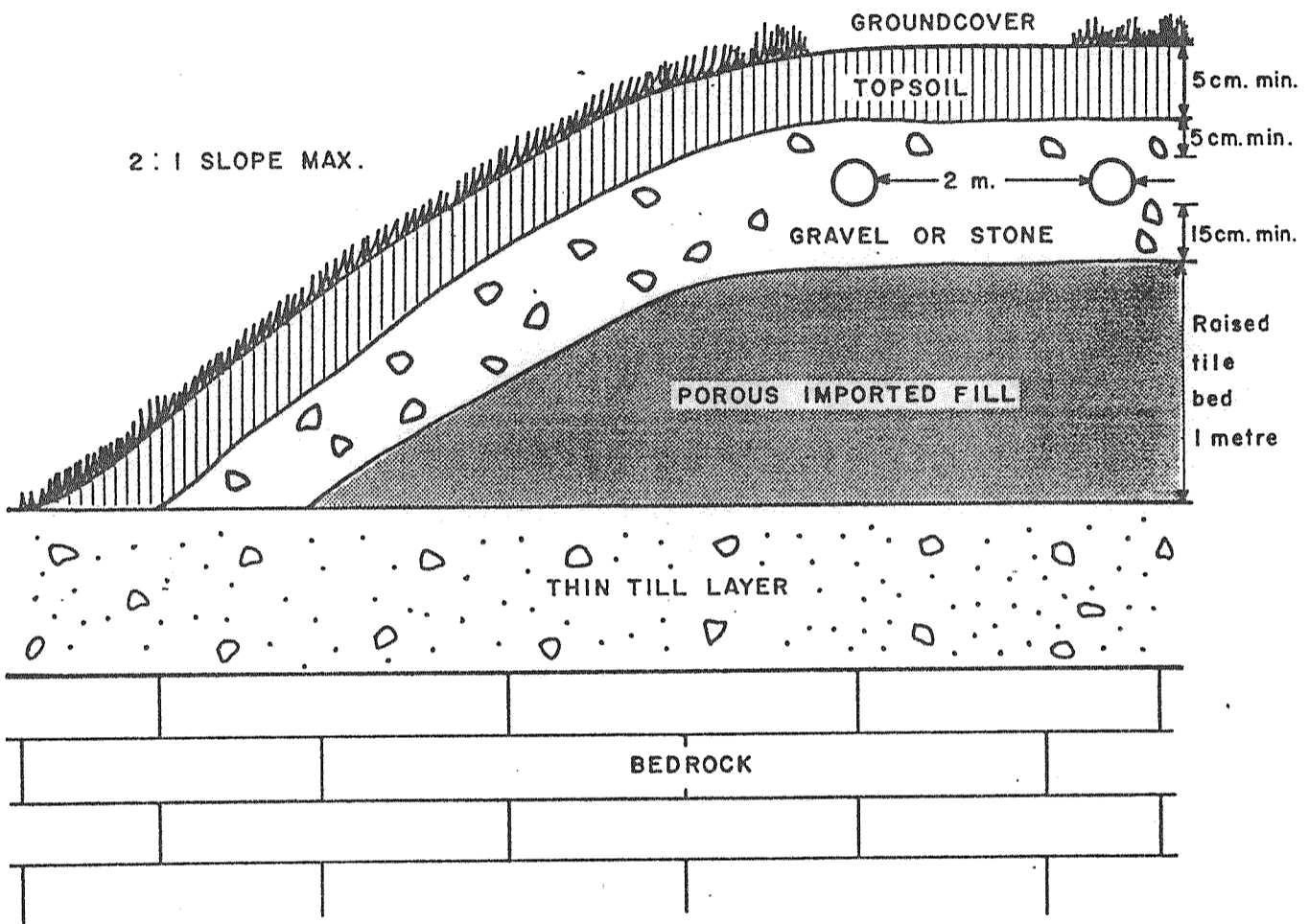
APPENDIX A

Well Logs

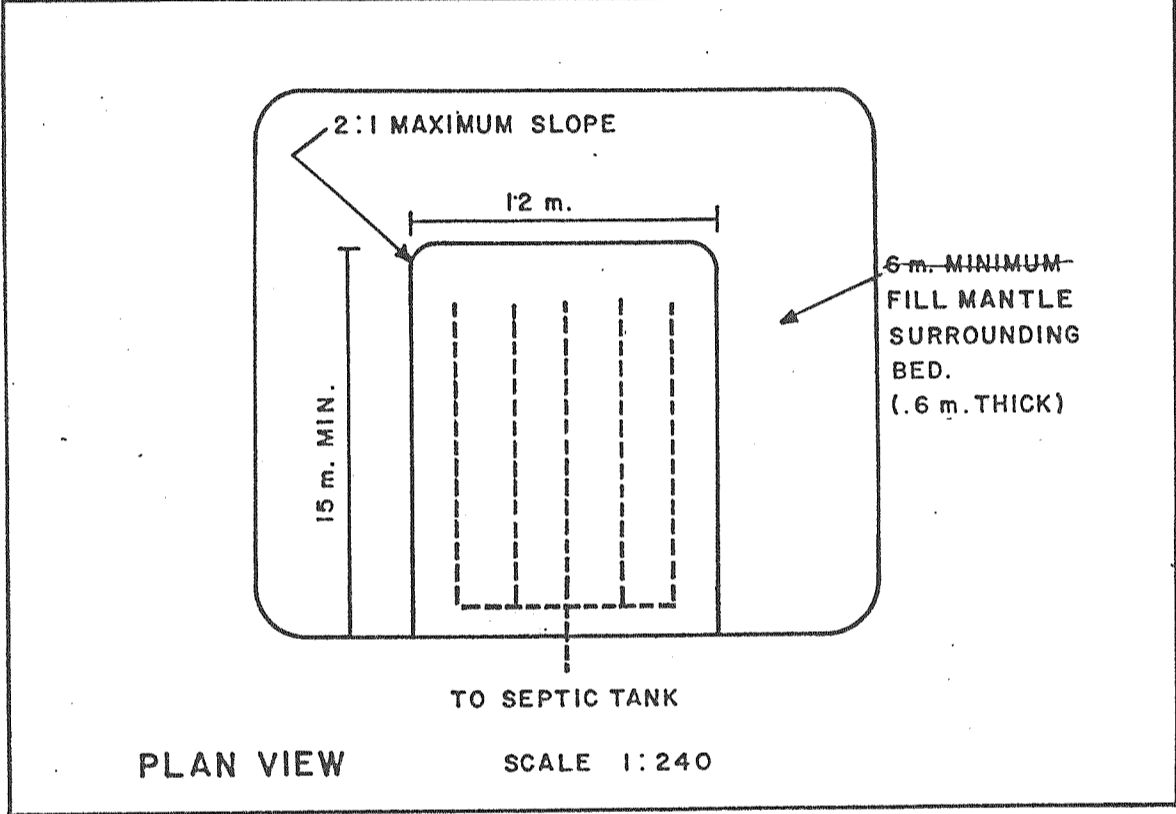
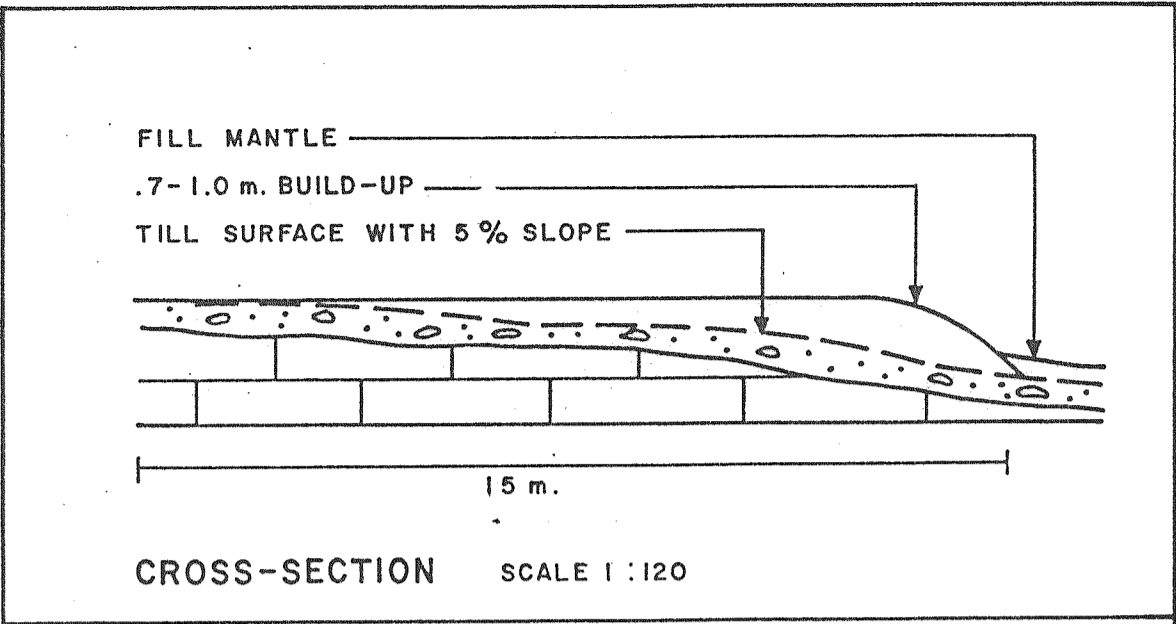
Well No.	Elev Feet	CSG Dia Ins	Kind of Water	Water Found Feet	Stat Lvl Feet	Pump Lvl Feet	Test Rate GPM	Test Time Hr/Mn	Water Use	Owner/Log Depths in Feet to Which Formations Extend
1	525	6	FR	40	12	52	1	2/00	DO	Vanalstine B brwn tpsl 0003 blk grnt 0052
2	650	6	FR	90	12	90	1	/30	ST	Avery H tps1 msnd 0005 blk grnt 0100
3	550	6	FR	55	30	100	2	3/00	DO	Ennis H brwn tps1 0005 blk grnt 0100
4	535	6	FR	30	18	38	5	/30	DO	Truelove W clay msnd stns 0010 sh1e 0013 snds 0030 grnt 0045
5	570	6	FR	85	32	45	10	1/00	ST DO	Card H tps1 msnd 0018 grnt 0090
6	565	6	FR	145	5	90	2	1/00	DO	Purdy B tps1 msnd 0008 grnt 0150
7	550	2	FR	107	12	12	5	2/00	PS	School Area Board brwn clay 0002 red grnt 0107.



RECOMMENDED WELL DESIGN IN SANDY TILL TERRAIN



RECOMMENDED DESIGN OF LEACHING BED
WHERE THIN TILL UNIT IS PRESENT



RECOMMENDED SEPTIC TANK TILE BED DESIGN ON SLOPING TERRAIN (10% max. slope)

Number 96698
CERTIFICATE OF REGISTRATION

DATED: March 5, 1985

'85 APR 26 10 55

LANARK SOUTH
No. 27
PERTH
Land Registrar

WILF HALL LTD.

and

CORPORATION OF THE TOWNSHIP OF BATHURST

mb

SUBDIVISION AGREEMENT

BARKER, BUTTERWORTH, WOODWARK & STEVENS
BOX 308
PERTH, ONTARIO

PLAN

I CERTIFY THAT THIS PLAN **PL-30** IS REGISTERED IN THE REGISTRY OFFICE FOR THE REGISTRY DIVISION OF LANARK SOUTH AT **10:30 O'CLOCK** ON THE **24th** DAY OF **April**, 1985, AND REQUIRED CONSENTS AND AFFIDAVITS ARE REGISTERED AS PLAN DOCUMENTS NO.

D. Delisle
LAND REGISTRAR

THIS PLAN AFFECTS THE LAND DESCRIBED IN C.O.F.T. 1803, INST. NO. 96248

APPROVED UNDER SECTION 50 OF THE PLANNING ACT 1983

DATE: **23rd April 1985**

[Signature]
DENIS R. HUBBELL
MUNICIPAL AFFAIRS AND HOUSING

**PLAN OF SUBDIVISION OF
PART OF LOTS 2, 3 AND 4
CONCESSION 9
TOWNSHIP OF BATHURST
COUNTY OF LANARK**

SCALE 1:3000 (metres)



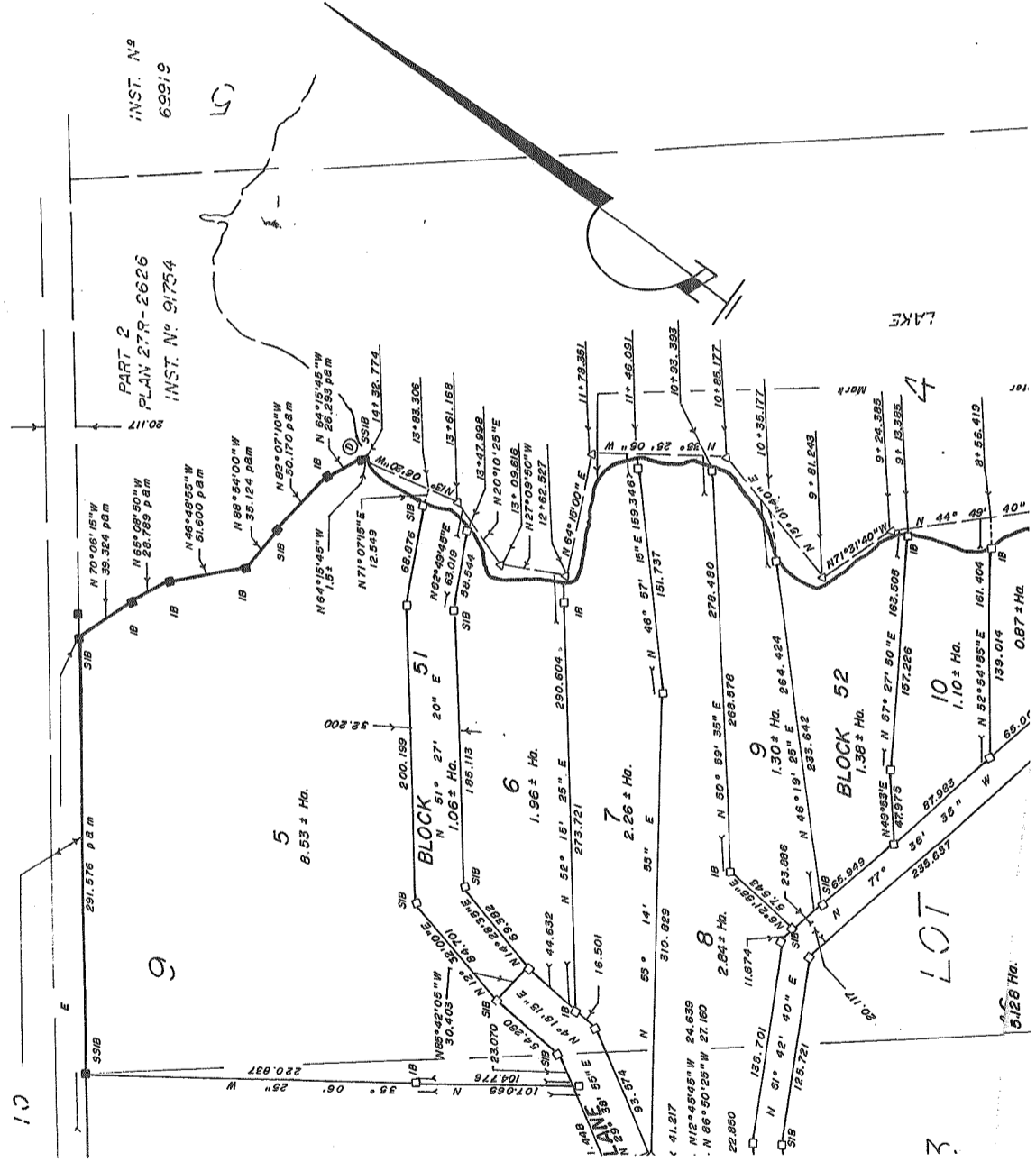
METRIC NOTE: ALL DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

**BRIAN W. KERR, O.L.S.
1985.**

BEARINGS ARE ASTROMETRIC DERIVED FROM SOLAR OBSERVATION, AND ARE REFERRED TO THE MERIDIAN PASSING THROUGH THE MOST WESTERLY ANGLE OF LOT 2, CONCESSION 9, TOWNSHIP OF BATHURST.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED ACCORDANT WITH THE ACT AND REGULATIONS



WITH THE SURVEYS AND THE REGISTRATION ACT AND THE REGULATIONS MADE THEREUNDER.

2. THE SURVEY WAS COMPLETED ON FEBRUARY 19, 1985

February 28, 1985
 BRIAN W. KERR
 ONTARIO LAND SURVEYOR

LEGEND

IB	DENOTES IRON BAR
SIB	DENOTES STANDARD IRON BAR
SSIB	DENOTES SHORT STANDARD IRON BAR
WIT	DENOTES WITNESS
S/A	DENOTES SPLIT ANGLE
CC	DENOTES CUT CROSS
□	DENOTES PLANTED
○	DENOTES HUB ON TRAVERSE
△	DENOTES PLAN 27R-2626 AND MEASURED SURVEY MONUMENT PLANTED BY R.F. MUCKLESTONE, O.L.S.

OWNER'S CERTIFICATE

THIS IS TO CERTIFY
 LOT 1 TO 50 BOTH INCLUSIVE, BLOCKS 51 AND 52, THE STREETS, NAMELY BURKE ROAD, PINE STREET, OAK DRIVE, SCOTT STREET AND MEADOW LANE, AND RESERVES, NAMELY BLOCKS 53 AND 54 HAVE BEEN LAID OUT IN ACCORDANCE WITH OUR INSTRUCTIONS. THE STREETS ARE HEREBY DEDICATED AS PUBLIC HIGHWAYS.

DATED THIS 21st DAY OF MARCH, 1985.

WILF HALL LIMITED
 Wilf Hall
 WILF HALL, PRESIDENT

NOTE ALL PLANTED BARS ARE SSIB'S UNLESS OTHERWISE SHOWN

NOTE ALL FOUND BARS WERE PLANTED BY BRIAN W. KERR, O.L.S. (1352) UNLESS OTHERWISE SHOWN.

NOTE ALL TIES TO HIGH WATER MARK ARE AT RIGHT ANGLES TO TRAVERSE LINE UNLESS OTHERWISE SHOWN

BRIAN W. KERR
 ONTARIO LAND SURVEYOR

