

ENGINEER'S REPORT

THE ARISS GLEN DRAINAGE WORKS

TOWNSHIP OF PILKINGTON

D526

Jan 8/81

Adopted - 1st + 2nd Rdy. Feb 3/81

GAMSBY AND MANNEROW LIMITED

Consulting Professional Engineers

Guelph, Ontario

GAMSBY AND MANNEROW Limited

CONSULTING PROFESSIONAL ENGINEERS

Principals:

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January 8, 1981.
Our File: D-526

The Reeve and Council
Township of Pilkington

Re: The Ariss Glen Drainage Works

Reeve Kurtz and Members of Council:

In accordance with the provisions of Section 4 of The Drainage Act, 1975, and your instructions contained in a resolution dated November 17, 1980 regarding a petition for drainage signed by the Principal of Ariss Glen Developments Limited, the owner of property designated in the petition as Part of Lots 18 and 19, Concession 4, East of the Grand River, I have examined and made a survey of the area. In my opinion the petition is valid under The Drainage Act and I hereby submit Report, Plan, and Assessment for a work pertaining to said petition to be known as THE ARISS GLEN DRAINAGE WORKS.

Area Requiring Drainage

I find the area requiring drainage to be as follows:

Part of Lots 18 and 19, Concession 4, East of the Grand River, consisting of approximately 8 hectares more or less. The area requiring drainage is proposed to be developed into a residential subdivision in accordance with a Draft Plan, prepared by A. B. Donaldson, O.L.S., and dated February 8, 1980, and as granted Draft Plan Approval under the Ministry of Housing No. 23T-80013, hereinafter referred to as "The Subdivision".

Background Information

The purpose of the proposed drainage works is to maintain the ground water level within the subdivision at an elevation below the septic tile beds, and thus permit the proper functioning of the sewage disposal systems.

While it is recognized that the same drainage system could be constructed outside the provisions of The Drainage Act, 1975, it is considered in the best interests of the Township of Pilkington and the future property owners within the Subdivision that the maintenance of the drainage system be provided for under the terms of The Act.



On Site Meeting

An on site meeting was held on December 23, 1980. This meeting was attended by the following:

A. Chopka
J. Heffernan
J. Entwistle
T. Krizsan (for Ariss Glen Developments Limited)
D. Gamsby

At the said meeting the area requiring drainage was determined to be as outlined in the foregoing paragraph. In my opinion the petition represents a valid petition as required under The Drainage Act, 1975.

Existing Conditions

Soils reports on the site indicate that seasonal high water table rises to within approximately 0.6 metres of the ground surface. Our analysis of the information contained in the soils report prepared by Peto MacCallum Limited, Soils Consultants, leads us to believe that a properly installed drainage system will lower the ground water table sufficiently to keep it below the proposed field tile elevation at all times during the year. The Soils Consultants have expressed an opinion in agreement with this analysis.

Proposed Work

The drainage system proposed, consists of two major segments as follows:

- 1) A series of non-perforated plastic drainage tiles will serve as outlet pipes for the whole system. The "closed-joint" nature of these tiles will tend to protect the system against blockage by tree roots. This "closed" system is intended to provide an outlet for each lot where no other outlet exists. These tiles outlet into the Kurtz Drainage Works.
- 2) A series of perforated plastic drainage tiles will serve to collect ground water and deliver it to the "closed" pipes. The primary purpose of this system is to lower the ground water table. The design calls for a short section of this perforated tile to be installed on each individual lot and connected into the "closed" pipe on each lot.

It is noted that no work under this drainage system is proposed for Lots 17 and 18 since these Lots have a Municipal Drain along their boundaries (The Kurtz Drainage Works), and thus have the necessary assured outlet for a privately constructed field tile system.

Plans

The Plan on Drawing No. D-526-1 dated December, 1980, shows the location and intent of the work and the lands affected by it as well as all the necessary details of the work. Due to the nature of the project it is deemed that profile drawings are not necessary. The above noted plan (Drawing No. D-526-1) does include sufficient information to indicate the original ground elevation, the proposed elevation of all the drainage system and the proposed final grading for the entire Subdivision.

Special Assessments

I recommend that the entire cost of the construction of the proposed drainage works be specially assessed to the Owner of the property, Ariss Glen Developments Limited. The maintenance of the Ariss Glen Drainage Works shall be as detailed later.

Working Space

As required under Section 63 of The Drainage Act, 1975, I am recommending that the Working Space be designated as "The Whole Subdivision", (That is Lots 1 to 21 inclusive plus all easements and Road Allowances contained therein.) plus a small area extending 30-feet wide on the North side of the outlet pipe on the property of Mr. Heffernan, at the outlet of "C" Drain.

Design Criteria

Based upon information supplied by the Soils Consultant, it has been assumed that the tile drains will lower the water table to a level within 0.85 metres above the Municipal Drain tiles. This influence will be extended to a point at least 25 m away from the tile drains.

It is noted that the houses constructed in The Subdivision will also require foundation drains and these foundation drains will serve to help keep the water table lowered.

Environmental Considerations

Based upon my evaluation of the soils in the area, along with the recommendations of the Soils Consultant, I have provided that there be a minimum clearance of 15 m between the septic tile fields and the open jointed tiles. In my opinion this should prevent the pollution of the drainage works by sewage migrating from the tile fields.

The lowering of the ground water table to be achieved by the proposed Drainage Works will be within the upper levels of the ground water table and in our opinion will have no effect upon the wells in the area.

It is my opinion that the proposed Drainage Works will have no adverse effects on the Environment.

Obstructions and Pollution

Attention is drawn to Section 80 and to Section 82 of The Drainage Act, 1975, with regard to obstructions and to Section 83 with regard to pollution.

Allowances

I determine the amounts to be paid in Allowances to owners entitled thereto under the provisions of The Drainage Act, 1975, to be in accordance with the following schedule and such Allowances shall become due and payable according to Section 62.

Con.	Lot or Part		Damage to Lands and Crops (if any)
4	Pt. 18, 19	J. Heffernan	\$30.00

Cost Estimate

My estimate of the cost of The Ariss Glen Drainage Works is as follows:

"A" Drain

Materials	
150 mm non-perforated plastic drainage tile 100 m @ \$1.70	\$ 170.00
100 mm perforated plastic drainage tile 102 m @ \$0.80	81.60
200 mm C.S.P. outlet pipe with gate (3 m)	<u>60.00</u>
Total Materials	\$ 311.60
Construction	
Install 150 mm tile - 100 m @ \$11.00	\$1,100.00
Install 100 mm tile - 102 m @ \$ 7.40	754.80
Install outlet pipe	240.00
Rip rap at outlet - 1 m ² @ \$ 100.00	<u>100.00</u>
Total Construction	<u>2,194.80</u>
Total "A" Drain	\$2,506.40

"B" Drain

Materials

150 mm non-perforated plastic drainage tile 36 m @ \$1.70	\$ 61.20
100 mm perforated plastic drainage tile 103 m @ \$0.80	<u>82.40</u>

Total Materials \$ 143.60

Construction

Install 150 mm tile - 36 m @ \$11.00	\$ 396.00
Install 100 mm tile - 103 m @ \$ 7.40	<u>762.20</u>

Total Construction \$1,158.20

Total "B" Drain \$ 1,301.80

"C" Drain

Materials

150 mm non-perforated plastic drainage tile 235 m @ \$1.70	\$ 399.50
100 mm perforated plastic drainage tile 202 m @ \$0.80	161.60
600 mm x 600 mm Precast Catch Basin	350.00
200 mm C.S.P. outlet pipe with gate (3 m)	<u>60.00</u>

Total Materials \$ 971.10

Construction

Install 150 mm tile - 235 m @ \$11.00	\$2,585.00
Install 100 mm tile - 202 m @ \$ 7.40	1,494.80
Install Catch Basin	200.00
Install outlet pipe	240.00
Rip rap at outlet 1 m ² @ \$100.00	<u>100.00</u>

Total Construction \$4,619.80

Total "C" Drain \$ 5,590.90

"D" Drain

Materials

150 mm non-perforated plastic drainage tile 40 m @ \$1.70	\$ 68.00
100 mm perforated plastic drainage tile 38 m @ \$0.80	<u>30.40</u>

Total Materials \$ 98.40

Construction

Install 150 mm tile - 40 m @ \$11.00	\$ 440.00
Install 100 mm tile - 38 m @ \$ 7.40	<u>281.20</u>

Total Construction \$ 721.20

Total "D" Drain \$ 819.60

Total Estimated Materials and Construction Cost \$10,218.70

Survey, Plan and Report	1,700.00
Allowances	30.00
Interest, Superintendence of Construction, Miscellaneous Estimated Costs and Contingency Fund	<u>2,500.00</u>

TOTAL ESTIMATED PROJECT COST \$14,448.70

This sum of \$14,448.70 assess against the lands and roads affected according to the attached Schedule of Assessments.

For the purpose of government grant, all lands assessed for the works are non-agricultural.

No assessment has been made for "Injuring Liability".

This report is being written prior to the installation of the facilities to be known as the Ariss Glen Drainage Works. It is understood that the Owners of the Development, and the Owner assessed for the full cost of construction of this Drainage Works, Ariss Glen Developments Limited, may wish to proceed with the construction of the said Drainage Works in advance of the passing of the necessary By-Laws under The Drainage Act, 1975.

*10,014.39
+ 434.31
= 10,448.70*

It is noted that should this take place, any such construction shall be done at the expense of and at the risk of Ariss Glen Developments Limited, or their successors in title to the property.

Further, it is noted that, if the works is constructed prior to the passing of the necessary By-Laws, and if the whole works is constructed in accordance with the Plans and Specifications herein and so verified by myself or some other competent Professional Engineer, the whole works may become "The Ariss Glen Drainage Works" as covered by this report and shall have the full status of a Drainage Works under The Drainage Act, 1975, as if it has been constructed in due course under a By-Law based upon this report.

After construction, the Ariss Glen Drainage Works as outlined in this report shall be maintained in the following manner:

1) "A" Drain

The cost of any maintenance or repair work carried out upon the "A" Drain shall be shared equally between Lots 13, 14, 15, and 16 in the Plan of Subdivision.

2) "B" Drain

The cost of any maintenance or repair work carried out upon the "B" Drain shall be shared equally between Lots 19, 20, and 21 in the Plan of Subdivision.

3) "C" Drain

The cost of any maintenance or repair work carried out upon the "C" Drain shall be shared equally between Lots 1, 2, 5, 6, 7, 8, 9, 10, 11, and 12 in the Plan of Subdivision.

4) "D" Drain

The cost of any maintenance or repair work carried out upon the "D" Drain shall be shared equally between Lots 3 and 4 in the Plan of Subdivision.

This Assessment is made in accordance with Section 38 of The Drainage Act, 1975.

All of which is respectfully submitted.




G. D. Gamsby, P. Eng.

GAMSBY AND MANNEROW LIMITED