BBL/2281/91

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

WITHDRAWAL OF BUILDING BYE LAW APPLICATIONS

Charges due in relation to applications under the Building Bye Laws have not been paid in respect of the particular application listed hereunder:

FEE DUE	FEE PAID	BALANCE DUE	REG. REF.	DATE DEC. DUE	APPLICANT	PROPOSAL
£ 55.00	NIL	£ 55.00	91A/380	18/5/1991	J. Ledwith	Bungalow, garage & septic tank @ Glassamucky, Bohernabreena.

It should be noted that a period of not less than two months has expired since the application listed has been received.

RECOMMENDATION:

Para 3 (11) of the approved schedule of charges provides that:

"In accordance with Section 6 of the Local Government (Financial Provisions) (No. 2) Act, 1983 where:-

(a) no fee is submitted with the application, or

(b) the fee submitted is less than the appropriate fee payable as set out in the schedule of fees,

the County Council will not commence to consider the application until the appropriate fee is paid. If no fee, or a fee less than the appropriate fee has been received by the County Council, on the expiration of two months commencing on the day the application is received the application will be regarded as having been withdrawn and if a fee less than the appropriate fee has been paid, it will be refunded".

recommend that the above application be regarded as having been withdrawn.

ENIOR ADMINISTRATIVE OFFICER.

DER:

e Building Bye Law application listed by the Senior Administrative Officer is hereby garded as having been withdrawn. The applicant to be informed accordingly.

ISTANT CITY AND COUNTY MANAGER.

whom the appropriate powers have been delegated by order of the Dublin City and County ager dated: 4th September, 1991.

BBL/2281/91

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

WITHDRAWAL OF BUILDING BYE LAW APPLICATIONS

Charges due in relation to applications under the Building Bye Laws have not been paid in respect of the particular application listed hereunder:

FEE DUE	FEE PAID	BALANCE DUE	REG. REF.	DATE DEC.DUE	APPLICANT	PROPOSAL
£ 55.00	NIL	£ 55.00	91A/380	18/5/1991	J. Ledwith	Bungalow, garage & septic tank @ Glassamucky, Bohernabreena.

It should be noted that a period of not less than two months has expired since the application listed has been received.

RECOMMENDATION:

Para 3 (11) of the approved schedule of charges provides that:

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the County Council will not commence to consider the application until the appropriate fee is paid. If no fee, or a fee less than the appropriate fee has been received by the County Council, on the expiration of two months commencing on the day the application is received the application will be regarded as having been withdrawn and if a fee less than the appropriate fee has been paid, it will be refunded".

I recommend that the above application be regarded as having been withdrawn.

SENIOR ADMINISTRATIVE OFFICER.

ORDER:

The Building Bye Law application listed by the Senior Administrative Officer is hereby regarded as having been withdrawn. The applicant to be informed accordingly.

ASSISTANT CITY AND COUNTY MANAGER.

To whom the appropriate powers have been delegated by order of the Dublin City and County Manager dated: 4th September, 1991.

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
Lower Abbey Street,
Baile Atha Cliath 1.
Dublin 1.
Telephone. (01)724755
Fax. (01)724896

Register Reference : 91A/0380 Date : 15th July 1991

Dear Sir/Madam,

Development : Bungalow, garage and septic tank.

LOCATION : Glassamucky, Bohernabreena.

Applicant : J. Ledwith

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

I wish to inform you that an appeal has been lodged with An Bord Pleanala against the Council's decision to REFUSE PERMISSION .

All further correspondence in relation to this appeal should be addressed to The Secretary, An Bord Pleanala, Blocks 6 & 7 Irish Life Centre, Lower Abbey Street, Dublin 1.(Tel.728011).

Please note that submissions or observations made to An Bord Pleanala by or on behalf of a person (other than the applicant) with regard to an appeal made by another person must be accompanied by a fee of £15.

Yours faithfully,

.....

for PRINCIPAL OFFICER

David Herman,
An Taisce,
41 Meadow Grove,
Dublin 16.

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
Lower Abbey Street,
Baile Atha Cliath 1.
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Yours faithfully,

.....

for PRINCIPAL OFFICER

Margaret Lee,
Glassamucky Brakes,
Tallaght.

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
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Dublin 1.
Telephone. (01)724755
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Yours faithfully,

.....

for PRINCIPAL OFFICER

Deirdre & Patrick Lee,
Glassamucky Brakes,
Tallaght.

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
Lower Abbey Street,
Baile Atha Cliath 1.
Dublin 1.
Telephone. (01)724755
Fax. (01)724896

Register Reference : 91A/0380

Date : 15th July 1991

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Yours faithfully,

.....

for PRINCIPAL OFFICER

Helen & Martin Lee,
St. Annes,
Bohernabreena,
Dublin 24.

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
Lower Abbey Street,
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Yours faithfully,

.....

for PRINCIPAL OFFICER

Delia Redmond,
St. Annes,
Glenasmole,
Bohernabreena.

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iach,
Lower Abbey Street,
Baile Atha Cliath 1.
Dublin 1.
Telephone. (01)724755
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Yours faithfully,

.....

for PRINCIPAL OFFICER

James Lee,
St. Annes,
Bohernabreena,
Dublin 24.

COMHAIRLE CHONTAE ATHA CLIATH

Register Reference No.: 91A/380

Letter No.: 184

Planning Department,
Block 2, Irish Life Centre,
Lower Abbey St.,
Dublin 1.

An Taisce,
The National Trust for Ireland,
41 Meadow Grove,
Dublin 16.

Tel.: (01) 724755
Fax.: (01) 724896

17 May 1991

Re: Proposed bungalow, garage and septic tank at Glassamucky, Bohernabreena for J. Ledwith.

Date of decision to refuse permission 16th May, 1991 subject to 4 reasons.

Dear Sir/Madam,

With reference to your representations/objections, I wish to inform you that a decision has been made on the above planning application. This decision has been entered in the Planning Register which is available for inspection at the Planning Department, Irish Life Centre, Lower Abbey Street, Dublin 1, during office hours (9 a.m. to 12.30 p.m. and 2.15 p.m. to 4.30 p.m.) A certified copy of the entry in the register may be purchased on payment of £5.00.

Yours faithfully,

for Principal Officer.

NOTE: An appeal against this decision by an aggrieved person must be made within the period of twenty one days beginning on the date of the decision to refuse permission, indicated above. The appeal shall be in writing and shall state the subject matter of the appeal and the grounds of appeal and shall be addressed to An Bord Pleanala, Floor 3, Blocks 6 and 7, Irish Life Centre, Lower Abbey Street, Dublin 1.

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3. A person who is not a party to an appeal must pay a fee of £15.00 to An Bord Pleanala when making submissions or observations to An Bord Pleanala in relation to an appeal.

4. Interested parties are advised to consult the Planning Authority or An Bord Pleanala to ascertain if an appeal has been lodged by an applicant.

COMHAIRLE CHONTAE ATHA CLIATH

Register Reference No.: 91A/380

Letter No.: 199

Planning Department,
Block 2, Irish Life Centre,
Lower Abbey St.,
Dublin 1.

Margaret Lee,
Glassamucky Brakes,
Tallaght,
Co. Dublin.

Tel.: (01) 724755
Fax.: (01) 724896

17 May 1991

Re: Proposed bungalow, garage and septic tank at Glassamucky, Bohernabreena for J. Ledwith.

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COMHAIRLE CHONTAE ATHA CLIATH

Register Reference No.: 91A/380

Letter No.: 198

Planning Department,
Block 2, Irish Life Centre,
Lower Abbey St.,
Dublin 1.

Tel.: (01) 724755
Fax.: (01) 724896

Deidre Lee,
Glassamucky Brakes,
Tallaght,
Co. Dublin.

17 May 1991

Re: Proposed bungalow, garage and septic tank at Glassamucky, Bohernabreena for J. Ledwith.

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COMHAIRLE CHONTAE ATHA CLIATH

Register Reference No.: 91A/380

Letter No.: 207

Planning Department,
Block 2, Irish Life Centre,
Lower Abbey St.,
Dublin 1.

Helen & Martin Lee,
St. Annes,
Bohernabreena,
Dublin 24.

Tel.: (01) 724755
Fax.: (01) 724896

17 May 1991

Re: Proposed bungalow, garage and septic tank at Glassamucky, Bohernabreena for J. Ledwith.

Date of decision to refuse permission 16th May, 1991 subject to 4 reasons.

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for Principal Officer.

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COMHAIRLE CHONTAE ATHA CLIATH

Register Reference No.: 91A/380

Letter No.: 217

Planning Department,
Block 2, Irish Life Centre,
Lower Abbey St.,
Dublin 1.

Tel.: (01) 724755
Fax.: (01) 724896

Delia Redmond,
St. Annes,
Glenasmole,
Bohernabreena,
Dublin 24.

17 May 1991

Re: Proposed bungalow, garage and septic tank at Glassamucky, Bohernabreena for J. Ledwith.

Date of decision to refuse permission 16th May, 1991 subject to 4 reasons.

Dear Sir/Madam,

With reference to your representations/objections, I wish to inform you that a decision has been made on the above planning application. This decision has been entered in the Planning Register which is available for inspection at the Planning Department, Irish Life Centre, Lower Abbey Street, Dublin 1, during office hours (9 a.m. to 12.30 p.m. and 2.15 p.m. to 4.30 p.m.) A certified copy of the entry in the register may be purchased on payment of £5.00.

Yours faithfully,

L.J.

for Principal Officer.

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COMHAIRLE CHONTAE ATHA CLIATH

Register Reference No.: 91A/380

Letter No.: 249

Planning Department,
Block 2, Irish Life Centre,
Lower Abbey St.,
Dublin 1.

James Lee,
St. Annes,
Bohernabreena,
Dublin 24.

Tel.: (01) 724755
Fax.: (01) 724896

17 May 1991

Re: Proposed bungalow, garage and septic tank at Glassamucky, Bohernabreena for J. Ledwith.

Date of decision to refuse permission 16th May, 1991 subject to 4 reasons.

Dear Sir/Madam,

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Yours faithfully,

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4. Interested parties are advised to consult the Planning Authority or An Bord Pleanala to ascertain if an appeal has been lodged by an applicant.

91A/~~330~~ 91A/380

(249)

OBJECTOR

St Annes
7/5 Bohernabreena
27th April 1991

Re Planning Applicat No 91A/0330
for J. Ledwith

Dear Sir

I wish to inform you I am objecting to planning application on the following grounds.

1/ The site is a rightway to my home & passway for my stock for generations. All local people have a passway to the well as it is a local watersupply

2/ The applicant is not a native of the area. It is impossible for natives

&

to get permission to build for their own families as this area is not zoned for housing.

I would therefore ask you to refuse planning permission.

Yours sincerely

James Lee

03. MAY 91

OBJECTOR

91A/0380

217

25 APR 91

St. Annes
Glenasmole
Bohernabreena
Dublin 24
23/4/91.

Re. Planning Application Ref. 91A/0380 Bungalow Garage & Septic Tank for J. Lodwick

Dear Sir,

I wish to object to the above planning application

1. There is a right of way through the proposed site which we use regularly
2. The roads are very dangerous that is why we use the pass-way

Hope you will give this objection some consideration.

Yours sincerely

Delia Redmond.

91A/0380
207

2574

ST ANNES
Bokernabreena
Dublin 24
23rd April 1991

Principal Officer.
Planning Dept,
Dublin County Council,
Irish Life Centre.
Lower Abbey St,
Dublin 1.

OBJECTOR

Re Planning Application 91A/0380
Bungalow Garage & Septic Tank
for J Ledwith

P.T.O.

2/

Dear Sir,

I wish to inform you that I am objecting to the planning application on the following grounds

① That we have a right of way through the site to a well which our family has used for generations.

② That the septic tank could pollute the drinking water in the well.

③ The site is located in a area not zoned for housing.

3

(4) The applicant is not a native of the area and has no need to live here

(5) The roads are substandard and the entrance would be on a dangerous bend.

I would therefore ask you to refuse the planning permission for the development

Yours sincerely

Helen Lee

Martin Lee

PK

91A/0380

(198)

Glassamucky Brakes
Tallaght
18/4/91

Principal Officer
Planning Dept
Dublin Co Council
Irish Life Centre
Lower Abbey St
Dublin 1.

22 APR 91

OBJECTOR

Re. Planning Application Ref 91A/0380
Bungalow, Garage, + Septic Tank for J. Ledwith

DEVELOPMENT
23 APR 1991
CONTROL

Dear Sir,

We wish to inform you that We are objecting to the above planning application on the following grounds.

1. The site is located in an area not zoned for housing.
2. The applicant is not a native of the area and has no need to live here, therefore we believe this is speculation building and would set a precedent for further dwelling applications.
3. The roads are substandard and dangerous and another entrance onto such roads could lead to traffic accidents.

4. Our view would be obstructed and the proposed building would be an invasion on our privacy.
5. The odour from proposed septic tank would be carried with the prevailing wind to our dinning-room and kitchen area.
6. There is a right of way through the site in question. This right of way has been enjoyed by locals residents for generations and this could be endangered by the proposed development.

We would therefore ask you to refuse planning permission for this development.

Yours sincerely

Patrick Lee

Deirdre Lee.

Principal Officer
Planning Dept
Dublin Co Council
Irish Life Centre
Lower Abbey St
Dublin 1.

91A/0380
199
22 APR 91

Glassamucky Brakes
Tallaght
18/4/91

DEVELOPMENT CONTROL
23 APR 1991

OBJ

Re. Planning Application Ref. 91A/0380
Bungalow, Garage and Septic tank for J. Hedwith

Dear Sir,

I wish to inform you that I am objecting to the above planning application on the following grounds.

1. My house where I have lived for over 50 years would be over looked by a stranger and this would be terrible as my privacy would be gone.
2. The Spring well adjacent to the lower boundary would be efected by the septic tank, and this is the only source of water for my livestock and poultry. And also for many of my neighbours livestock.
3. As this applicant has no intrest in this area I could see this house being sold many times over the years.
4. I believe the surface water would bring overflow from septic tank onto road at entrance to my house.

I would therefore ask you to refuse planning permission for this development.

Yours Sincerely

Margaret Lee

FILE DISCUSSED AT COUNCIL/COMMITTEE MEETING

FILE REF: 91A380

MEETING	COMMENTS	NOTED IN DEV. CONTROL	NOTED BY
BELGARD H+P 23/4/91	Refusal Recommended by Cllr Hannon Roads inadequate Right of Way thru' site for many years Thinks applicant is not a native.		

An Taisce
The National Trust for Ireland
41 Meadow Grove
Dublin 16

11 April 1991

91A/0380
184

Re: Planning Application 91A/0380
at Glassamucky for J. Ledwith

17/4

Dear Sir/Madam,

On behalf of An Taisce I wish to object to the above application on the following grounds:

1. The area is zoned High amenity & and the applicant has given no reason why (s)he needs to live in the area.
2. This is the second application recently by this applicant in this area (90A/1686 refers). The previous application was rejected by the Council and this one does not appear to differ materially.

Yours faithfully

David Herman

For South County Association

OBJE

15 APR 91

REF. NO.: 91A/0380 CERTIFICATE NO.: 14315 B

PROPOSAL: House garage + Septic Tank

LOCATION: Glassanuddy Ballinabreena

APPLICANT: James Ledwith

	1	2	3	4	5	6	7
CLASS	DWELLINGS/AREA LENGTH/STRUCTURE	RATE	AMT. OF FEE REQUIRED	AMT. LODGED	BALANCE DUE	RED. FEE APPL.	AMT. OF RED. FEE
A	Dwelling (Houses/Flats)	@ £55	£55	N/C	£55		
B	Domestic Ext. (Improvement/ Alts.)	@ £30					
C	Building for office or other comm. purpose	@ £3.50 per M² or £70			£55	2/5/91	
D	Building or other structure for purposes of agriculture	@ £1.00 per M² in excess of 300 M² Min. £70				N39125	
E	Petrol Filling Station	@ £200					
F	Dev. of prop. not coming within any of the forgoing classes	£70 or £9 per .1 hect. whichever is the greater					

Column 1 Certified: Signed: ____ Grade: ____ Date: ____

Column 1 Endorsed: Signed: ____ Grade: ____ Date: ____

Columns 2,3,4,5,6 & 7 Certified: Signed: [signature] Grade: S.O Date: 22/3/91

Columns 2,3,4,5,6 & 7 Endorsed: Signed: ____ Grade: ____ Date: ____

EF.: 91A/0380 CERTIFICATE NO: 24625

PROPOSAL: House Garage + Attic Tank

LOCATION : Glassamucky, Bohernabreena

APPLICANT : James Ledwith

	1	2	3	4	5	6	7
SS	DWELLINGS/AREA LENGTH/STRUCT	RATE	AMT. OF FEE REQ.	AMOUNT LODGED	BALANCE DUE	BALANCE DUE	DATE/ RECEIPT NO
	Dwellings	£32	£32	£32	/		
		£16					
		£50p per M² in excess of 300M² Min.£40					
	metres²	£1.75 per M² or £40					
	x .1 hect.	£25 per .1 hect. or £250					
	x .1 hect.	£25 per .1 hect or £40					
	x .1 hect	£25 per .1 hect. or £100					
E		£100					
F	x metres²	£10 per m² or £40					
C	x1,000m²	£25 per 1,000m² or £40					
1	x .1 hect.	£5 per .1 hect. or £40		--			

...umn 1 Certified: Signed: ______ Grade: ______ Date: ______

...umn 1 Endorsed: Signed: ______ Grade: ______ Date: ______

...lumns 2,3,4,5,6 & 7 Certified Signed: [signature] Grade: S.O Date: 22/3/91

...lumns 2,3,4,5,6 & 7 Endorsed: Signed: ______ Grade: ______ Date: ______

COMHAIRLE CHONTAE ATHA CLIATH

DUBLIN COUNTY COUNCIL

NO FEE WITH BYE LAW APPLICATION

TELEPHONE: 724755
EXTENSION: 231/234
FAX.: 724896

PLANNING DEPARTMENT,
IRISH LIFE CENTRE,
LOWER ABBEY STREET.,
DUBLIN 1.

Kevin V. Carroll,
Architect,
Keon's Terrace,
Longford.

22/3/91

REG. REF.: 91A/0380

RE: House, garage & septic tank, at Glassamucky, Bohernabreena, for James Ledwith

Dear Sir/Madam,

I refer to your application for Bye Law approval in respect of the above proposal. I wish to inform you that the Planning Authority will not commence to consider the application until the appropriate fee is paid. If no fee or a fee less than the appropriate fee has been received by the Council on the expiration of two months, commencing on the day the application is received, the application will be regarded as having been withdrawn.

The correct fee for the above mentioned application is £ 35.00 .
Please quote the Register Reference No. stated above when submitting the fee.

Yours faithfully,

for PRINCIPAL OFFICER

PL 6/5/86178

P/306/92

FINANCIAL CONTRIBUTION :- AMOUNT £ NIL
F REFUSAL.

2/S

AN BORD PLEANÁLA

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963 TO 1990

County Dublin

Planning Register Reference Number: 91A/380

APPEAL by James Ledwith of 89 Clontarf Road, Dublin against the decision made on the 16th day of May, 1991, by the Council of the County of Dublin to refuse permission for development comprising the erection of a bungalow with garage and septic tank at Glassamuckey, Bohernabreena, County Dublin:

DECISION: Pursuant to the Local Government (Planning and Development) Acts, 1963 to 1990, permission is hereby refused for the said development for the reasons set out in the Schedule hereto.

SCHEDULE

1. The proposed site is located in a designated 'High Amenity Area' as identified in the Dublin County Development Plan and within which it is the policy of the Council to limit development to that directly related to the area's amenity potential or its use for agriculture, mountain or hill farming. These policies are considered reasonable and the proposed development would be in conflict with them and would seriously injure the amenities of the area.

2. Having regard to the location of the site on a minor road which is seriously substandard in width and alignment it is considered that the proposed development would give rise to traffic movement which would endanger public safety by reason of traffic hazard and obstruction of road users.

3. The site is located on poorly drained land within the catchment of the Bohernabreena Reservoir. Effluent from the proposed sewage treatment plant would have an adverse impact on water quality in the reservoir and it is considered that the system proposed does not resolve this issue. The proposed development would therefore be prejudicial to public health.

Member of An Bord Pleanála duly authorised to authenticate the seal of the Board.

Dated this 18th day of December. 1991.

PL 6/5/86178

AN BORD PLEANÁLA

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963 TO 1990

County Dublin

Planning Register Reference Number: 91A/380

Order Noted: L.D.

Dated: 20th JAN. 92 — ASST. COUNTY MANAGER

to whom the appropriate powers have been delegated by order of the Dublin City and County Manager.

Dated 10TH day of DECEMBER 1991

M. O'Shea

DUBLIN COUNTY COUNCIL

PLANNING DEPARTMENT

Date Received : 19th March 1991 Register Reference : 91A/0380

Applicant : J. Ledwith

Development : Bungalow, garage and septic tank.

LOCATION : Glassamucky, Bohernabreena.

DECISION : REFUSE PERMISSION . DATE OF DECISION : 16.05.91.

APPEAL TYPE : AGAINST DECISION . APPELLANT TYPE : FIRST PARTY

I attach for your observations memo/letter dated 8/7/91 from An Bord Pleanala

Please reply before 7th Aug '91 ..... 23/7/91.
for Principal Officer Date

OBSERVATIONS

.....

.....no further comments to make.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

M O'Shea 24.7.91 24/7/91
PLANNING OFFICER S.E.D.C. DATE

DUBLIN COUNTY COUNCIL

PLANNING AND BUILDING CONTROL DEPARTMAENT

Senior Environmental Health Officer,
33 Gardiner Place.

Register Reference : 91A/0380 Date : 20th March 1991

Development : Bungalow, garage and septic tank.

LOCATION : Glassamucky, Bohernabreena.

Applicant : J. Ledwith

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning Officer :

Date Recd. : 19th March 1991

DUBLIN COUNTY COUNCIL
28 MAY 1991
ENVIRONMENTAL HEALTH

Attached is a copy of the application for the above development .Please ensure that your report is received within 5 weeks from 19th March 1991.

Yours faithfully,

.....

PRINCIPAL OFFICER

The proposal is unacceptable for the following reasons:

(1) No evidence of suitability for the treatment and disposal of septic tank effluent

(2) There was widespread waterlogging of the site on inspection.

(3) No evidence of a potable and adequate supply of water.

(4) Location and details of proposed 'Puraflo' system not indicated on the plans.

Antoin Mullen 24/6/91.

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 26.06.91
Time 4.40

p/a Devino
for John O'Reilly SEHO
24/6/91

D U B L I N C O U N T Y C O U N C I L

PLANNING AND BUILDING CONTROL DEPARTMAENT

Senior Environmental Health Officer,
33 Gardiner Place.

Register Reference : 91A/0380 Date : 20th March 1991

Development : Bungalow, garage and septic tank.

LOCATION : Glassamucky, Bohernabreena.

Applicant : J. Ledwith

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning Officer :

Date Recd. : 19th March 1991

DUBLIN COUNTY COUNCIL
28 MAY 1991
ENVIRONMENTAL HEALTH

Attached is a copy of the application for the above development .Please ensure that your report is received within 5 weeks from 19th March 1991.

Yours faithfully,

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PRINCIPAL OFFICER

The proposal is unacceptable for the following reasons:

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(3) No evidence of a potable and adequate supply of water.

(4) Location and details of proposed 'Puraflo' system not indicated on the plans.

Antoin Mullan 24/6/91.

Ita Devine
for John O'Reilly SEHO
24/6/91

SS + CMO.

D U B L I N C O U N T Y C O U N C I L

PLANNING AND BUILDING CONTROL DEPARTMAENT

Senior Engineer,
Sanitary Services Dept.

Register Reference : 91A/0380 Date : 20th March 1991

Development : Bungalow, garage and septic tank.

LOCATION : Glassamucky, Bohernabreena.

Applicant : J. Ledwith

App. Type : PERMISSION/BUILDING BYE-LAW APPROVAL

Planning officer :

Date Recd. : 19th March 199

Attached is a copy of the application for the above development. Your report would be appreciated within the next 28 days.

DUBLIN Co. COUNCIL
11 APR 1991
SAN SERVICES

DUBLIN CO. COUNCIL
SANITARY SERVICES
24 MAY 1991
Returned

Date received in Sanitary Services .....

FOUL SEWER

Refusal Recommended

The site is considered unsuitable for the disposal of effluent - treated or untreated.

SURFACE WATER

Soak pit / sump proposed - refer to B.S.L. Dept.

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 27.05.91
Time 4:30

J. Rice,
21/5/91

Register Reference : 91A/0380 Date : 20th March 1991

ENDORSED _____ DATE _____

WATER SUPPLY No Co Co water available in this area
- well proposed

16/4/91

.....

ENDORSED _____ DATE 17/4/91

Endorsed : J. Rice 22/5/91
for S.E.

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 27.05.91
Time 4:30

MOS

DUBLIN COUNTY COUNCIL

REG. REF: 91/A/380

LOCATION: Glassamucky, Bohernabreena.

APPLICANT: J. Ledwith.

PROPOSAL: Bungalow, garage and septic tank.

DATE LODGED: 19th March, 1991.

This application is for full permission for a bungalow and garage at Glassamucky, Bohernabreen.

The applicant lodged an identical proposal for a house on this site under Reg. Ref. 90/A/1686. The application was refused by Dublin County Council on 15.11.90 Roads objected to the development.

Previous Roads report of 15/11/90 still applies.

MA/MM 20/5/91.

PLANNING DEPT.
DEVELOPMENT CONTROL SECT
Date 23-05-91
Time 3.50

SIGNED: Michael Arthurs   ENDORSED: T. Brick

DATE: 20-5-91   DATE: 20/5/91

M. O'Shea

DUBLIN COUNTY COUNCIL

REG. REF: 91/A/380

LOCATION: Glassamucky, Bohernabreena.

APPLICANT: J. Ledwith.

PROPOSAL: Bungalow, garage and septic tank.

DATE LODGED: 19th March, 1991.

This application is for full permission for a bungalow and garage at Glassamucky, Bohernabreen.

The applicant lodged an identical proposal for a house on this site under Reg. Ref. 90/A/1686. The application was refused by Dublin County Council on 15.11.90 Roads objected to the development.

Previous Roads report of 15/11/90 still applies.

MA/MM 20/5/91.

PLANNING DEPT.
DEVELOPMENT CONTROL SEC.
Date 21.05.91
Time 11.15

SIGNED: Michael Nolan DATE: 20.5.91

ENDORSED: [signature] DATE: 20/5/91

P/2088/91

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Register Reference : 91A/0380 Date Received : 19th March 1991

Correspondence Name and Address : James Ledwith, 89 Clontarf Road, Dublin 3.

Development : Bungalow, garage and septic tank.

Location : Glassamucky, Bohernabreena.

Applicant : J. Ledwith

App. Type : Permission

Zoning : G

(MOS/DK)

Report of the Dublin Planning Officer dated 8th May, 1991.

This application is for PERMISSION. The proposed development consists of a new bungalow, garage and septic tank at Glassamucky, Bohernabreena. The applicant is J. Ledwith of 89, Clontarf Road, Dublin 3.

This is the third application made on this site by the applicant.

Reg. Ref. TA 2017 - permission refused by Dublin County Council and subsequently on appeal by An Bord Pleanala.

Reg. Ref. YA 1252 - permission refused by Dublin County Council for a proposed bungalow (Decision Order PA/2039/83, dated 6th September, 1983).

Reg. Ref. 90A-1686 - permission refused by Dublin County Council for a new bungalow, garage and septic tank (Decision Order P/5298/90).

The site is located in the Dublin mountains. It is zoned G in the 1983 County Development Plan where it is the objective of the Local Authority "to protect and improve high amenity areas". It is also located in the Glenasmole Valley which is indicated as an area of scientific interest in the Development Plan.

The site slopes away from the road, and there are spectacular views of Glenasmole Valley across the site. There is split level bungalow on the adjoining site to the north. The site is overgrown with gorse. A hedgerow and bank form the roadside boundary of the site.

The proposed house is a single storey bungalow. Proposed finishes include

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Reg.Ref: 91A/0380

Page No: 0002

Location: Glassamucky, Bohernabreena.

selected concrete roof tiles and a rendered finish. The development proposed in this application is ~~identical~~ similar to that already refused under Reg. Ref. 90A-1686 except in one respect. In this application it is proposed to install a biodisc sewage treatment plan as a method of drainage instead of a septic tank.

Dublin Corporation Waterworks Department have confirmed (by phone 7th May, 1991) that they would in principle be opposed to the proposed biodisc sewerage treatment plant unless it was demonstrated that the level of effluent entering the ground were well within the levels permissable in this area.

There have been a ~~large~~ number of letters of objection received from people living in Glassamucky in relation to the proposed development.

It is maintained by some of the objectors that a right of way exists over the site and that the spring well adjacent to the lower boundary of the site would be polluted as a result of the proposed development. (This well is the water supply source for some of livestock in the area).

The proposed development does not conform with the Councils policy for development in high amenity areas as stated in paragraph 2.26.4 of the development plan.

The proposed development of a house on this site would interfere with views of Glenasmole Valley across the site and would, therefore, be seriously injurious to the amenities in this area.

The proposed development would materially contravene the zoning objective for the area.

I recommend that a decision to REFUSE PERMISSION be made under the Local Government (Planning and Development) Acts, 1963-1990 for the following (4) resaons:-

R E A S O N S F O R R E F U S A L

01 The site is located in an area zoned 'G' in the 1983 County Development Plan where it is the objective of the Planning Authority "to protect and improve high amenity areas". The proposed development does not conform with the Councils policy for development in high amenity areas as stated in paragraph 2.26.4 of the written statement of the Development Plan which states "..... the plan designates areas of high amenity and it is the

COMHAIRLE CHONTAE ÁTHA CLIATH

Record of Executive Business and Manager's Orders

Reg.Ref: 91A/0380

Page No: 0003

Location: Glassamucky, Bohernabreena.

policy of the Council that any development not related directly to the area's amenity potential or its use for agriculture, mountain or hill farming shall be prohibited". The proposed development would, also, interfere with views across the site and would be seriously injurious to the amenities of the area. The proposed development would contravene 1983 materially a development objective indicated in the County Development Plan for the use primarily of this area for amenity agricultural purposes.

02 The proposed development would generate additional turning movements onto a very substandard road and would thereby endanger public safety by reason of a traffic hazard.

03 There are no public piped services available to serve the proposal. The proposed development would be premature by reference to the existing deficiency in the provision of water supply and sewerage facilities and the period within which the constraints involved may reasonably be expected to cease.

04 The site is situated on a steep slope overlooking the upper reservoir at Bohernabreena and is close to a feeder stream which discharges into the reservoir. The effluent from the proposed biodisc sewage treatment plant would eventually enter this feeder stream and would have an adverse effect on the quality of water in the reservoir. The proposed development would be prejudicial to public health.

MCS

Richard Cramins SEP

for Dublin Planning Officer 13-5-91 Endorsed:-.....

for Principal Officer

Order: A decision pursuant to Section 26(1) of the Local Government (Planning and Development) Acts, 1963-1990 to REFUSE PERMISSION for the above proposal for the (4) reasons set out above is hereby made.

Dated : 10 May 1991 K. O'Sullivan

ASSISTANT CITY AND COUNTY MANAGER

to whom the appropriate powers have been delegated by order of the Dublin City and County Manager dated 26th April, 1991.

M.
D.
S.

Midland Design Services Limited
Gallagher House
57 Dublin Street
Monaghan
Telephone: (047) 84588
Fax: (047) 84588

Principle Officer
Planning Department
Building Control Section
Block 2 Irish Life Centre
Lr. Abbey St.
Dublin 1

17-9-92

Our Ref: M2380-011

Re: Time Extension/Additional Information for B.B.L. Peg Ref. 91A/380
Proposed Bungalow, garage and septic tank at Glassamucky, Bohernabreena, Lodgement date 19/3/1991

Dear Sir/Madam,

Further to your letter of 29/1/92 concerning additional information for the above application, we are pleased to enclose all new information regarding same.

This information has taken some time to compile and has only come to hand recently.

We would also require a further time extension until the end of October, to ensure that information submitted is complete and to the satisfaction of the planning department before a decision is made.

Yours faithfully,

Midland Design Services.

Paul Devereux.

Paul Devereux

Hill,
Analyst
one: 776450

EASTERN HEALTH BOARD,
City Laboratory,
10 Cornmarket,
Dublin 8.
22 May 1992.

REPORT ON ANALYSIS OF A SAMPLE OF WATER

MARKED ...St. Ann's, Glenasmole, Tallaght, Dublin 24.

Received on ..... 12/05/92 ..... Date of Sampling ..... 11/05/92 .....

Submitted by .... T Connell Lab. Ref. No. 1001|92|158P

Received from: Mr. J. Ledwidth, c/o T. Connell, 1 Greenville Road, Blackrock, Co. Dublin.

Order No...

Appearance.. Opaque, considerable suspended solids
Odour.. None

pH	... ...	6.5	
Turbidity (NTU)	... ...	55	
Colour (Pt-Co)	... ...	4 **	
Milligrammes per litre			
Free Ammonium (NH_4^+)	... ...	0.07	
Nitrite (NO_2)	... ...	<0.01	
Nitrate (NO_3)	... ...	6.1	
Chloride (Cl)	... ...	15	
Sulphate (SO_4)	... ...	8	
Fluoride (F)	... ...		
Free Carbon Dioxide (CO_2)	... ...		
Permanganate Value (Oxidisability) (4 hours at 27°C)	... ...	0.1	
Total Residual Chlorine (Cl_2)	...		

Langelier Index (at 20°C)	... ...	
Conductivity (uS/cm at 20°C)	...	136
Milligrammes per litre		
Total Dissolved Solids	... ...	
Total Solids	... ...	
Total Alkalinity (as $CaCO_3$)	...	
Temporary Hardness (as $CaCO_3$)	...	
Permanent Hardness (as $CaCO_3$)	...	
Total Hardness (as $CaCO_3$)	... ...	48
Iron in Solution (Fe)	... ...	2.0
Aluminium (Al)	... ...	
Copper (Cu)	... ...	<0.02
Zinc (Zn)	... ...	<0.01
Lead (Pb)	... ...	<0.01
Cadmium(Cd)	... ...	
Manganese (Mn)	... ...	

BACTERIOLOGICAL EXAMINATION:

Coliform organisms per 100 millilitres(MPN)	0
E. coli per 100 millilitres(MPN)	0

Judged by the chemical analysis and bacteriological examination

The water is fit for human consumption (hygienically acceptable) but aesthetically objectionable due to suspended matter

FURTHER OBSERVATIONS

** Colour measured on Laboratory filtered sample.

Iron and turbidity exceeds the EEC Maximum Admissible Concentration for Drinking water. The high turbidity is related to the high iron. Iron is excessive and should be removed. The level of iron would render the water unsuitable for culinary and laundry purposes and could impart an astringent/metallic taste to the water.
pH is low and the sample is soft. This combination could render the water corrosive towards metal fittings etc. If its a problem, steps could be taken to increase the pH and hardness of the water.

MICROSCOPIC EXAMINATION

The suspended matter consisted of a very large amount of bacterial/algal/inorganic floc.

Charge for this report £paid

F. Hill, Dublin Region Public Analyst

F. Hill,
Public Analyst
Telephone: 776450

EASTERN HEALTH BOARD,
City Laboratory,
10 Cornmarket,
Dublin 8.
14 May 1992.

REPORT ON BACTERIOLOGICAL EXAMINATION OF SAMPLE OF WATER

MARKED ...St. Ann's, Glenasmole, Tallaght, Dublin 24.

Received on ..... 12/05/92 ..... **Date of Sampling** ..... 11/05/92 .....

Submitted by .... T Connell **Lab. Ref. No.** 1001|92|158P

Received from: Mr. J. Ledwidth,
c/o T. Connell,
1 Greenville Road,
Blackrock,
Co. Dublin.

Order No...

This report is to be read in conjunction with Chemical Analysis Report with above Laboratory Reference Number.

Coliform organisms per 100 millilitres(MPN)	0
E. coli per 100 millilitres(MPN)	0

Judged by the above results :-

The sample is fit for human consumption (hygienically acceptable).

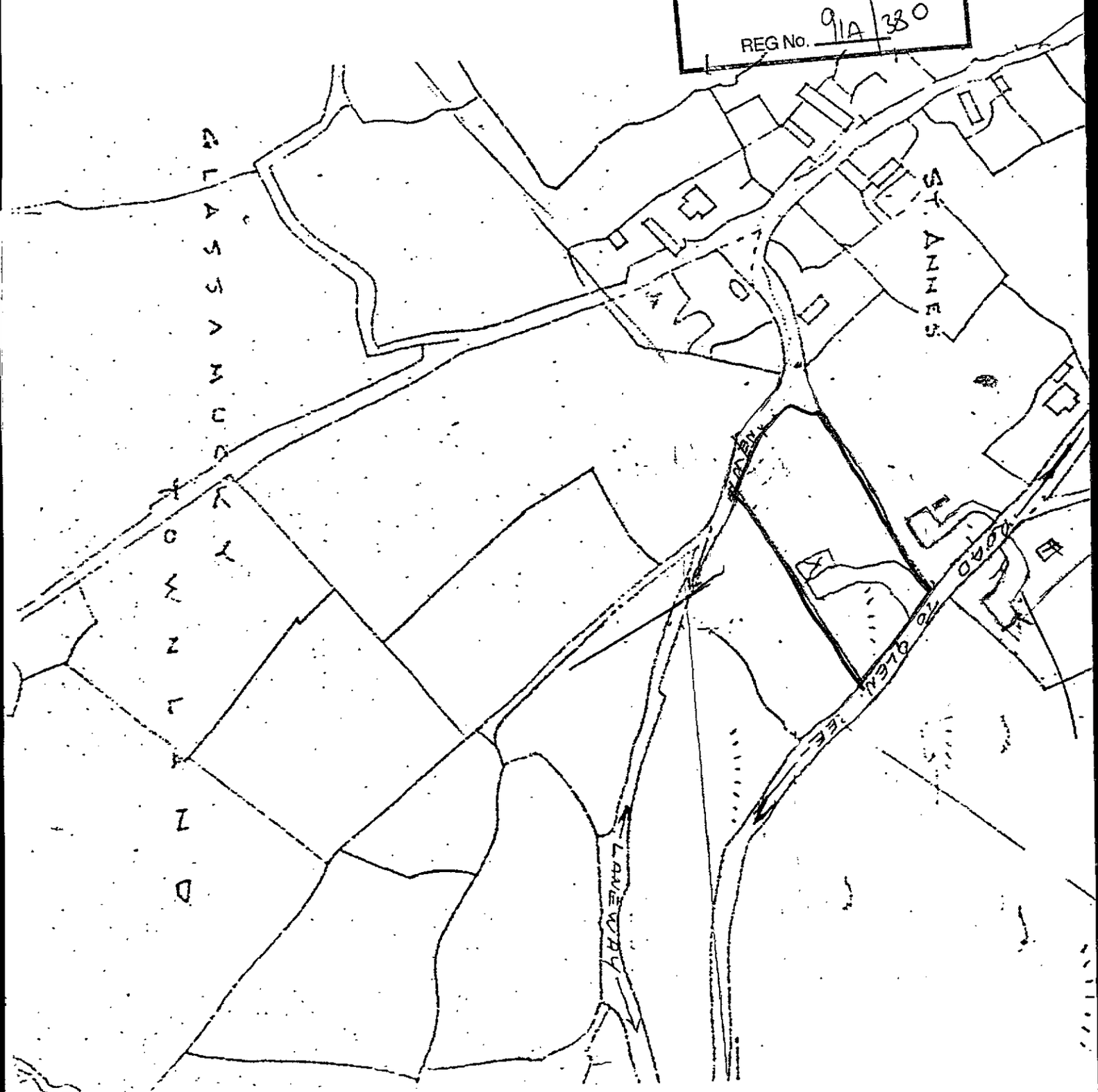
Owners of private water supplies are encouraged to take every measure possible to prevent the access of pollution to the water. Methods, such as the removal of obvious sources of contamination (e.g. effluent from septic tanks, slurry or silage pits or farm yard run off) from the catchment area and attention to the fencing and coping, brick-lining and covering of the source should reduce the coliform content of even a shallow well or spring to less than 10 coliform organisms per 100 ml. Persistent failure to achieve this, especially when E. coli is repeatedly present, should, as a general rule, lead to condemnation of the supply. E. coli organisms are are present in human, animal and avian faecal matter.

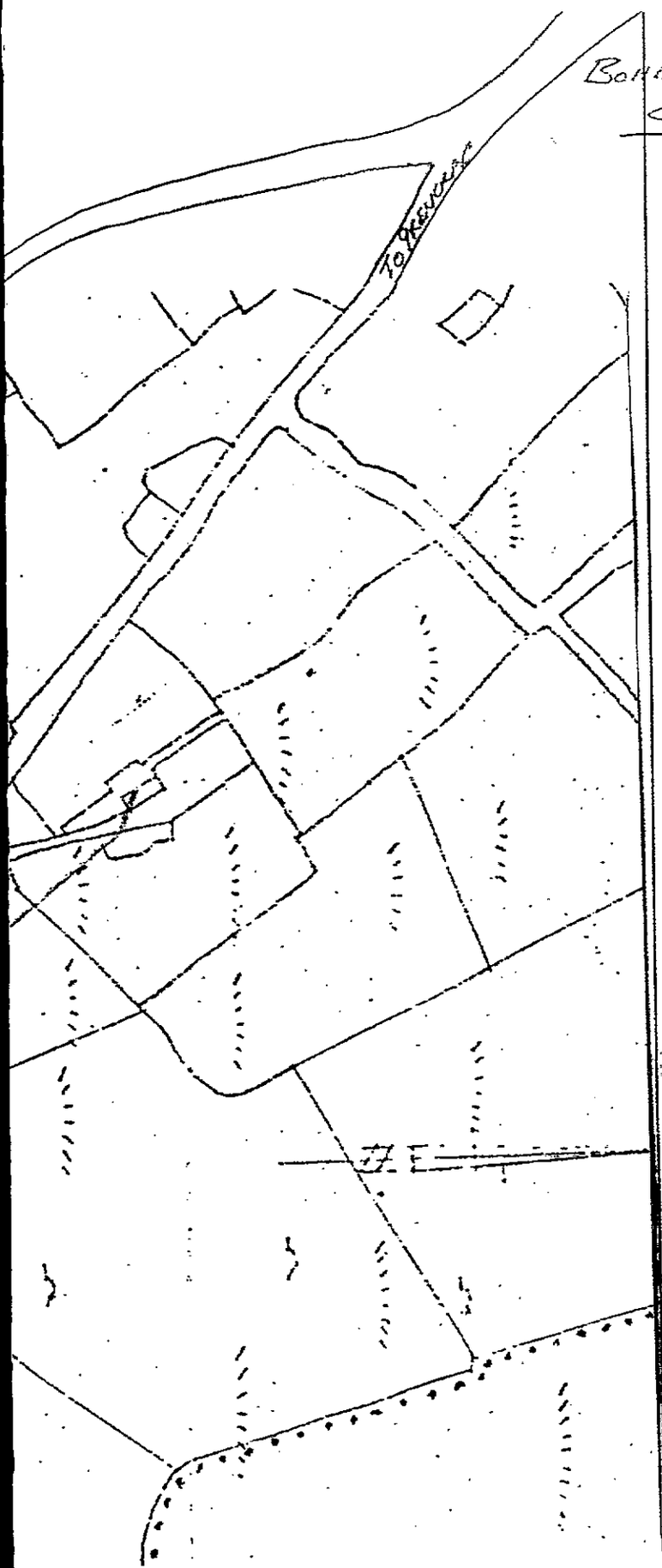
It should be emphasised that when sanitary inspection shows a water, as distributed, to be obviously subject to pollution, the water should be condemned irrespective of the results of chemical or bacteriological examination. Contamination is often intermittent and may not be revealed by the chemical or bacteriological examination of a single sample. The examination of a single sample can indicate no more than the conditions prevailing at the moment of sampling; a satisfactory result cannot guarantee that the observed conditions will persist in the future.

CHEMICAL ANALYSIS REPORT TO FOLLOW

.....

F. Hill, Dublin Region Public Analyst





date rev

M. D. S.

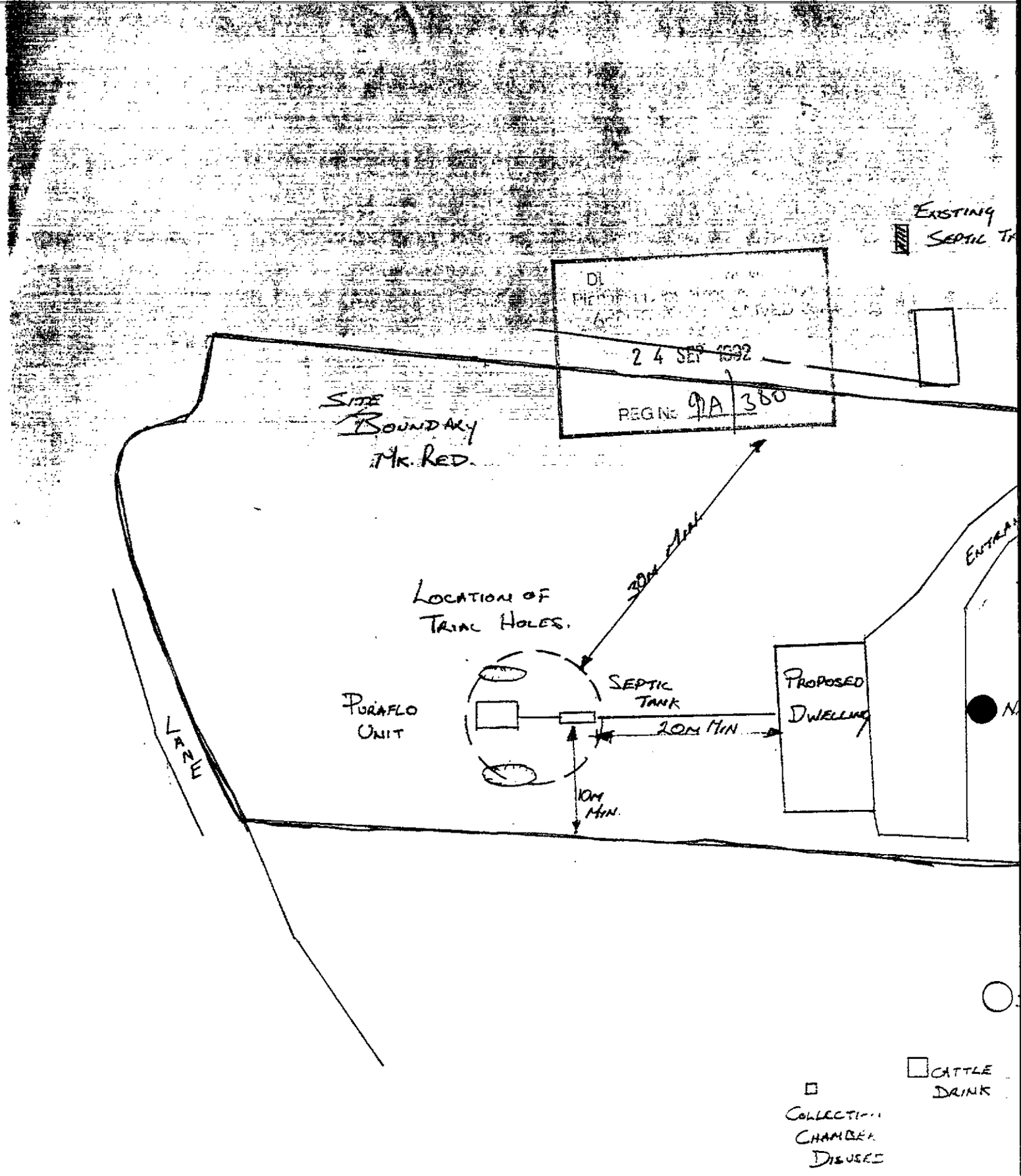
Midland Design Services Limited
Gallagher House
57 Dublin Street
Monaghan
Telephone: (047) 84588
Fax: (047) 84588

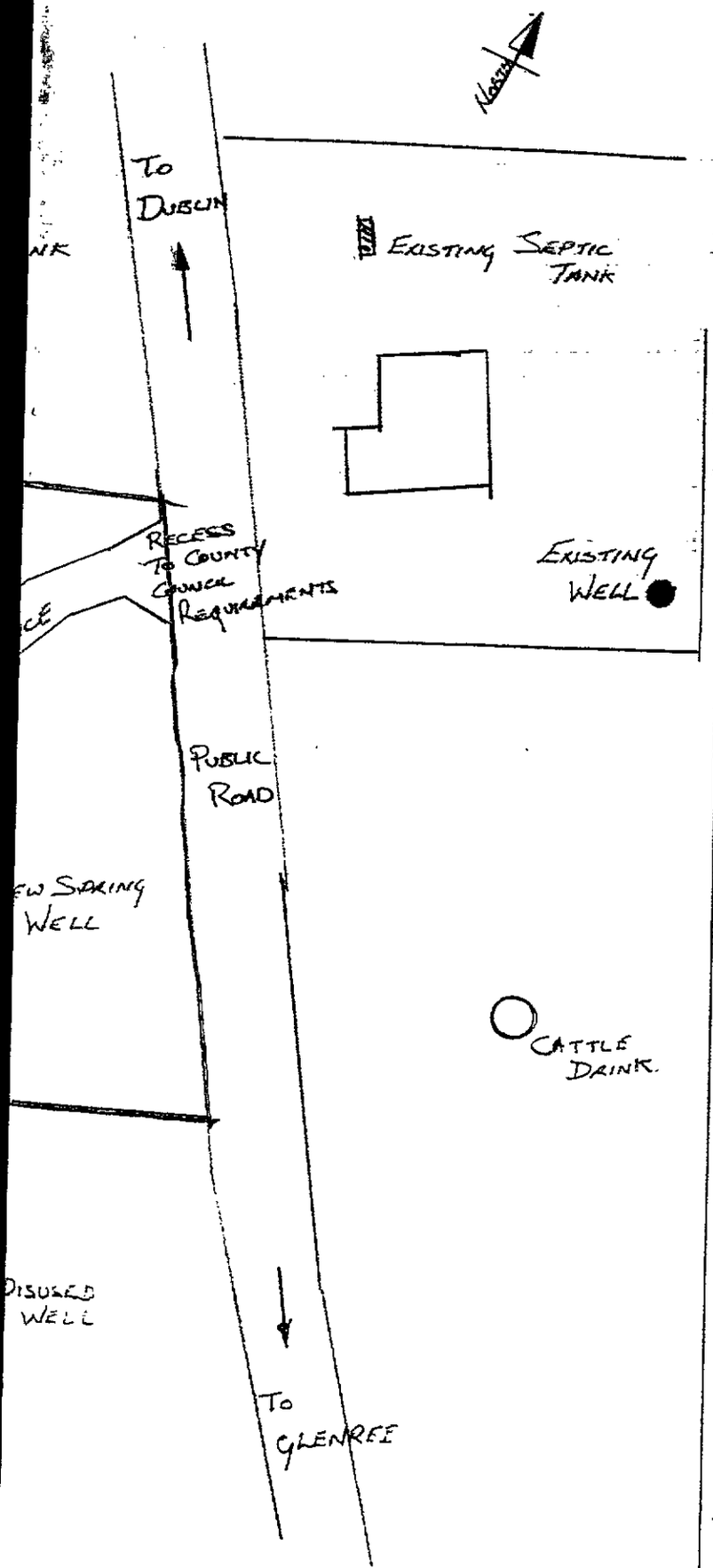
job title
PROPOSED DWELLING
AT GLASSAMUCKY

drawing title
SITE LOCATION
OS 25-5 & 25-9

scale 1:2500 | drawn by | date | checked by | date

job number | drawing number | revision


EXISTING
SEPTIC TA
DI
24 SEP 1992
REG No 9A 380
SITE BOUNDARY
MK. RED.
30M CLEAR
LOCATION OF
TRIAL HOLES.
ENTRA
SEPTIC
TANK
PURAFLO
UNIT
PROPOSED
DWELLING
20M MIN
10M
MIN.
LANE
CATTLE
DRINK
COLLECTI...
CHAMBER
DISUSED



date rev

M. D. S.

Midland Design Services Limited
Gallagher House
57 Dublin Street
Monaghan
Telephone: (047) 84588
Fax: (047) 84588

job title
Proposed Dwelling @ Glassamucky Bonerknabrennia Co Dublin

drawing title
Site Plan
Location of Services

scale	drawn by	date	checked by	date
1:500	PD	10/7/92		

job number	drawing number	revision

99 Clontarf Rd.
Dublin 3. A1

Dublin County Council,
Planning Dept.,
Block 2,
Irish Life Centre,
Lr Abbey St,
Dublin 1.

Ryelands

14 - 8 - 92

Reg Ref 91A/380

Bungalow, garage, and septic tank Glassamucky
Bohernabreena Co Dublin.

Dear Sir / Madam,

I enclose further report from Public Analyst regarding the water supply from the well bored on site, also copy invoice from water well drilling contractor, giving depth of Bore and output of gallons per hour.

I trust this is to your satisfaction, and await your Reply.

DUBLIN COUNTY COUNCIL
PLANNING DEPT.
17 AUG 1992
RECEIVED

Yours Faithfully,

James Curtin.

F. Hill,
Public Analyst
Telephone: 776450

EASTERN HEALTH BOARD,
City Laboratory,
10 Cornmarket,
Dublin 8.

22 May 1992.

REPORT ON ANALYSIS OF A SAMPLE OF WATER

MARKED ...St. Ann's, Glenasmole, Tallaght, Dublin 24.

Received on ..... 12/05/92 ..... Date of Sampling ..... 11/05/92 .....

Submitted by .... T Connell Lab. Ref. No. 1001|92|158P

Received from: Mr. J. Ledwidth, c/o T. Connell, 1 Greenville Road, Blackrock, Co. Dublin.

Order No...

Appearance.. Opaque, considerable suspended solids
Odour.. None

pH	6.5	Langelier Index (at 20°C)	
Turbidity (NTU)	55	Conductivity (uS/cm at 20°C)	136
Colour (Pt-Co)	4 **	**Milligrammes per litre**	
Milligrammes per litre		Total Dissolved Solids	
Free Ammonium (NH_4^+)	0.07	Total Solids	
Nitrite (NO_2)	<0.01	Total Alkalinity (as $CaCO_3$)	
Nitrate (NO_3)	6.1	Temporary Hardness (as $CaCO_3$)	
Chloride (Cl)	15	Permanent Hardness (as $CaCO_3$)	
Sulphate (SO_4)	8	Total Hardness (as $CaCO_3$)	48
Fluoride (F)		Iron in Solution (Fe)	2.0
Free Carbon Dioxide (CO_2)		Aluminium (Al)	
Permanganate Value (Oxidisability)		Copper (Cu)	<0.02
(4 hours at 27°C)	0.1	Zinc (Zn)	<0.01
Total Residual Chlorine (Cl_2)		Lead (Pb)	<0.01
		Cadmium(Cd)	
		Manganese (Mn)	

BACTERIOLOGICAL EXAMINATION:

Coliform organisms per 100 millilitres(MPN) 0
E. coli per 100 millilitres(MPN) 0

Judged by the chemical analysis and bacteriological examination

The water is fit for human consumption (hygienically acceptable) but aesthetically objectionable due to suspended matter

FURTHER OBSERVATIONS

** Colour measured on Laboratory filtered sample.

Iron and turbidity exceeds the EEC Maximum Admissible Concentration for Drinking water. The high turbidity is related to the high iron.
Iron is excessive and should be removed. The level of iron would render the water unsuitable for culinary and laundry purposes and could impart an astringent/metallic taste to the water.
pH is low and the sample is soft. This combination could render the water corrosive towards metal fittings etc. If its a problem, steps could be taken to increase the pH and hardness of the water.

MICROSCOPIC EXAMINATION

The suspended matter consisted of a very large amount of bacterial/algal/inorganic floc.

Charge for this report £paid

.....

F. Hill, Dublin Region Public Analyst

F. Hill,
Public Analyst
Telephone: 776450

EASTERN HEALTH BOARD,
City Laboratory,
10 Commarket,
Dublin 8.
14 May 1992.

REPORT ON BACTERIOLOGICAL EXAMINATION OF SAMPLE OF WATER

MARKED ...St. Ann's, Glenasmole, Tallaght, Dublin 24.

Received on ..... 12/05/92 ..... **Date of Sampling** ..... 11/05/92 .....

Submitted by .... T Connell **Lab. Ref. No.** 1001|92|158P

Received from: Mr. J. Ledwidth,
c/o T. Connell,
1 Greenville Road,
Blackrock,
Co. Dublin.

Order No...

This report is to be read in conjunction with Chemical Analysis Report with above Laboratory Reference Number.

Coliform organisms per 100 millilitres(MPN)	0
E. coli per 100 millilitres(MPN)	0

Judged by the above results :-

The sample is fit for human consumption (hygienically acceptable).

Owners of private water supplies are encouraged to take every measure possible to prevent the access of pollution to the water. Methods, such as the removal of obvious sources of contamination (e.g. effluent from septic tanks, slurry or silage pits or farm yard run off) from the catchment area and attention to the fencing and coping, brick-lining and covering of the source should reduce the coliform content of even a shallow well or spring to less than 10 coliform organisms per 100 ml. Persistent failure to achieve this, especially when E. coli is repeatedly present, should, as a general rule, lead to condemnation of the supply. E. coli organisms are are present in human, animal and avian faecal matter.

It should be emphasised that when sanitary inspection shows a water, as distributed, to be obviously subject to pollution, the water should be condemned irrespective of the results of chemical or bacteriological examination. Contamination is often intermittent and may not be revealed by the chemical or bacteriological examination of a single sample. The examination of a single sample can indicate no more than the conditions prevailing at the moment of sampling; a satisfactory result cannot guarantee that the observed conditions will persist in the future.
CHEMICAL ANALYSIS REPORT TO FOLLOW

.....

F. Hill, Dublin Region Public Analyst

Any communication concerning this report should be addressed to the Public Analyst.Report issued subject to conditions overleaf

THOMAS CONNELL

SITE INVESTIGATION – WELL DRILLING

1 Greenville Road, Blackrock, Co. Dublin.
Telephone : (01) 806310 045 60541

VAT no 4679228G 3rd Aug '92 INVOICE

Mr James Ledwith
Kilassamuckey Bohernabreena Co Dublin

1	well 153 ft @ 6-00 per ft	918 - 00
	20 ft 6" lining –	—
	output three hundred gallons per hour	
	nett	918 — 00
	+10% VAT	91 - 80
	TOTAL	1009 - 80

99 Clontarf Rd. =
Dublin 3. A1

Dublin County Council,
Planning Dept.,
Block 2.
Irish Life Centre,
Lr Abbey St.,
Dublin 1.

14 - 8 · 92

Reg Ref 91A/380

Bungalow, garage, and septic tank Glasnamuckey
Bohernabreena Co Dublin.

Dear Sir / Madam,

I enclose further report from Public Analyst regarding the water supply from the well bored on site, also copy invoice from water well drilling contractor, giving depth of Bore and output of gallons per hour.

I trust this is to your satisfaction and await your Reply.

Yours Faithfully,

James Lindsay.

F. Hill,
Public Analyst
Telephone: 776450

EASTERN HEALTH BOARD,
City Laboratory,
10 Cornmarket,
Dublin 8.

22 May 1992.

REPORT ON ANALYSIS OF A SAMPLE OF WATER

MARKED ...St. Ann's, Glenasmole, Tallaght, Dublin 24.

Received on ..... 12/05/92 ..... **Date of Sampling** ..... 11/05/92 .....

Submitted by .... T Connell **Lab. Ref. No.** 1001|92|158P

Received from: Mr. J. Ledwidth, c/o T. Connell, 1 Greenville Road, Blackrock, Co. Dublin.

Order No...

Appearance.. Opaque, considerable suspended solids
Odour.. None

pH	6.5	Langelier Index (at 20°C)	
Turbidity (NTU)	55	Conductivity (uS/cm at 20°C) ...	136
Colour (Pt-Co)	4 **	**Milligrammes per litre**	
		Total Dissolved Solids	
Milligrammes per litre		Total Solids	
Free Ammonium (NH_4^+)	0.07	Total Alkalinity (as $CaCO_3$) ...	
Nitrite (NO_2)	<0.01	Temporary Hardness (as $CaCO_3$) ...	
Nitrate (NO_3)	6.1	Permanent Hardness (as $CaCO_3$) ...	
Chloride (Cl)	15	Total Hardness (as $CaCO_3$)	48
Sulphate (SO_4)	8	Iron in Solution (Fe)	2.0
Fluoride (F)		Aluminium (Al)	
Free Carbon Dioxide (CO_2)		Copper (Cu)	<0.02
Permanganate Value (Oxidisability)		Zinc (Zn)	<0.01
(4 hours at 27°C)	0.1	Lead (Pb)	<0.01
Total Residual Chlorine (Cl_2) ...		Cadmium(Cd)	
		Manganese (Mn)	

BACTERIOLOGICAL EXAMINATION:

Coliform organisms per 100 millilitres(MPN)	0
E. coli per 100 millilitres(MPN)	0

Judged by the chemical analysis and bacteriological examination

The water is fit for human consumption (hygienically acceptable) but aesthetically objectionable due to suspended matter

FURTHER OBSERVATIONS

** Colour measured on Laboratory filtered sample.

Iron and turbidity exceeds the EEC Maximum Admissible Concentration for Drinking water. The high turbidity is related to the high iron. Iron is excessive and should be removed. The level of iron would render the water unsuitable for culinary and laundry purposes and could impart an astringent/metallic taste to the water.
pH is low and the sample is soft. This combination could render the water corrosive towards metal fittings etc. If its a problem, steps could be taken to increase the pH and hardness of the water.

MICROSCOPIC EXAMINATION

The suspended matter consisted of a very large amount of bacterial/algal/inorganic floc.

Charge for this report £paid .....

F. Hill, Dublin Region Public Analyst

F. Hill,
Public Analyst
Telephone: 776450

EASTERN HEALTH BOARD,
City Laboratory,
10 Commarket,
Dublin 8.
14 May 1992.

REPORT ON BACTERIOLOGICAL EXAMINATION OF SAMPLE OF WATER

MARKED ...St. Ann's, Glenasmole, Tallaght, Dublin 24.

Received on ..... 12/05/92 ..... **Date of Sampling** ..... 11/05/92 .....

Submitted by .... T Connell **Lab. Ref. No.** 1001|92|158P

Received from: Mr. J. Ledwidth,
c/o T. Connell,
1 Greenville Road,
Blackrock,
Co. Dublin.

Order No...

This report is to be read in conjunction with Chemical Analysis Report with above Laboratory Reference Number.

Coliform organisms per 100 millilitres(MPN)	0
E. coli per 100 millilitres(MPN)	0

Judged by the above results :-

The sample is fit for human consumption (hygienically acceptable).

Owners of private water supplies are encouraged to take every measure possible to prevent the access of pollution to the water. Methods, such as the removal of obvious sources of contamination (e.g. effluent from septic tanks, slurry or silage pits or farm yard run off) from the catchment area and attention to the fencing and coping, brick-lining and covering of the source should reduce the coliform content of even a shallow well or spring to less than 10 coliform organisms per 100 ml. Persistent failure to achieve this, especially when E. coli is repeatedly present, should, as a general rule, lead to condemnation of the supply. E. coli organisms are are present in human, animal and avian faecal matter.

It should be emphasised that when sanitary inspection shows a water, as distributed, to be obviously subject to pollution, the water should be condemned irrespective of the results of chemical or bacteriological examination. Contamination is often intermittent and may not be revealed by the chemical or bacteriological examination of a single sample. The examination of a single sample can indicate no more than the conditions prevailing at the moment of sampling; a satisfactory result cannot guarantee that the observed conditions will persist in the future.
CHEMICAL ANALYSIS REPORT TO FOLLOW

.....

F. Hill, Dublin Region Public Analyst

THOMAS CONNELL

SITE INVESTIGATION – WELL DRILLING

1 Greenville Road, Blackrock, Co. Dublin.
Telephone : (01) 806310 046 60541

VAT No 4679278G 3rd Aug '92 INVOICE

Mr James Sedwith
Glassamucky Bakenabrane Co Dublin

1	well 153 ft @ £6-00 per ft	918-00
	20 ft 6" lining —	—
	output three hundred gallons per hour	
	nett	918-00
	+10% VAT	91-80
	TOTAL	1009-80

sent to Liffey Hse 26/3

89 Clontarf Rd
Dublin 3
18.3.92

Dublin County Council,
Planning Dept.
Irish Life Centre,
Dublin 1.

Your Ref PL/SK 29-1-92

Re Planning Application Ref 91A/380

Dear Sir/Madam

Further to my letter dated 3/3/92, I now enclose 2 copies of the prepared contour map, as soon as further details come to hand, I will send them on.

Trust this is in order of your satisfaction,

Yours Faithfully,
James Ledwith.

91A/380
1.2.0
wd A1 fr BPL

RECEIVED
18 MAR 1992

89 Clontarf Rd
Dublin 3
3-3-92

(3/3)

Dublin County Comm
Planning dept
Irish Life Centre
Dublin 1.

Your Ref P.C/SK. 29-1-92

Dear Sir/Madam,

Your letter to my Architect/design.
Ms Midland Design Services Ltd
Gallagher Hse.
Dublin St.
Monaghan.

91A/380
L 4.2
A.1. for BPL

Enclosed are the details that have come to hand so far, that is details of Puroflo Sewerage control System, plan of site with details of services to Neighbouring houses. also wells and cattle drinking area's. for water to New dwelling there is local mains supply by Dublin County Council I have also got Quotation for New well from Spring on site,

I have consulted with the Environmental Health Officer. I have dug trial holes for his inspection, and I am Notifying the Health Officer these holes are ready, the contour levels and Map will be ready in a few days

I trust the enclosed is in order and to your satisfaction, as soon as other details come to hand I will forward

to you immediately

I am sending copy of the correspondence to my Architect design firm.

Yours Sincerely,

James Hedwith.

THOMAS CONNELL

SITE INVESTIGATION – WELL DRILLING

1 Greenville Road, Blackrock, Co. Dublin.
Telephone : (01)2806310

045 60554

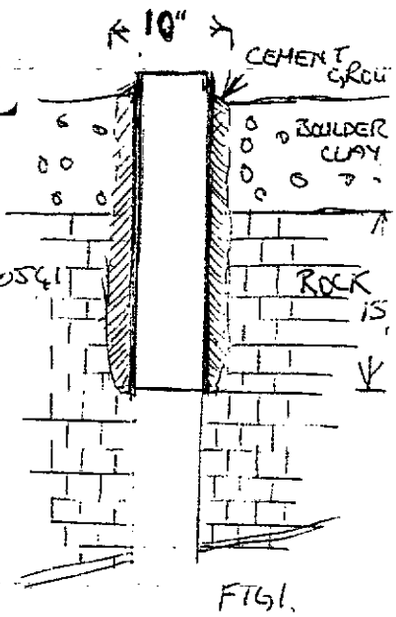


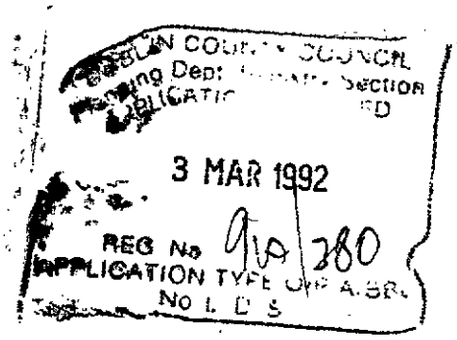
FIG1.

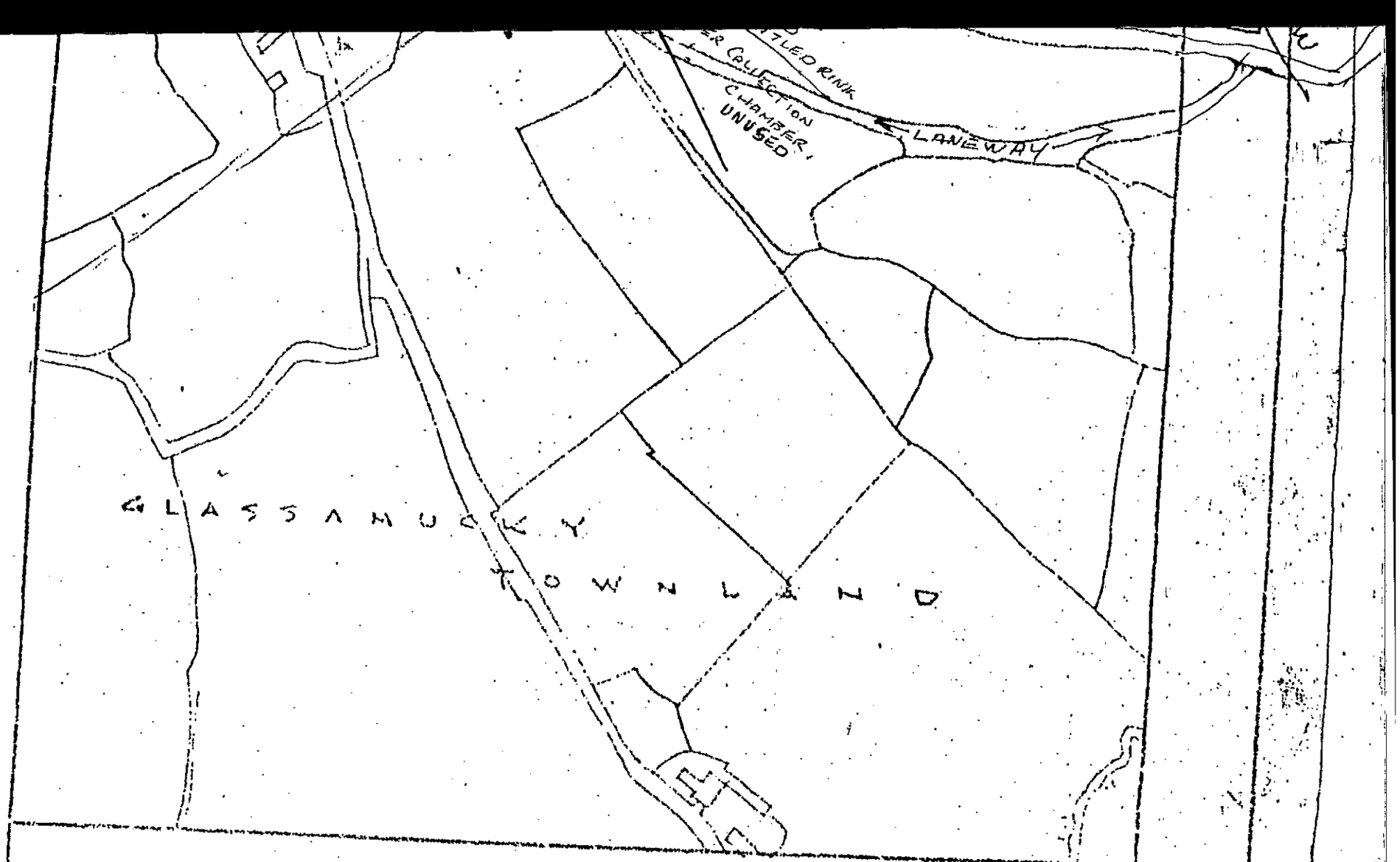
M. Ledwith
89 Blontarf Rd
Dublin 3.

Dear Mr Ledwith

further to our visit to your site at Glennamole Tallaght our charge for drilling and lining a six inch diameter well is Six hounds Per ft. including lining In order to ensure protection against contamination I propose to use construction method as shown in FIG 1.

yours Faithfully
Tho Connell

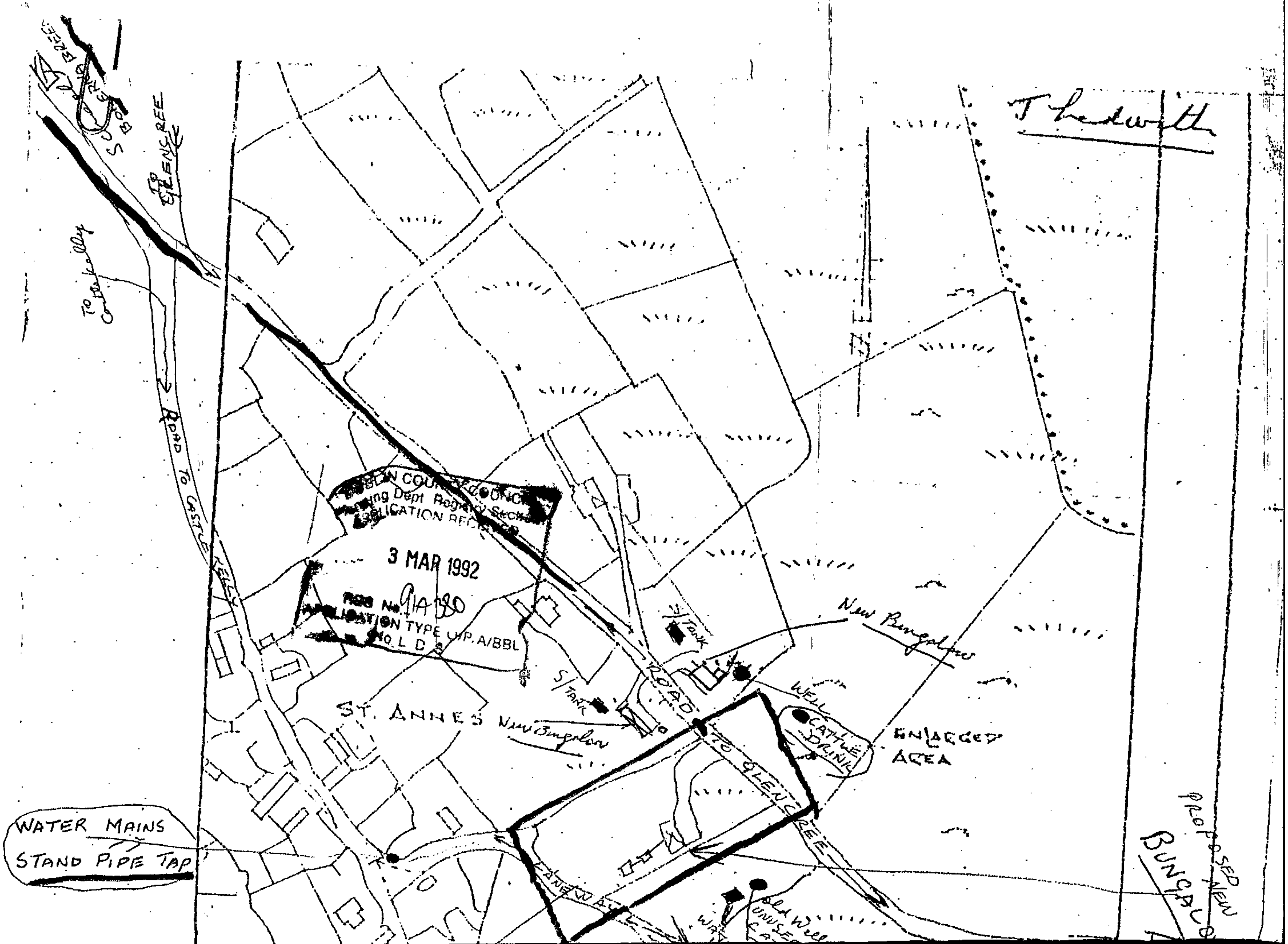




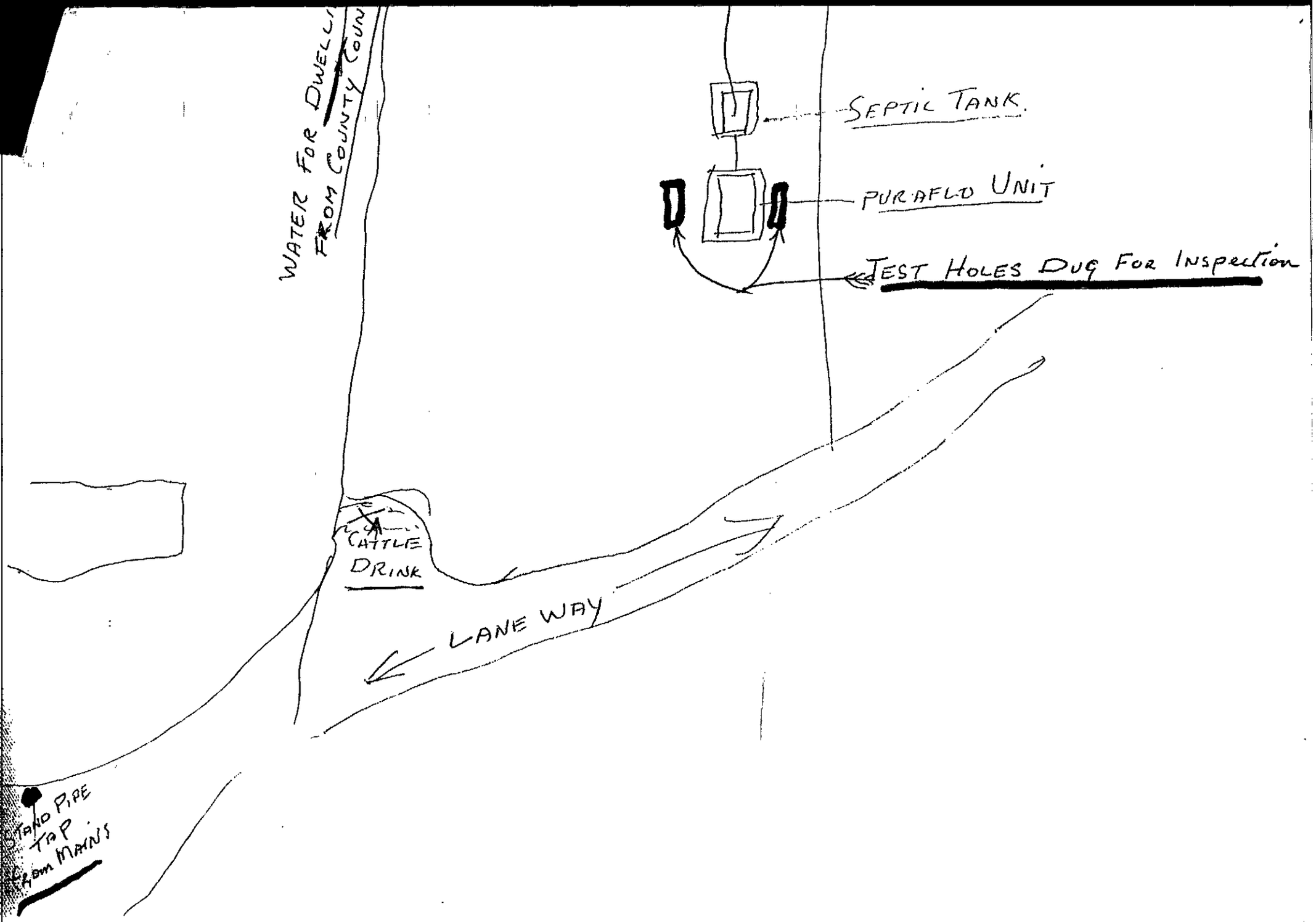
LOCATION MAP

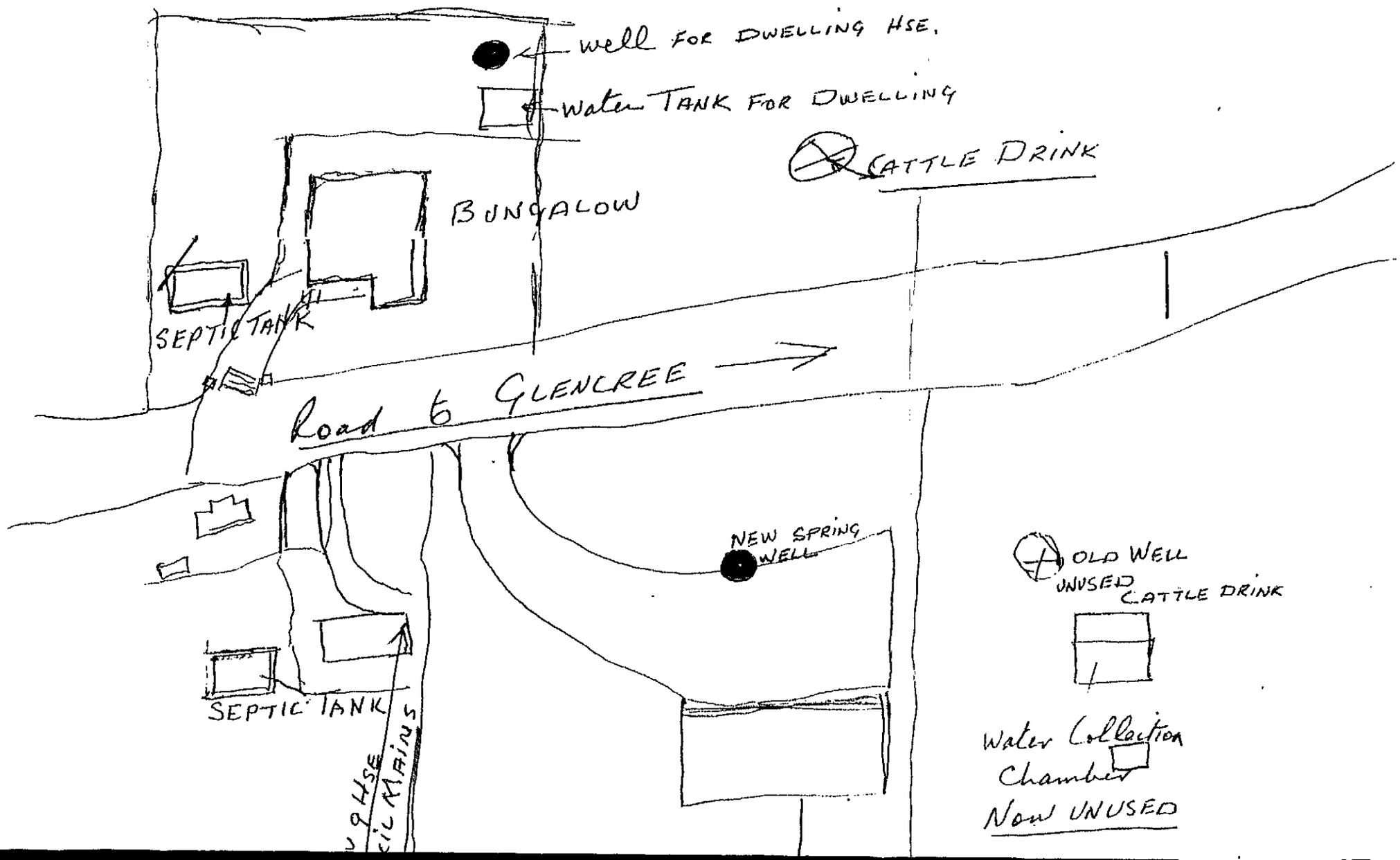
PORTION OF O.S. MAPS SHEET Nos.
DUBLIN 25-5 & 25-9

SCALE :- 1/2500TH



WATER MAINS
STAND PIPE TAP
SCHOOL
BOHERNABREENA
TO GLENCREE
TO Castlekelly
ROAD TO CASTLE KELLY
3 MAR 1992
91A/380
APPLICATION TYPE U.P. A/BBL
ST. ANNES
New Bungalow
S/TANK
ROAD
TO GLENCREE
LANEWAY
WELL
CATTLE DRINK
ENLARGED AREA
New Bungalow
PROPOSED NEW BUNGALOW


WATER FOR DWELLI
FROM COUNTY COUN
SEPTIC TANK.
PURAFLO UNIT
TEST HOLES DUG FOR INSPECTION
CATTLE DRINK
LANE WAY
STAND PIPE TAP FROM MAINS


well FOR DWELLING HSE.
Water TANK FOR DWELLING
CATTLE DRINK
BUNGALOW
SEPTIC TANK
Road 6 GLENCREE
NEW SPRING WELL
OLD WELL UNUSED
CATTLE DRINK
SEPTIC TANK
Water Collection Chamber Now UNUSED

PURAFLO

Pollution Control for a *Better* Environment

DATE: 26.2.92 YOUR REF: OUR REF:

PROPOSAL NO. 560

Dear Sirs,

We thank you for your enquiry and have much pleasure in submitting our quotation. If we can provide any additional information or guidance do not hesitate to contact us.

Yours faithfully,
PURAFLO LIMITED

Maurice L. Harnett

MAURICE HARNETT
Chief Executive.

DUBLIN COUNTY COUNCIL
Planning Dept Registry Section
APPLICATION RECEIVED
3 MAR 1992
REG No. 91A/380
APPLICATION TYPE OPP/A/BBL
N U L D S

Puraflo, Bord na Mona, Newbridge, CO. KILDARE. Telephone: 045/31201. Fax: 045/33240.

BORDNAMÓNA

EFFLUENT TREATMENT PLANT AT Glassamucky

SPECIFICATION

The plant supplied will consist of:-

1.0 A treatment unit of surface area 10 s.m. It will be contained within concrete block walls as illustrated. The special media and distribution pipework will be installed as shown.

2.0 A pump unit complete with a visual/audible warning device and controls, and a prefabricated sump.

3.0 (A) Requirement of 40 mm PE pipe (Rising Main).
(B) Requirement of 110 mm uPVC Sewer Pipe.
(C) Requirement of armour coated cable.

The Company will be responsible for the supply and installation of all the above mentioned items with the exception of the containing walls and foundations.

The client will be responsible for providing the following:-

1.0 Mechanical Excavator and Operator for 1 day.
2.0 40 mm Crusher Run Stones 10 tonnes.
3.0 Adequate roof covering as illustrated.
4.0 0.33 KW. Single Phase Electricity Supply.
5.0 All reinstatement.

The plant has been designed to treat 200 Gallons of septic tank effluent per day.

B.O.D. loading has been taken at 55 gms/hd/day.

The above installation will give a guaranteed final effluent from a septic tank construction in accordance with SR.6 with the following levels:

BIOCHEMICAL OXYGEN DEMAND - Av. less than 10mg./Litre.
TOTAL SUSPENDED SOLIDS - Av. less than 15mg./Litre.

QUOTATION

All the above supplied and installed for £2,200 + V.A.T. @ 10%.

Subject to Prices ruling at date of despatch.

Dear Sir,

Mr. Maurice Harnett of Puraflo has requested that I write to you detailing the efficiency of the Puraflo biofiltration system and the Public Health implications associated with its use.

Puraflo is a highly efficient biofiltration system for the treatment of domestic effluents. Poor quality primary effluents are evenly distributed over the biofibrous peat media and percolated through the modules emerging as a clear innocuous liquid at the base of the unit. The treatment of sewage within the system is achieved by a combination of unique physical, chemical and biological interactions between the wastewater and the active specialised media.

Continuous research on the performance of the biofiltration systems has been in progress for over <u>six</u> years, including the monitoring of full commercial installations for <u>four</u> years. The treatment efficiency in such system is very impressive. Reductions of greater than 95% of the Biochemical Oxygen Demand (B.O.D.) and Suspended Solids (S.S.) content of the wastewater has been consistently recorded. Similarly, high (99.9%) reductions in faecal coliform bacterial numbers are recorded in the treatment process (Table 1). Independent testing of Puraflo has been carried out by Eolas (physical and chemical). the National food centre and VCC (microbiological) as well as by numerous County Council and Environmental Health representatives. On <u>all</u> occasions the results indicated that the systems were performing as detailed above with no decrease in media effectiveness with time. A recent visit (November 1991) by Eolas personnel revealed that all the systems installed at a number of sites in Clonmel (Installed 1988) were yielding excellent results with effluent B.O.D.s as low as 3.2 mg/l (Significantly below the royal commission standards). Furthermore an extensive survey by technical personnel at Bord na Móna's environmental Laboratories failed to isolate any pathogenic bacteria (Staphylococcus aurous, Salmonella spp, Clostridium perfringers, Pseudomonas aeruginosa) from a large number of test sites.

TABLE 1

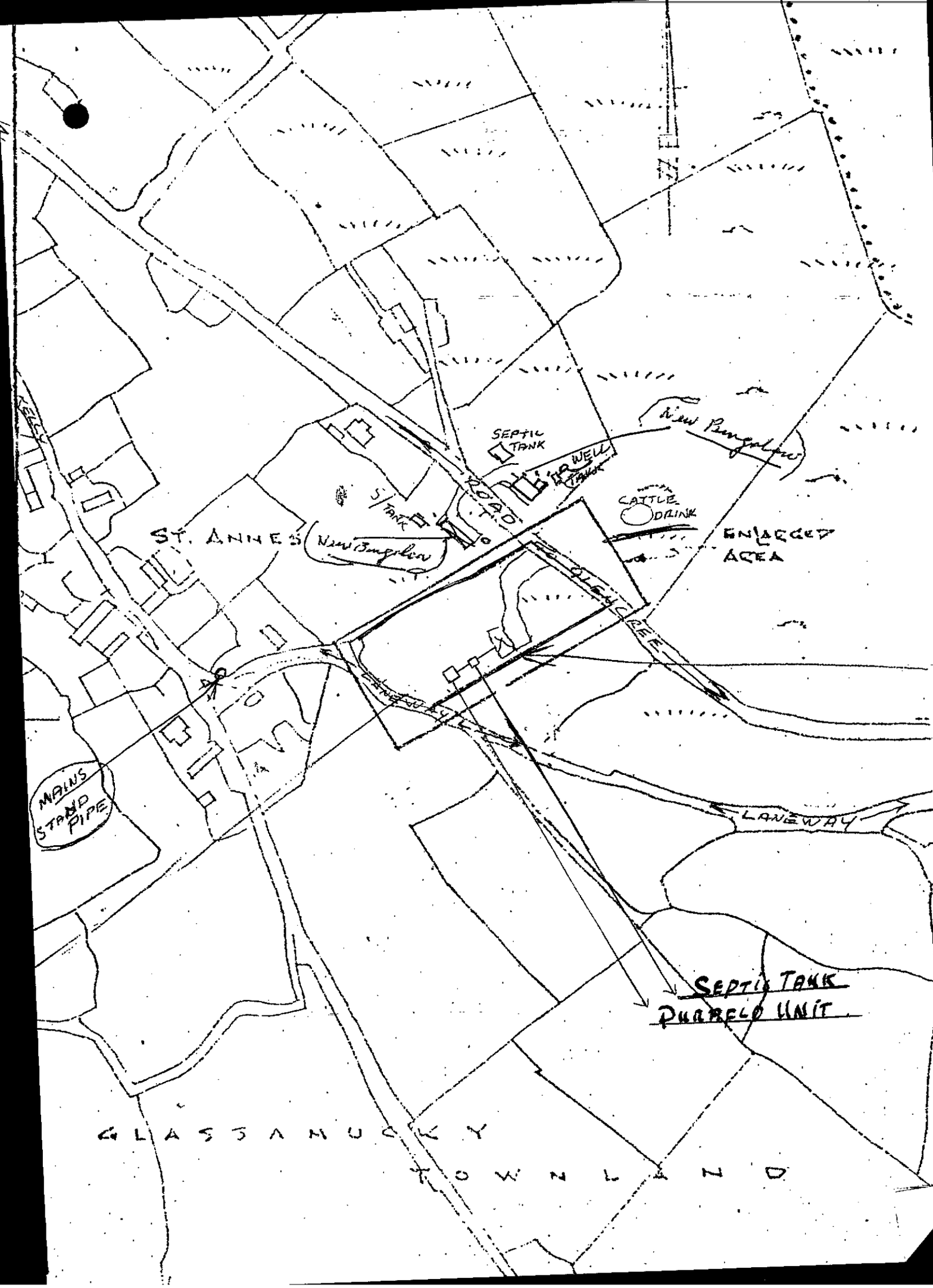
PURAFLO PERFORMANCE TYPICAL RESULTS FROM A DOMESTIC UNIT			
PARAMETER	INFLUENT	EFFLUENT	% REDUCTION
BOD mg/l	249	9	96
TSS mg/l	158	10	94
NH_3-N mg/l	50	15	70
Total Coliforms*	3.7×10^6	6.0×10^3	99+
Ecoli*	9.1×10^5	7.6×10^2	99+
Pathogenic bacteria	Present	Absent	-
C.F.V.s\100ml*			

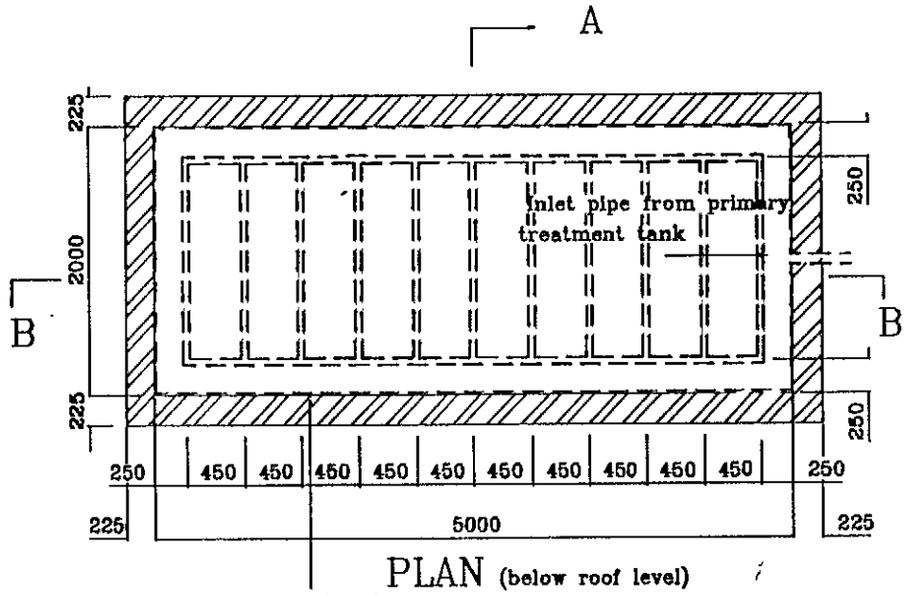
The inclusion of our biofiltration system in the updated SR.6 (Draft recommendations for single house domestic effluent disposal) Eolas document constitutes an endorsement of the product and highlights the continued confidence which the state body has in the system. The excellent response from customers in the market place (over 100 single house and group scheme installations in Ireland to date) in addition to personnel in various regulatory authorities and researchers\academics in the field is further evidence of the ever increasing acceptance of peat biofiltration technology.

I hope these comments are useful and of help to you and your client in the pursuit for planning permission at Glassamucky. If I can be of any more assistance, please do not hesitate to contact me.

Yours sincerely,

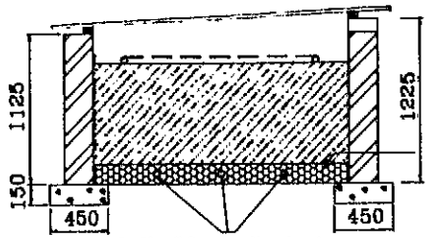
DR. HUBERT HENRY
RESEARCH SCIENTIST


SEPTIC TANK
WELL
New Bungalow
CATTLE DRINK
ENLARGED AREA
ROAD
S/TANK
ST. ANNES
New Bungalow
CREEK
LANEWAY
MAINS STAND PIPE
LANEWAY
SEPTIC TANK
PURIFIED UNIT
GLASSAMUCKY
TOWNLAND



PLAN (below roof level)

500 guage polythene d.p.c. placed vertically at peat layer/blockwork interface



3 No.50mm.dia.drain set in crushed stone

SECTION A–A

Tegral agribuild lacquered sheeting (dark green) laid on 100mm x 75mm wall plate

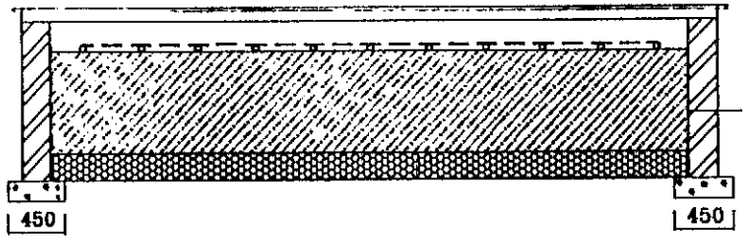
100mm conc. block

50mm ø distribution grid on 750mm specialised peat layer

225mm thick block wall

200mm Crushed stone

450 X 150 Strip Found.



SECTION B–B

50mm ø distribution grid on 750mm specialised peat layer

500 guage polythene d.p.c. placed vertically at peat layer/blockwork interface

Leave 25mm vertical spacing at every second block on first course of blockwork.

Note:
Foundation sizes may be alterad subject to ground conditions

PURAFLO

Pollution Control for a Better Environment

BORD NA MÓNA

PEAT BASED SEWAGE TREATMENT SYSTEM.

ALL DIMENSIONS IN MILLIMETRES

PURAFLO LTD.
NEWBRIDGE, Co. KILDARE.
TELEPHONE; 045–31201

PURAFLO

TECHNICAL INFORMATION SHEET

SINGLE DWELLINGS

Septic Tank Effluent Treatment System

THE PROBLEM OF POLLUTION

The average pollution BOD generated by sewage effluent from the occupants of a domestic dwelling is 0.06kg/head/day.

Where the effluent is discharged from a septic tank, serious contamination of ground or surface water can occur where site conditions are not suitable.

Surface water contamination is most prevalent in areas where impervious soils dominate. Where a percolation area fails, a common method used to try to prevent effluent backing-up to the house is to pipe from the outlet of the septic tank to the nearest drain. This leads to an ongoing insidious pollution which is scmetimes difficult to recognise.

In the case of ground water pollution, the situation applies in reverse. Where there is a poor over burden of soil on fissured rock (mostly limestone), there is a direct run-off into the ground water system from the septic tank. This underground water system may be used for domestic consumption with the householder being unaware in most cases, of the pollution risk.

THE PURAFLO PROCESS FOR POLLUTION CONTROL

Bord na Móna scientists have developed the Puraflo System to treat effluent from a septic tank which is working correctly and must have been installed in accordance with SR6 (EOLAS).

The operating principle of Puraflo is based on a form of aerobic biological treatment with filtration using a special blend of peat fibre as the medium.

PERFORMANCE

A Puraflo installation will produce a high quality final effluent with an average BOD (biochemical oxygen demand) of less than 10mg/l and average TSS (total suspended solids) of less than 15mg/l. Coliform and ammonia removal of up to 99% and 90% respectively is also achieved. All quoted figures are well within the normal requirements of Health Organisations.

THE PURAFLO SYSTEM

For a single dwelling, the System consists of a Sump and Pump Unit, 4 biofilter Modules, connecting pipework and ducting and electrical controls.

The Sump and Pump Unit is installed at the outlet from the septic tank with the effluent being pumped to the biofilter Modules (see Figure 1). The biological process begins at this stage with the effluent being distributed evenly over the surface of the treatment media.

SYSTEM LOADING

The Puraflo Domestic Installation will cater for a dwelling house of up to five bedrooms and will treat 1 cubic metre of effluent per day. At this loading, the dwell time in the media will be six days. Dwell time is an important factor in the efficiency of the biological process.

The special blend of peat fibre and peat, and the predetermined and accurate compaction factor of the media ensures an evenly controlled flow. Where domestic situations larger than five bedrooms are proposed, the Puraflo Domestic Installation can be enlarged accordingly.

PURAFLO SYSTEM COMPONENTS

Sump and Pump Unit

Manufactured from corrosion free polyethylene. Incorporates a 450mm square galvanised steel frame and cover which is designed for pedestrian loading and has a safety grid fitted below the cover. Sump dimensions are given in Table 1.

A fully submersible pump within the Sump is rated at 0.33KW single phase and is capable of pumping up to 5 metres head. The pump should be withdrawn from the Sump annually, hosed down, inspected and the strainer checked for blockage prior to replacement.

Biofilter Modules

Each Module is moulded from polyethylene and is packed with a special blend of peat fibre media, developed by the research department of Bord na Móna to give optimum retention time and performance on a continuing basis. The four biofilter Modules required for a single dwelling have a surface area of 10m^2 and are 0.76m deep. The effluent received from the Sump through a 40mm polyethylene rising main is distributed over the peat fibre media to meet designed hydraulic and biological loading rates. (Module dimensions are given in Table 1).

Distribution Pipework

A manifold system of uPVC pipes and fittings ensures an even distribution of effluent over the total area of the peat fibre media (see Figure 2).

Other pipework supplied with the Puraflo System comprises: [illegible] between septic tank and Sump, 40mm

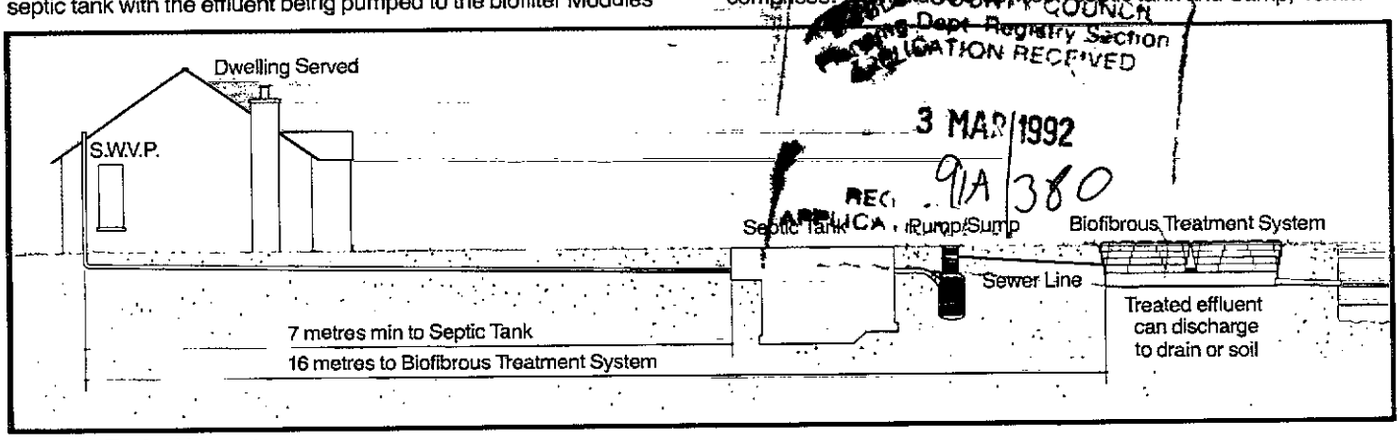


Figure 1 Typical Layout

PE rising main between Sump and biofilter Modules, 50mm uPVC duct for electrical cable and 110mm uPVC for the discharge of final effluent (optional).

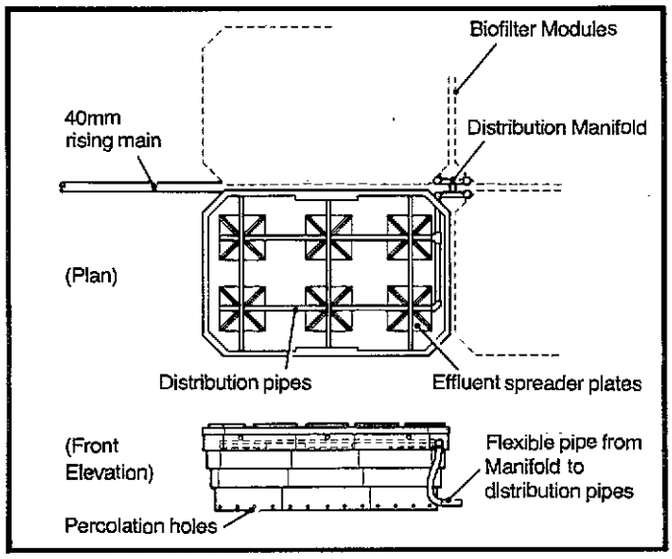
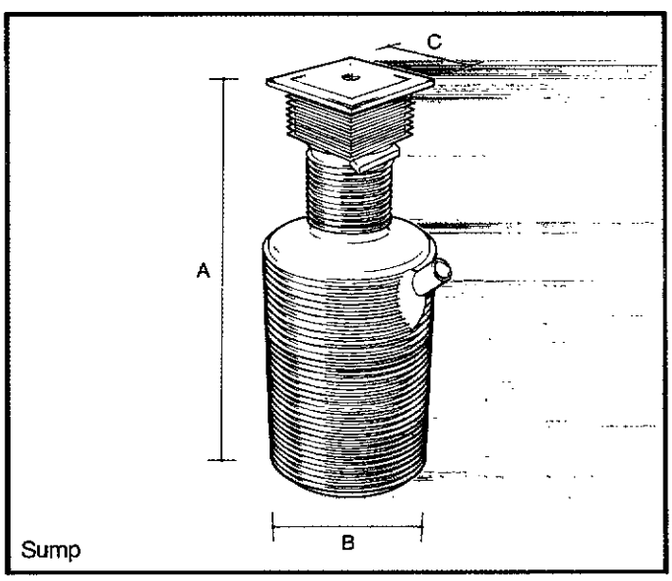


Figure 2 Manifold Distribution System

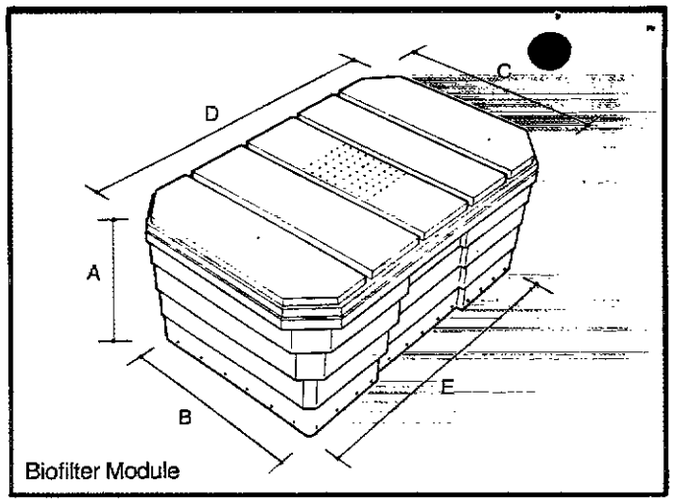
Table 1 Dimensions (mm)

Description	A	B	C	D	E
Sump	1850	720	480	–	–
Biofilter Module	760	1185	1400	2150	1935



TECHNICAL SERVICE

For further information on any aspect of single dwelling or package installation, contact the Company at the address below.



INSTALLATION

Installations are carried out by Puraflo either above or below ground depending on the aesthetic requirements and site conditions.

Figures 3(a) and 3(b) show installations below ground where treated effluent is discharged either into a ditch or river or directly to the subsoil. In both cases, the biofilter Modules are placed on a 200mm thick granular bed. It should be noted that where an outlet pipe is used, the excavation is lined with a heavy gauge polythene membrane.

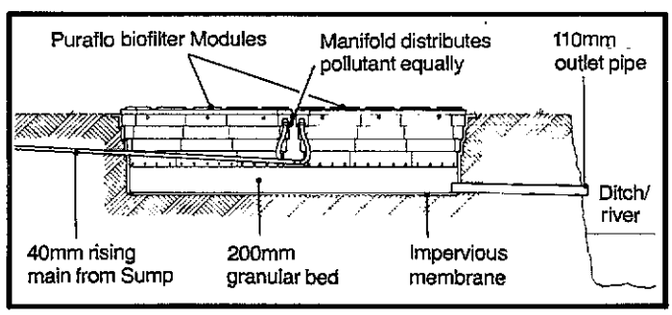


Figure 3(a) Puraflo system discharging treated effluent into open ditch, stream or river

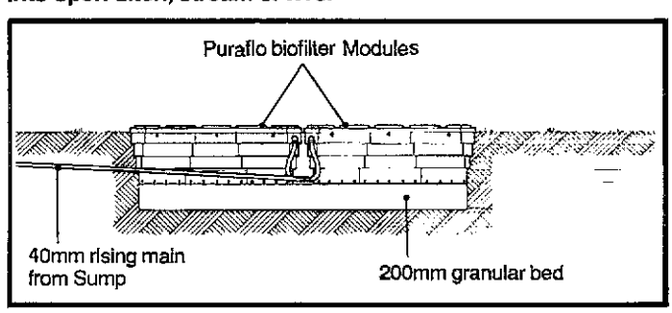


Figure 3(b) Puraflo system discharging directly into subsoil where suitable

Note: Final position of Puraflo modules can be located above or below ground depending on site conditions.

PURAFLO

Pollution Control for a *Better* Environment

Developed by

BORD NA MÓNA
THE IRISH PEAT BOARD

Puraflo Limited, Bord na Mona,
Newbridge, Co. Kildare.
Tel: 045/31201. Fax: 045/33240.

1/90 E & OE

SEPTIC TANK TREATMENT SYSTEMS

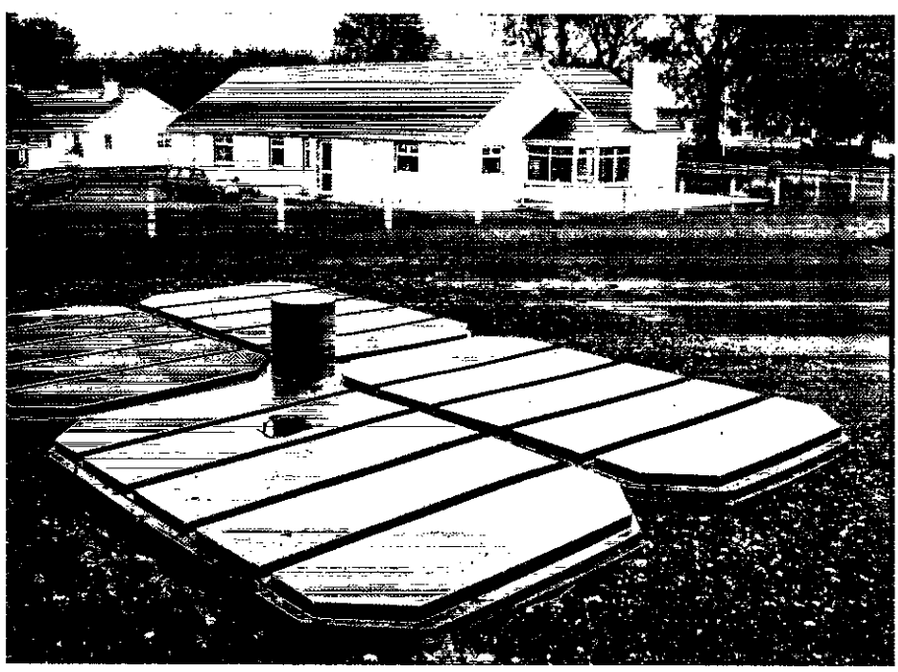
ENGINEERS JOURNAL
PRODUCT PROFILE

PROBLEMS & SOLUTIONS

Hubert Henry, Environmental Products Division, Bord na Mona

Septic tank systems have been widely used in both developed and developing countries for the treatment of domestic waste water in rural areas for over 100 years. In recent decades they have become increasingly popular in suburban areas not serviced by public sewer systems. The widespread use of the septic tank system has continued in the face of a consistent history of failure, with severe localised groundwater pollution, and almost unanimous disapproval by researchers in the field. The feasibility of using septic tank systems as a method of treating domestic wastewater was being questioned as early as 1956 when Kiker suggested that "at best, a septic tank is a poor substitute for centralised sewage collection and should be avoided whenever possible".

As a primary treatment system septic tanks do not significantly reduce the polluting potential of the wastewater. The bulk of the treatment takes place in the soil through various physical, chemical and biological interactions between the effluent and soil colloids. In the United States approximately three billion m^3 of septic tank effluent is discharged into the soils for treatment annually (Bitton & Gerba, 1984). However, less than 50% of these soils are thought to be capable of achieving an adequate reduction in the pollution potential of the waste (Patterson et al, 1971). In Ireland there are an estimated 300,000 septic tank systems serving a population in the region of 1.2 million people and discharging approximately 78 million m^3 of wastewater to soil annually (Henry, 1988). Again only half of these soils are considered capable of providing sufficient treatment to prevent groundwater pollution.

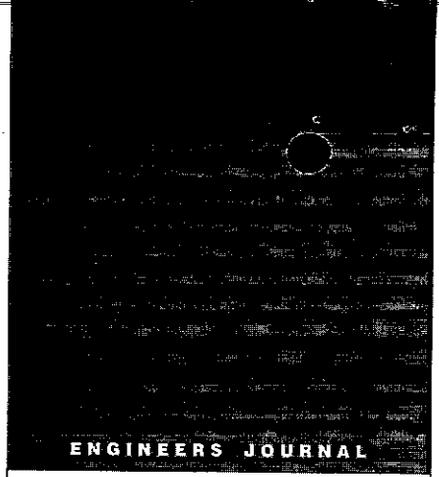


Septic Tanks - Efficiency of Treatment

A septic tank functions primarily as a settlement chamber and as such only affords limited digestion of the wastewater. The efficiency of treatment within the tank depends on many factors, primarily the design, construction and maintenance of the system. The volume and nature of the waste is also important.

In general, approximately 50% of the solids will be removed but this can increase to 70% in a well-constructed two-chamber tank. B.O.D. removal within the tank is considerably less, ranging from 15 to 30%, although this can also be extremely variable (Patterson et al, 1971, and Goldstein & Wenk, 1972).

The effluent from a septic tank is of poor quality and highly polluting if it reaches surface or ground waters. The effluent contains high numbers of faecal bacteria and viruses and large amounts of phosphorous and nitrogen (mainly as ammonia) , as well as having a high B.O.D. and S.S. content. It is a common misconception that the tank will effectively remove the bacteria and other micro-organisms contained in the waste. Studies have shown that the removal of these organisms within the tank is negligible (Patterson et al, 1971). Even the most



PRODUCT PROFILE

efficient tank can only offer partial treatment, hence the physical, chemical and biological quality of the effluent is such that it cannot be discharged directly to surface or groundwaters without further treatment. This treatment takes place in the soil treatment system into which the effluent is channelled on leaving the tank.

The Soil Treatment System

The soil is an integral part of the process by which the effluent strength is reduced before reaching the saturated zone. Once the effluent leaves the septic tank it enters the soil treatment system where it interacts with the soil colloids. There are two types of soil treatment system commonly in use:-

(i) Soakage pits
(ii) Distribution fields (also called percolation, tile or absorption fields).

The first system simply allows the effluent to flow into an excavated hole filled with stone or rubble. The main disadvantage of this is that the effluent is concentrated into a small area which may become clogged and quickly fail. The use of soakage pits as a disposal option is not recommended (Patterson et al, 1971).

Absorption fields are designed to evenly distribute the effluent through a large volume of soil via perforations in a pipe distribution network. The soil's ability to effectively treat the waste depends on the design, configuration and loading of the pipe distribution network, maintenance of the tank, and the constituents of the waste (in addition to the soil characteristics).

The extent to which attenuation of the effluent takes place in the regolith (soil and overburden) depends on the ion exchange capacity, the porosity, permeability and texture of the regolith, its thickness beneath the site, the depth of the water table and the slope of the ground surface (Huddleston & Olson, 1967, and Patterson et al, 1971).

Failure of the Soil Treatment System

Not all soils are capable of effectively treating septic tank effluent. More than half the soils in the United States are unsuitable for septic tank systems with respect to percolation rate. Failure of the systems has been reported to be between 25 and 50% (O'Hegarty, 1976, and Patterson et al, 1971). It is estimated that half of these failures can be attributed to the location of absorption fields in soils of low permeability, a characteristic of over 50% of Irish soils (Daly, 1987). Another major reason for failure is location in an area with a high water table. This can cause ponding of the effluent on the surface with resulting health hazards. In addition failure can occur if the density of septic tank systems in the area is too high, causing the soil to be overloaded.

Failure can also occur in a septic tank system situated in a soil with high permeability. Although it is unlikely to become clogged, severe groundwater pollution can occur by the rapid passage of wastewater through the unsaturated zone without sufficient contact time with the soil for treatment (Caldwell, 1938, and Patterson et al, 1971).

Septic tank systems are the most frequently reported source of groundwater contamination. Many public health workers feel that the most critical effect of septic tank systems is the contamination of private water wells. The human health implications of such contamination are considerable. Outbreaks of typhoid fever, infectious hepatitis, gastrointestinal infections and infantile methaemoglobinemia have all been linked to malfunctioning septic tanks. Almost half the reported water disease outbreaks in the US every year are due to the consumption of contaminated groundwater (Keswick et al, 1982). Overflow from septic tanks was responsible for 42% of the reported outbreaks of disease (Craun, 1979).

Pollution of groundwater by septic tank effluent can be chemical or biological in nature, or both. The poor microbiological quality of domestic well water supplies has been well documented. A recent study of rural groundwater sources in the US showed 92% to be contaminated with coliform bacteria (Bitton & Gerba, 1984), while a similar study in western Ireland found that 68% of all rural groundwater supplies contained faecal Coliforms, faecal Streptococci or both (Aldwell et al, 1988). Septic tank effluent was believed to be the main source of contamination in both cases.

The results of a four-year study by the author (Ph.D. Thesis, 1990) clearly demonstrated that the groundwaters downgradient of three septic tank treatment systems in Co. Sligo were contaminated by septic tank effluent (chemical and microbiological constituents). At all three test sites the groundwater was unsuitable for human consumption under the EC drinking water standards. In view of these findings it was recommended that a national survey on the nature and severity of groundwater contamination should be conducted in areas using septic tank systems for on-site wastewater disposal. The results of this survey should also be used in conjunction with soil suitability assessments to identify the areas where septic tank systems should be prohibited and replaced by suitable alternatives.

The Bord na Mona Puraflo ™ System - An Effective Alternative

Puraflo is a highly-effective biofiltration system for the treatment of liquid effluents. The system consists of an effluent collecting chamber (sump), a pump and a number of specialised biofibrous peat containing modules. The poor quality liquid effluent is evenly distributed over the treatment media and percolates through the modules emerging as a clear liquid at the base of the unit.

The treatment of the sewage effluent within the Puraflo system is achieved by a combination of unique physical, chemical and biological interactions between the wastewater and the biofibrous media. Scientific examination of the media has revealed a complex and diverse ecological population ranging from large numbers of aerobic and facultatively aerobic micro-organisms to a wide variety of protozoans, rotifers and higher life forms (e.g. Nematode/Annelid worms, insecta and their larvae, etc). These organisms biologically degrade and assimilate the organic material in the wastewater before the resulting innocuous effluent is finally discharged to the subsurface or to drains. The unique properties of the treatment media in the Puraflo system ensure continued high performance of the unit throughout the year. Seasonal variations in climatic conditions, such as ambient temperature fluctuations, have no apparent effect on treatment efficiency.

The performance of the Puraflo systems already installed is very impressive and superior to other treatment options. Reductions of greater than 95% in the Biochemical Oxygen Demand (B.O.D.) and Suspended Solids (S.S.) content of the wastewater has been consistently recorded. Similarly, high (99.9%) reductions in faecal Coliform numbers are achieved in the biofibrous media. Furthermore, an extensive survey by technical personnel at the Peat Research Centre failed to isolate any Pathogenic bacteria (*Staphylococcus aureus*, Salmonella spp., Clostridia spp., *Psudomonas aeruginosa*) from a large number of test sites.

The adverse environmental impact of septic tank systems is set to increase dramatically with the expansion of towns and cities into unsewered areas. The Puraflo Biofiltration system is a natural cost effective solution to this problem.

LIQUID EFFLUENT TREATMENT SYSTEMS

PURAFLO

PURAFLO™

The PURAFLO™ liquid effluent treatment system has been developed to treat a variety of waste water discharges. These include domestic sewage, industrial effluents and agricultural effluents in addition to specialised applications such as the removal of dyes and heavy metals.

The heart of the system is the biofibrous media. Pollutants are removed from the effluent through a combination of physical, chemical and biological interactions which occur between the biofibrous material in the system and the effluent.

Considerable research and development has gone into the optimisation of media for different applications and now a wide variety of media types are available to suit different treatment applications.

PURAFLO™ systems are installed after primary treatment systems such as septic tanks and primary settlement tanks and reduce the biological loading typically from 200 BOD to less than 10 BOD.

PURAFLO™ systems may also be used to polish effluent from secondary treatment systems such as activated sludge, rotating biological contactors and fixed film reactors. The effluent is typically reduced from a biological loading of 50 BOD to less than 5 BOD.

PURAFLO™ systems have recently been developed for removal of dyes and chemicals. One example is the removal of malachite green fungicide to give a treated effluent of around 2 ppb.

For further information please contact:

Bord na Móna
Environmental Products
Newbridge
Co. Kildare,
Ireland

Tel: 045-31201/Fax 045-31647

International Tel: +353 45 31201

LIQUID EFFLUENT TREATMENT SYSTEMS

PURAFLO

MALACHITE GREEN

Malachite green is a chemical used in the aquaculture industry to treat against fungal, bacterial and protzoal infections in farmed fish. It has proven itself as an essential element in the control of diseases in intensive fish culture.

After treating the fish, the malachite green solution is usually discharged from the fish farms in a very dilute solution.

However, new EC guide-lines on water quality may restrict the use of malachite green in future because of the very stringent limits set down. This poses a major threat to fish farmers.

However, there is a solution !

Bord na Móna Environmental Products has enjoyed considerable success with its **PURAFLO ™** systems for treating domestic sewage discharges. Now, in conjunction with Bord Iascaigh Mhara, Bord na Móna Environmental Products has developed the **PURAFLO ™** system so that it can remove virtually all the malachite green from a solution before it is discharged to secondary waters.

The results speak for themselves.

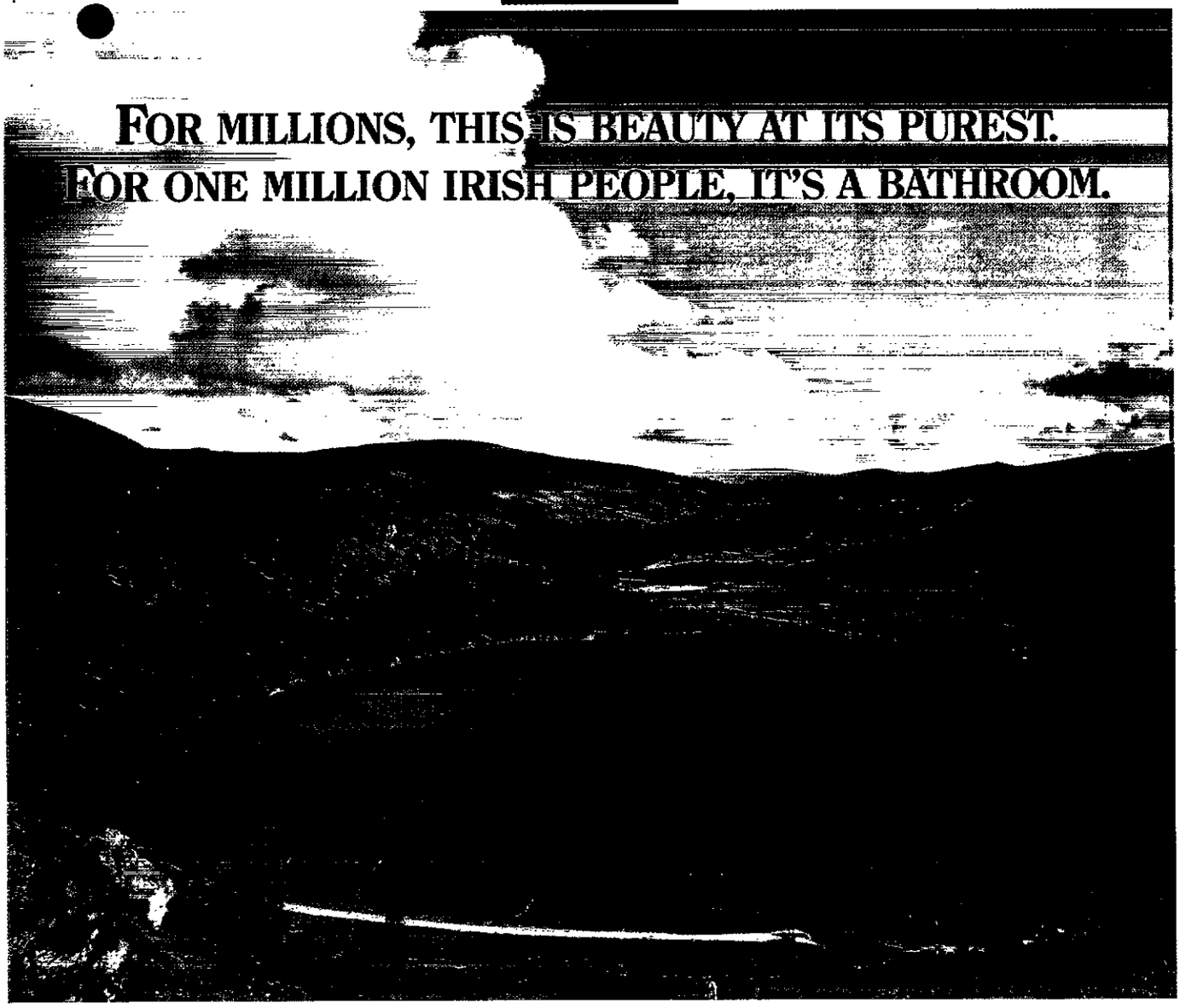
Trials at a fish farm over the past year have shown that a standard treatment solution of 2000 ppb of malachite green can be reduced to less than 5 ppb using the **PURAFLO ™** system.

For further information, please contact:

Bord na Móna
Environmental Products
Newbridge,
Co. Kildare.

Tel: 045 31201 / Fax: 045 31647

BORD NA MÓNA



FOR MILLIONS, THIS IS BEAUTY AT ITS PUREST.
FOR ONE MILLION IRISH PEOPLE, IT'S A BATHROOM.

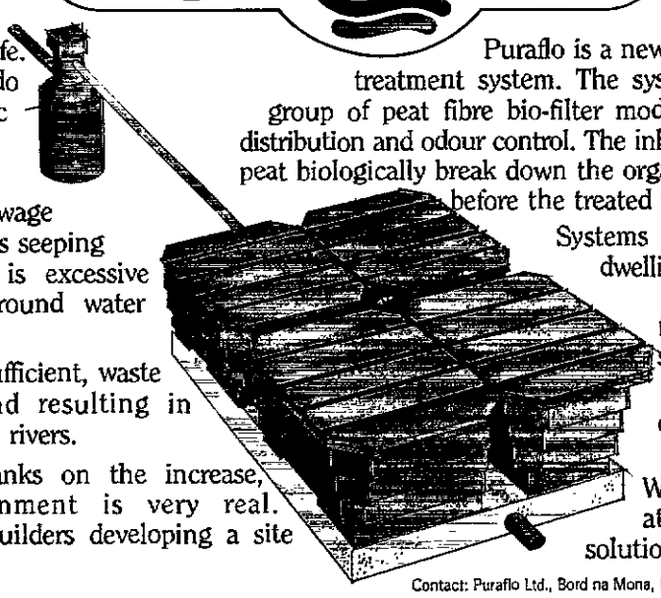
PURAFLO

Septic tanks are a fact of life. One million people who do not have access to a public sewage system, use them for household discharges.

Which means that the sewage waste of one million people is seeping into the ground. If there is excessive soakage, wells and underground water sources can be polluted.

Or, where soakage is insufficient, waste can run along the ground resulting in pollution of ponds, lakes and rivers.

With users of septic tanks on the increase, the risk to our environment is very real. That's why individuals or builders developing a site must consider Puraflo.



Puraflo is a newly developed septic tank effluent treatment system. The system consists of a pump and a group of peat fibre bio-filter modules which incorporate effluent distribution and odour control. The inherent micro-organisms within the peat biologically break down the organic pollution present in sewage before the treated water is finally discharged.

Systems can be designed for individual dwellings or groups - mobile home sites, marinas, public houses, hotels, factories, nursing homes or schools.

In trials with Puraflo, a 99% coliform reduction was achieved.

Septic tanks are a fact of life. With our environment increasingly at risk, Puraflo is a practical solution to their effect.

Contact: Puraflo Ltd., Bord na Mona, Newbridge, Co. Kildare. Tel: 045-31201. Fax: 045-33240.

LIQUID EFFLUENT TREATMENT SYSTEMS

PURAFLO

FAX ENQUIRY SHEET

Fax: 045 31647/ Int. Fax + 353 45 31647

Name _____

Company: _____

Address: _____

_____

_____

Phone: _____

Fax: _____

Malachite Green

Total annual usage: _____

Treatment concentration: _____

Volume of treatments tanks: _____

Number of treatments per week: _____

Total number of treatments: _____

Discharge limits:

Discharge to sewer/river _____

Maximum allowable discharge

concentration: _____

Total volume of solution

discharged _____

Other: _____

_____

_____

_____

_____

_____

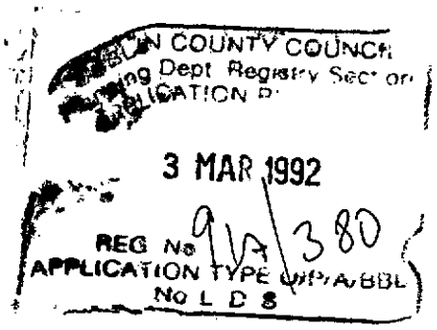
_____

Bord na Móna
Environmental Products
Newbridge,
Co. Kildare.

Tel: 045 31201 / Fax: 045 31647

PURAFLO

LIQUID EFFLUENT TREATMENT SYSTEMS



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PURAFLO

LIQUID EFFLUENT TREATMENT SYSTEMS

BORDNAMÓNA
ENVIRONMENTAL PRODUCTS

Our Ref: PL 6/5/86178
Your Ref:
P.A. Reg. Ref: 91A/380

An Bord Pleanála

Floor 3 Blocks 6 & 7
Irish Life Centre
Lower Abbey Street
Dublin 1
tel (01) 728011

The Secretary,
Dublin County Council,
Planning Department,
Irish Life Centre.

Date: 19 DEC 1991

Appeal re: Bungalow garage and septic tank at Glassamuckey, Bohernabreena, County Dublin.

Dear Sir,

An order has been made by An Bord Pleanála determining the above-mentioned appeal under the Local Government (Planning and Development) Acts, 1963 to 1990. A copy of the order is enclosed.

Yours faithfully,

Angela Bermingham.

Encl.

BP 352

DEVELOPMENT CONTROL - 6 JAN 1991

20 DEC 91

PL 6/5/86178

AN BORD PLEANÁLA

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963 TO 1990

County Dublin

Planning Register Reference Number: 91A/380

APPEAL by James Ledwith of 89 Clontarf Road, Dublin against the decision made on the 16th day of May, 1991, by the Council of the County of Dublin to refuse permission for development comprising the erection of a bungalow with garage and septic tank at Glassamuckey, Bohernabreena, County Dublin:

DECISION: Pursuant to the Local Government (Planning and Development) Acts, 1963 to 1990, permission is hereby refused for the said development for the reasons set out in the Schedule hereto.

SCHEDULE

1. The proposed site is located in a designated 'High Amenity Area' as identified in the Dublin County Development Plan and within which it is the policy of the Council to limit development to that directly related to the area's amenity potential or its use for agriculture, mountain or hill farming. These policies are considered reasonable and the proposed development would be in conflict with them and would seriously injure the amenities of the area.

2. Having regard to the location of the site on a minor road which is seriously substandard in width and alignment it is considered that the proposed development would give rise to traffic movement which would endanger public safety by reason of traffic hazard and obstruction of road users.

3. The site is located on poorly drained land within the catchment of the Bohernabreena Reservoir. Effluent from the proposed sewage treatment plant would have an adverse impact on water quality in the reservoir and it is considered that the system proposed does not resolve this issue. The proposed development would therefore be prejudicial to public health.

Member of An Bord Pleanála duly authorised to authenticate the seal of the Board.

Dated this 18th day of December. 1991.

Midland Design Services Limited
Gallagher House
57 Dublin Street
Monaghan
Telephone: (047) 84588
Fax: (047) 84588

Principal Officer
Planning Department
Building Control Section
Block 2, Irish Life Centre
Lr. Abbey St.
Dublin 1.

29 November 1991

Re: Additional Information For B.L.L. Reg. Ref. No. 91A/380

Dear Sir/Madam,

Further to your letter of 3/10/91 addressed to our client Mr. James Ledwith of 89 Clontarf Road, Dublin 3 concerning additional information we are pleased to enclose for your attention the following,

1. Full details of all structural members including all calculations together with our certificate of conformance with relevant codes of practice.

2. Permanent ventilation details as marked on enclosed drawings.

3. Details of proposed septic tank effluent treatment system which comply to all normal health organisation requirements.

Yours faithfully,
Midland Design Services.

Paul Devereux

A.I. for B.B.C
2.2.2.1

Enc. 2 No. Copies of Design Calculations
2 No. Copies of Certificate of Conformance
2 No. Copies of Drawing showing Permanent Vents.
2 No. Copies of Proposed Septic Tank System

CERTIFICATE OF CONFORMANCE

We hereby certify that,

Proposed bungalow, garage and septic tank at Glassamucky

is designed in accordance with relevant codes of practice namely, BS5268 Structural Use of Timber:Part 2 1984
BS5950 Structural Use of Steelwork:Part 1 1985

and generally with good Engineering Practise

On behalf of
Midland Design Service,

Oliver McNulty.
Eur. Ing. C.Eng. F.I.E.I., B.E.Tc.S, F.I.M.

JOB TITLE		JOB NO
House at Glassamucky		
ELEMENT		CALC SHEET NO
Roof Trusses		01
DRAWING REF		

CHECKED BY	DATE	CALCULATIONS BY	DATE
	NOV'91		NOV'91

M. D. S.

CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT

LOADING:

TOP BOOM

		kN/m²
Concrete tiles	@	0.6
Felt & battens	@	0.05
Trussed rafters	@	0.12
		0.77 (slope)

0.83 kN/m² plan.

Snow 0.75

total 1.58 kN/m²

BOTTOM BOOM

	kN/m²
Imposed (Domestic)	1.5
Insulation	0.28
Ceiling	0.2
total	2.0 kN/m²

Trusses @ 400 c/c

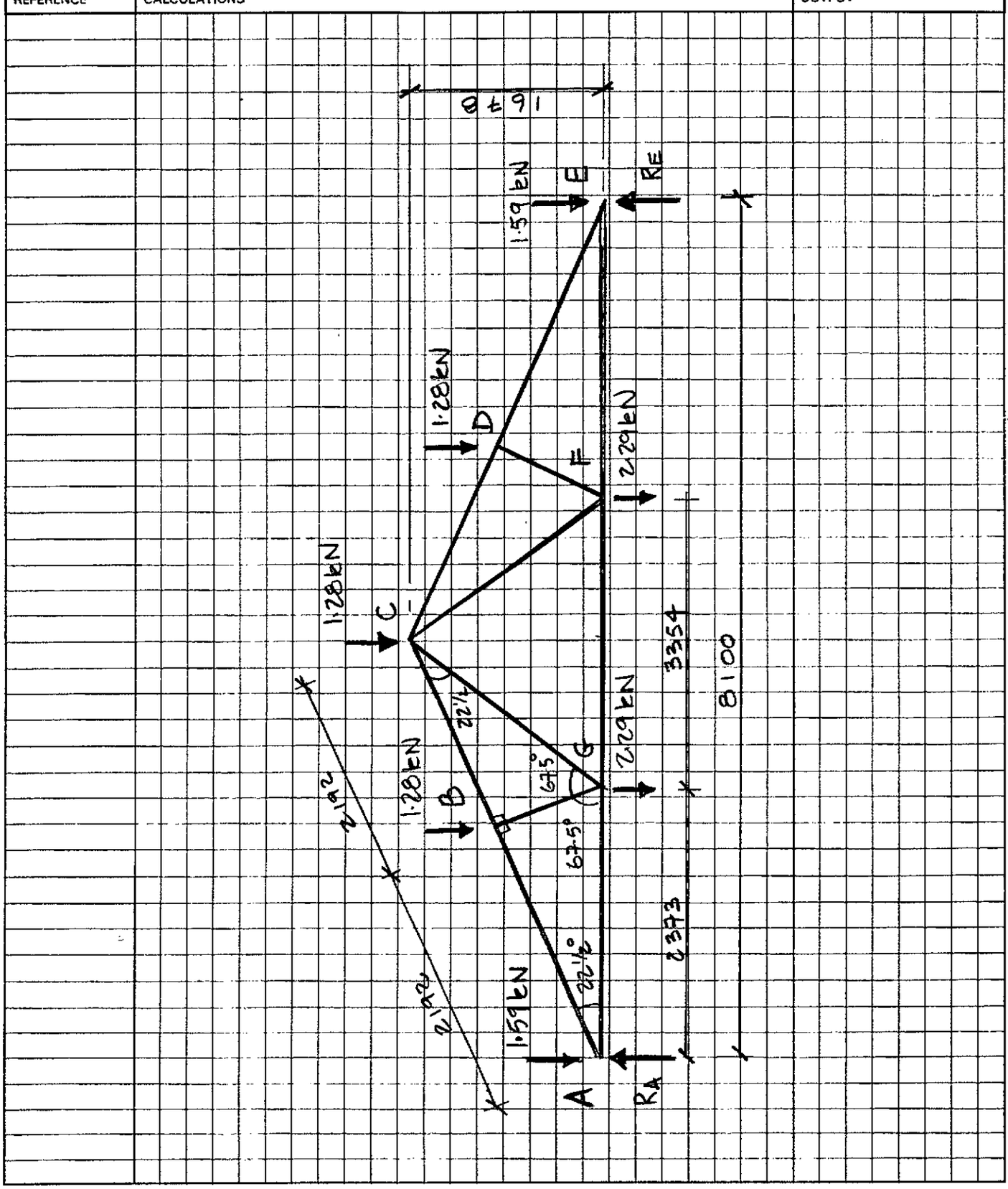
JOB TITLE	JOB NO
House at Glassamucky	
ELEMENT	**CALC SHEET NO**
Roof Trusses	02
DRAWING REF	

CHECKED BY	DATE	CALCULATIONS BY	DATE
			NOV'91

M. D. S.

CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT



JOB TITLE	JOB NO
House at Glassamucky	
ELEMENT	**CALC SHEET NO**
Roof Trusses	03
DRAWING REF	

CHECKED BY	DATE	CALCULATIONS BY	DATE
			Nov'91

M. D. S.

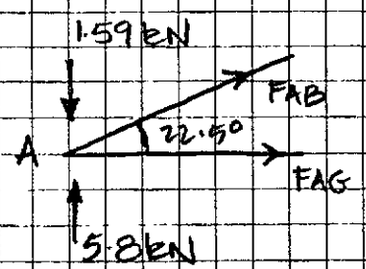
CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT

$R_A + R_E = 11.6\ kN \Rightarrow R_A = R_E = 5.8kN$

JOINT FORCES — Tension +ve; Comp. -ve.

JOINT A



$+\uparrow \quad 5.8 - 1.59 + F_{AB}\sin 22.5 = 0$

$\Rightarrow F_{AB} = -11kN$

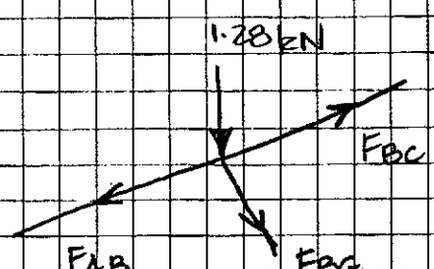
$\rightarrow + \quad F_{AG} + F_{AB}\cos 22.5 = 0$

$\Rightarrow F_{AG} = 10.2kN$

$F_{AB} = -11\ kN$

$F_{AG} = +10.2kN$

JOINT B



$+\uparrow \quad -1.28 - F_{AB}\sin 22.5 + F_{BC}\sin 22.5 - F_{BG}\cos 22.5 = 0$

JOB TITLE	JOB NO
House at Glassamucky	
ELEMENT	**CALC SHEET NO**
Roof Trusses.	04
DRAWING REF	

CHECKED BY	DATE	CALCULATIONS BY	DATE
			Nov'91

M. D. S.

CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT

i.e. $F_{BC}\sin 22.5 - F_{BG}\cos 22.5 = -2.93 \quad -(1)$

$\rightarrow +$

$F_{BC}\cos 22.5 + F_{AB}\cos 22.5 + F_{BG}\sin 22.5 = 0$

$F_{BC}\cos 22.5 + F_{BG}\sin 22.5 = -10.2\text{kN} \quad -(2)$

From (1) $F_{BC} = \dfrac{-2.93 + F_{BG}\cos 22.5}{\sin 22.5}$

into (2) $\left(\dfrac{-2.93 + F_{BG}\cos 22.5}{\sin 22.5}\right)\cos 22.5$

$+ F_{BG}\sin 22.5 = -10.2$

$\Rightarrow -2.93\cos 22.5 + F_{BG}(\cos 22.5)^2 + F_{BG}(\sin 22.5)^2 = -10.2\sin 22.5$

$\Rightarrow -2.71 + 0.85\,F_{BC} + 0.146\,F_{BG} = -3.9$

$\Rightarrow \quad 0.996\,F_{BG} = -1.19$

$F_{BG} = -1.2\text{ kN}$

$\therefore \quad F_{BC} = -10.6\text{ kN}$

$F_{BG} = -1.2\text{ kN}$

$F_{BC} = -10.6\text{ kN}$

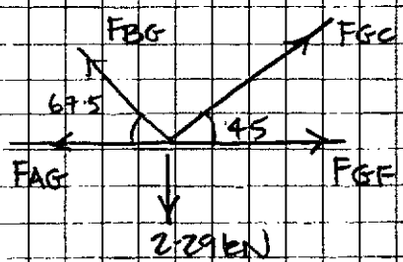
JOB TITLE	JOB NO
House at Glassamucky	
ELEMENT	**CALC SHEET NO**
Roof Trusses	05
DRAWING REF	
CHECKED BY / **DATE** / **CALCULATIONS BY**	**DATE**
	NOV'91

M. D. S.

CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT

JOINT G



$\rightarrow +$

$F_{GF} - F_{AG} + F_{GC}\cos 45 - F_{BG}\cos 67.5 = 0$

i.e. $F_{GF} + 10.2 + F_{GC}\cos 45 + 0.46 = 0$

$\Rightarrow F_{GF} = -F_{GC}\cos 45 - 0.46 + 10.2 \quad -(1)$

$+\uparrow$

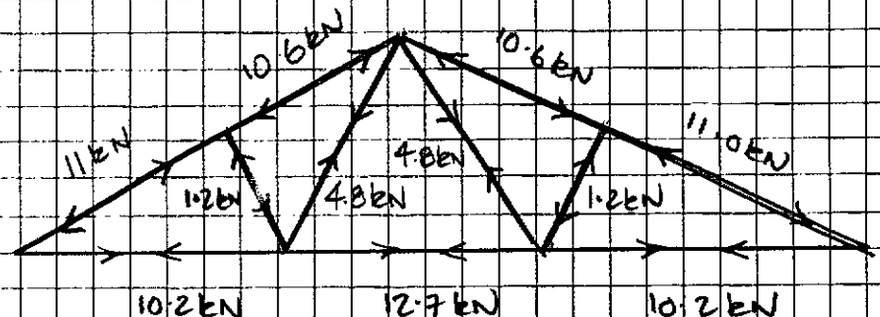
$F_{BG}\sin 67.5 + F_{GC}\sin 45 - 2.29 = 0$

$\Rightarrow -1.1 + F_{GC}\sin 45 - 2.29 = 0 \quad -(2)$

$\Rightarrow F_{GC} = 4.8\text{kN}$ & $F_{GF} = 6.35\text{kN}$

$F_{GC} = +4.8\text{kN}$

$F_{GF} = +6.35\text{kN}$



JOB TITLE	JOB NO
House at Glassamucky	
ELEMENT	**CALC SHEET NO**
Roof Trusses	06
DRAWING REF	

CHECKED BY	DATE	CALCULATIONS BY	DATE
			NOV '91

M. D. S.

CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT
	Top Boom 4 x 1½" i.e 100 x 38	
	Bottom " 4 x 2" i.e 100 x 50	
	Internals 3 x 2" i.e 50 x 75	
TOP BOOM	Max Compression = 11kN	
	Length = 2·2m	
	Load sharing factor (K_8) = 1·1	
	Slenderness ratio = $\frac{2192}{28.9}$ = 76	
	Grade SC4	
	∴ Emin = 6600	
	& $E/\sigma_{c,11}$ = 835 ⇒ K_{12} = 0·58	
	∴ Allowable Compressive stress	
	= 7·9 x 1·1 x 0·58 = 5N/mm²	
	Actual = F/A = 11x10³ / 100x38 = 2·89 N/mm²	
	& OK ✓	
	∴ use 100 x 38 SC4 @ 400 c/c top boom.	

JOB TITLE	JOB NO
House at Glassamucky	
ELEMENT: Roof Trusses	CALC SHEET NO: 07.
DRAWING REF	
CHECKED BY / DATE	CALCULATIONS BY / DATE: Nov'91

M. D. S.

CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT

BOTTOM BOOM.

Maximum tension = 12.7kN.

Allowable (SC4) = $4.5 \times 1.1 = 4.95\ N/mm^2$

Actual tensile stress = $\frac{12.7 \times 10^3}{100 \times 50}$

$= 2.54\ N/mm^2$

∴ use 100x50 SC4 @ 400c/c bottom boom.

INTERNALS

Maximum tension = 4.8kN

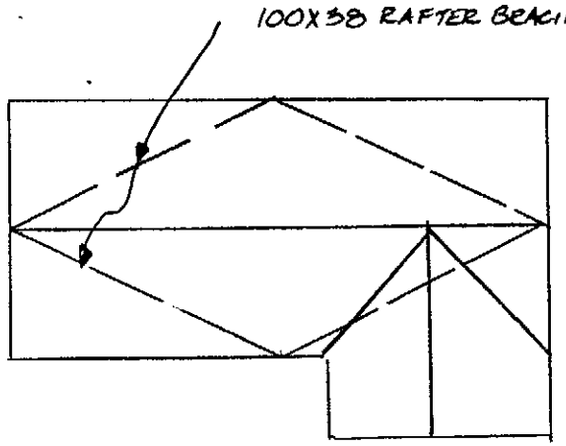
Tensile stress = $\frac{4.8 \times 10^3}{50 \times 75}$

$= 1.28\ N/mm^2$

From above, allowable = $4.95\ N/mm^2$

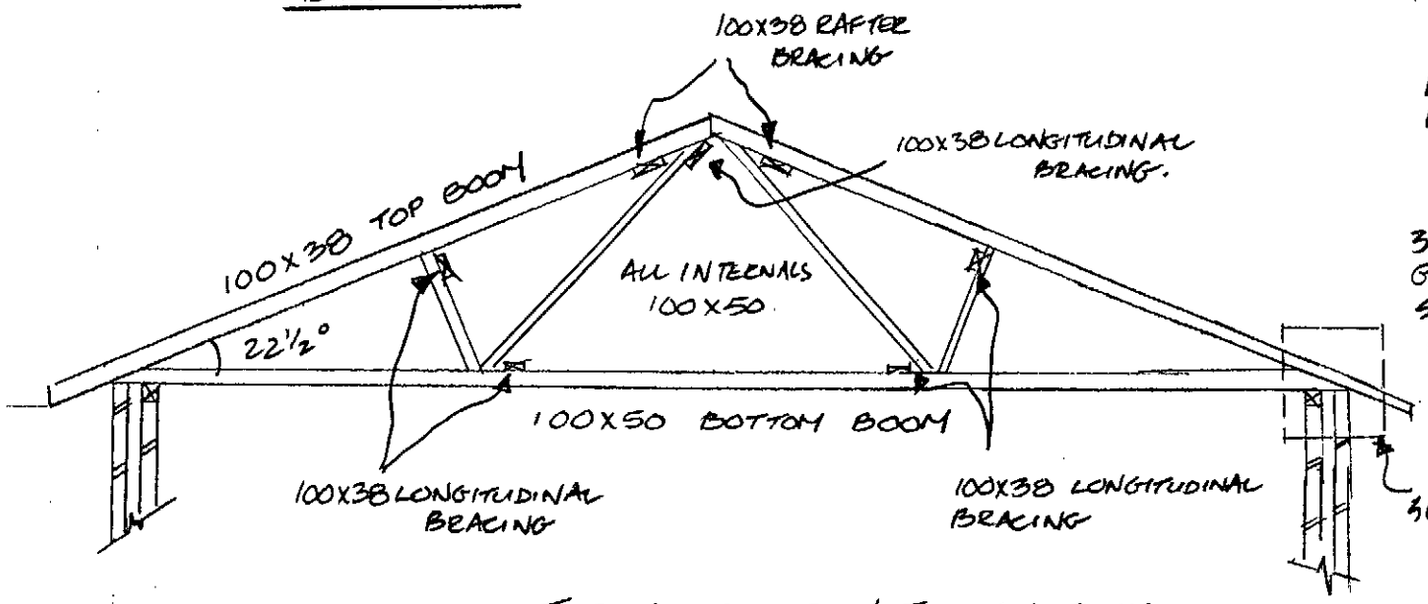
∴ OK ✓

∴ use 50x75 SC4 @ 400c/c Internals.

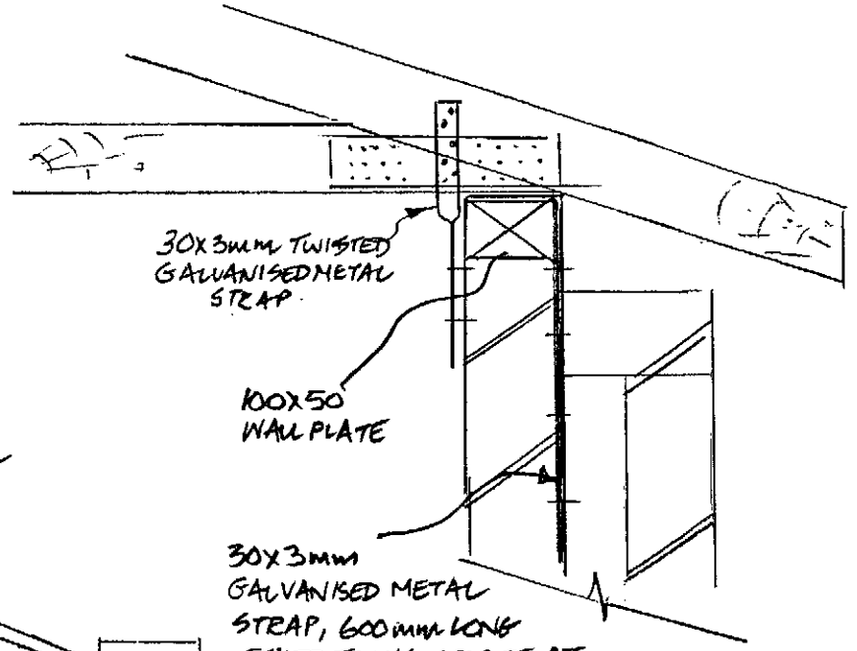


PLAN ON ROOF SHOWING RAFTER BRACING

N.B. ALL STRUCTURAL TIMBERS TO BE GRADE SC4 IN ACCORDANCE WITH BS 5268



TYPICAL SECTION THROUGH TRUSS.



DETAIL AT WALLPLATE

JOB TITLE	JOB NO
House at Glassamucky	
ELEMENT	**CALC SHEET NO**
Beam over living room	09
DRAWING REF	

CHECKED BY	DATE	CALCULATIONS BY	DATE
			NOV'91

M. D. S.

CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT

Steel beam over living room.

Beam span = 5·5m.

Compression flange unrestrained.

From P3, Reaction from truss = 58kN

Trusses @ 400c/c ⇒ UDL = 14·5 kN/m.

Allowing for stwt. of beam & additional load from hip, assume UDL = 16 kN/m.

∴ $M_{max} = 16 \times 5.5^2/8 = 60.5$ kNm

Try 356 x 171 UB 45

$L/r = 145$ } ⇒ $P_{bc} = 109$ N/mm²

$D/T = 36.2$ }

$f_{bc} = 60.5 \times 10^3 / 686.9 = 88$ N/mm²

$f_{bc} < P_{bc}$ ∴ section adequate

Deflection Check

$\Delta = 6.2wL^4/I = 6.2 \times 16 \times 5.5^4/I = 7.5$mm

Allowable = span/360

= 5550/360 = 15.4 ∴ OK ✓

∴ use 356x171 UB 45.

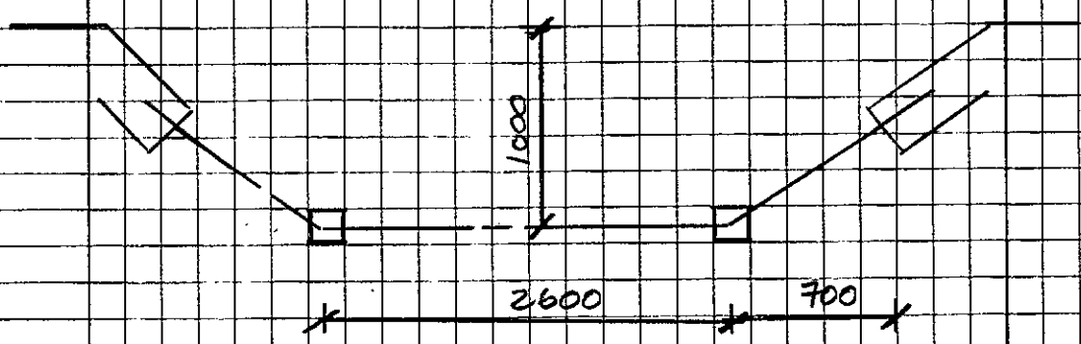
JOB TITLE			JOB NO
House at Glassanmucky			
ELEMENT			CALC SHEET NO
Beam over Bay Window			10
DRAWING REF			
CHECKED BY	DATE	CALCULATIONS BY	DATE
			NOV'91

M. D. S.

CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT

Beams carrying roof over bay window.



Cross Beam

Max span = 2.6m

Max width of roof carried = 0.5m

Loading

$= (1.58 + 0.28 + 0.2) \times 0.5 + 0.5$ (fascia) $= 1.38$

+ self wt $\Rightarrow$ 1.8 kN/m

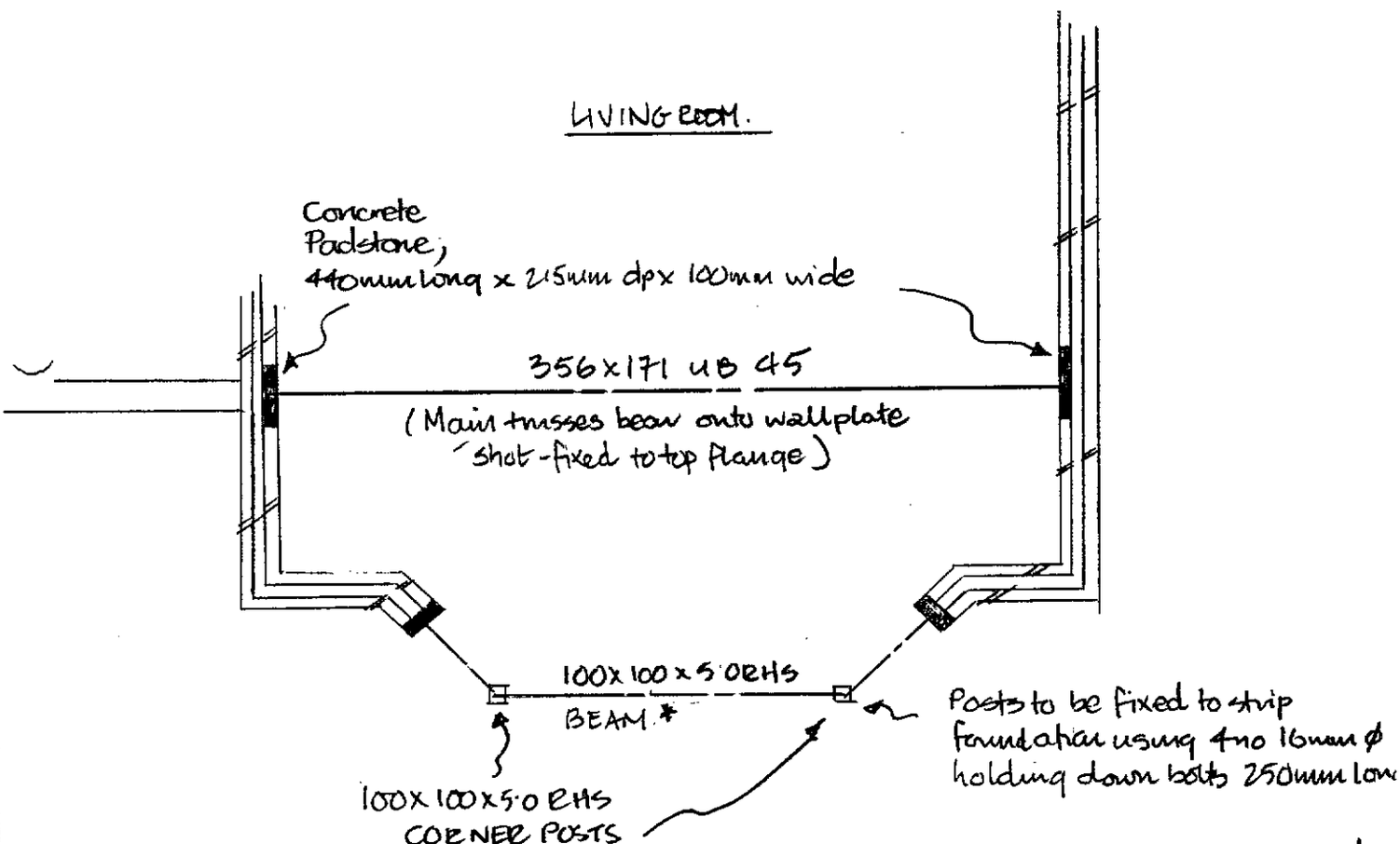
$M_{max} = 1.52$ kN/m

try 100x100x5.0 EHS

$f_{bc} = 1.52 \times 10^3 / 56.6 = 26.9$ N/mm²

$P_{bc} = 165$ N/mm²

$\therefore$ section adequate



* 12mm ø threaded studs welded to top of EHS @ 600 mm c/c to secure wall plate

N.B. Minimum bearing of beams to be 75mm.

Beams to be bolted to padstones using 1no. M16 rawl bolt each side of web.

Plan & details of steelwork over living room.

JOB TITLE			JOB NO
House at Glassamucky			
ELEMENT			CALC SHEET NO
Lintels			13
DRAWING REF			
CHECKED BY	DATE	CALCULATIONS BY	DATE
			Nov'91

M. D. S.

CALCULATION SHEET

REFERENCE	CALCULATIONS	OUTPUT

Lintols over windows / Special lintol at Hall.

Max span = 2.0m.

Try 150mm wide x 200mm dp.

Load from roof = 1.5 x 14.5 = 22kN/m (factored)

self wt. = 0.15 x 0.2 x 24 x 1.4 = 1kN/m

⇒ total UDL = 23 kN/m

$M_{max} = 23 \times 2^2/8 = 11.5$ kNm.

d = 200 - 25 - 8 = 167mm

$M/bd^2 = 2.7$

$100A_s/bd = 0.74 \Rightarrow A_{s\,req'd} = 185mm^2$

& reinforce with 2no T12 (bottom)

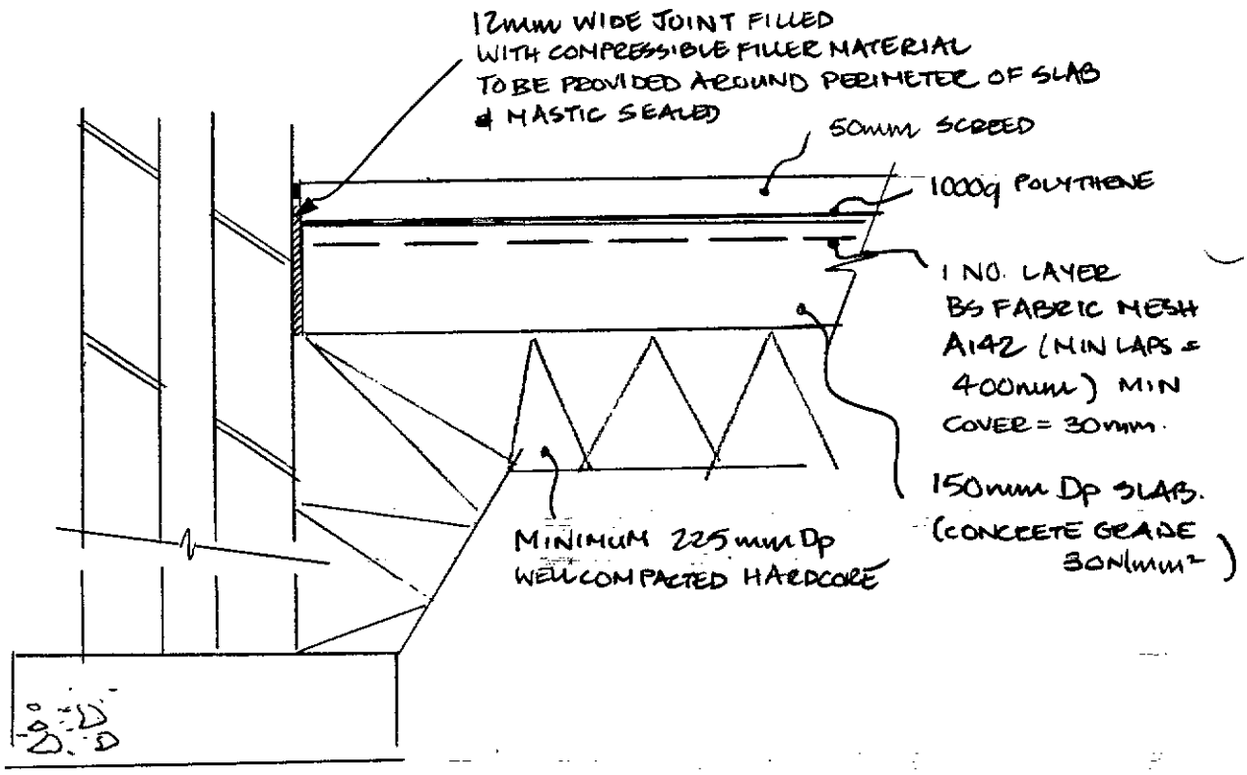
2no T10 (top)

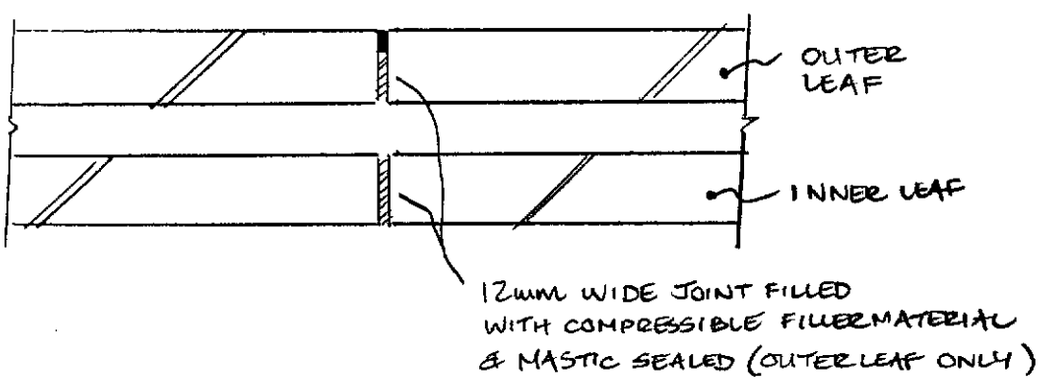
& nominal links ie R8 @ 150 ctrs.

$f_{cu} = 30N/mm^2$

cover = 25mm

DETAIL OF ISOLATION JOINT IN FLOOR.





DETAIL OF VERTICAL EXPANSION JOINT IN CAVITY WALL.

N.B. JOINT CENTRES NOT TO EXCEED 6M.

PURAFLO

TECHNICAL INFORMATION SHEET

SINGLE DWELLINGS

Septic Tank Effluent Treatment System

THE PROBLEM OF POLLUTION

The average pollution BOD generated by sewage effluent from the occupants of a domestic dwelling is 0.06kg/head/day.

Where the effluent is discharged from a septic tank, serious contamination of ground or surface water can occur where site conditions are not suitable.

Surface water contamination is most prevalent in areas where impervious soils dominate. Where a percolation area fails, a common method used to try to prevent effluent backing-up to the house is to pipe from the outlet of the septic tank to the nearest drain. This leads to an ongoing insidious pollution which is sometimes difficult to recognise.

In the case of ground water pollution, the situation applies in reverse. Where there is a poor over burden of soil on fissured rock (mostly limestone), there is a direct run-off into the ground water system from the septic tank. This underground water system may be used for domestic consumption with the householder being unaware in most cases, of the pollution risk.

THE PURAFLO PROCESS FOR POLLUTION CONTROL

Bord na Móna scientists have developed the Puraflo System to treat effluent from a septic tank which is working correctly and must have been installed in accordance with SR6 (EOLAS).

The operating principle of Puraflo is based on a form of aerobic biological treatment with filtration using a special blend of peat fibre as the medium.

PERFORMANCE

A Puraflo installation will produce a high quality final effluent with an average BOD (biochemical oxygen demand) of less than 10mg/l and average TSS (total suspended solids) of less than 15mg/l. Coliform and ammonia removal of up to 99% and 90% respectively is also achieved. All quoted figures are well within the normal requirements of Health Organisations.

THE PURAFLO SYSTEM

For a single dwelling, the System consists of a Sump and Pump Unit, 4 biofilter Modules, connecting pipework and ducting and electrical controls.

The Sump and Pump Unit is installed at the outlet from the septic tank with the effluent being pumped to the biofilter Modules (see Figure 1). The biological process begins at this stage with the effluent being distributed evenly over the surface of the treatment media.

SYSTEM LOADING

The Puraflo Domestic Installation will cater for a dwelling house of up to five bedrooms and will treat 1 cubic metre of effluent per day. At this loading, the dwell time in the media will be six days. Dwell time is an important factor in the efficiency of the biological process.

The special blend of peat fibre and peat, and the predetermined and accurate compaction factor of the media ensures an evenly controlled flow. Where domestic situations larger than five bedrooms are proposed, the Puraflo Domestic Installation can be enlarged accordingly.

PURAFLO SYSTEM COMPONENTS

Sump and Pump Unit

Manufactured from corrosion free polyethylene. Incorporates a 450mm square galvanised steel frame and cover which is designed for pedestrian loading and has a safety grid fitted below the cover. Sump dimensions are given in Table 1.

A fully submersible pump within the Sump is rated at 0.33KW single phase and is capable of pumping up to 5 metres head. The pump should be withdrawn from the Sump annually, hosed down, inspected and the strainer checked for blockage prior to replacement.

Biofilter Modules

Each Module is moulded from polyethylene and is packed with a special blend of peat fibre media, developed by the research department of Bord na Móna to give optimum retention time and performance on a continuing basis. The four biofilter Modules required for a single dwelling have a surface area of 10m^2 and are 0.76m deep. The effluent received from the Sump through a 40mm polyethylene rising main is distributed over the peat fibre media to meet designed hydraulic and biological loading rates. (Module dimensions are given in Table 1).

Distribution Pipework

A manifold system of uPVC pipes and fittings ensures an even distribution of effluent over the total area of the peat fibre media (see Figure 2).

Other pipework supplied with the Puraflo System comprises: 110mm uPVC between septic tank and Sump, 40mm

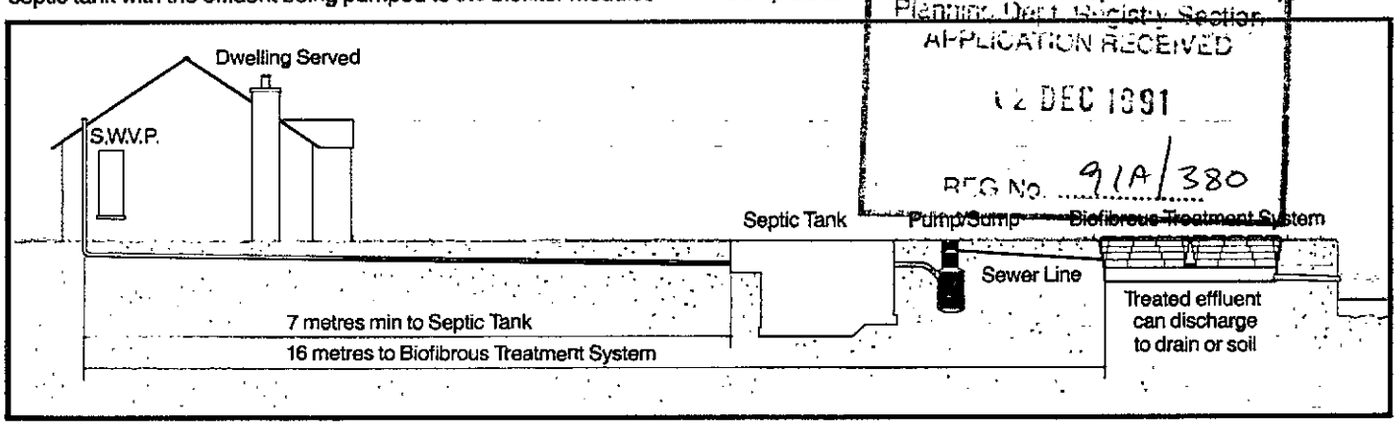


Figure 1 Typical Layout

PE rising main between Sump and biofilter Modules, 50mm uPVC duct for electrical cable and 110mm uPVC for the discharge of final effluent (optional).

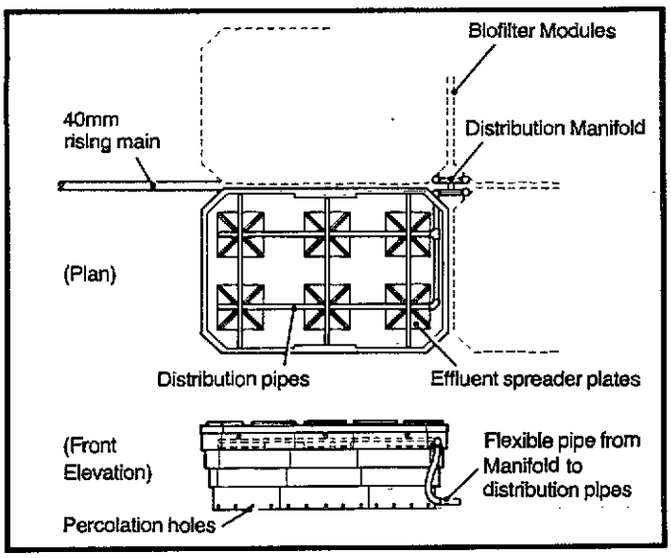
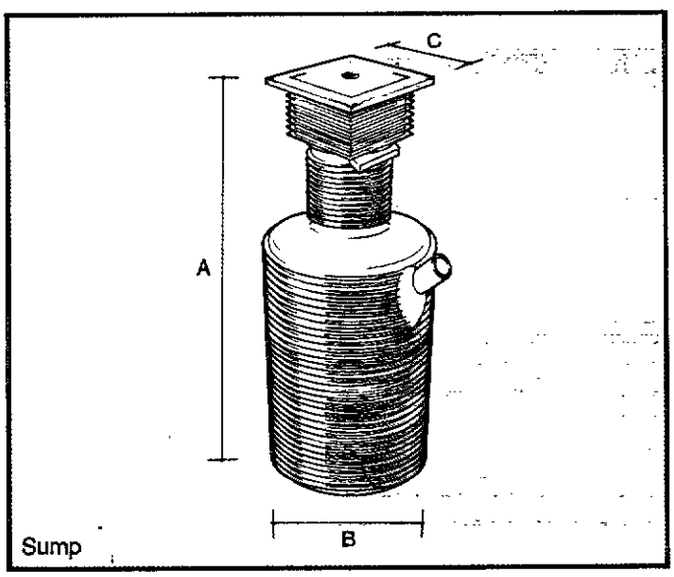


Figure 2 Manifold Distribution System

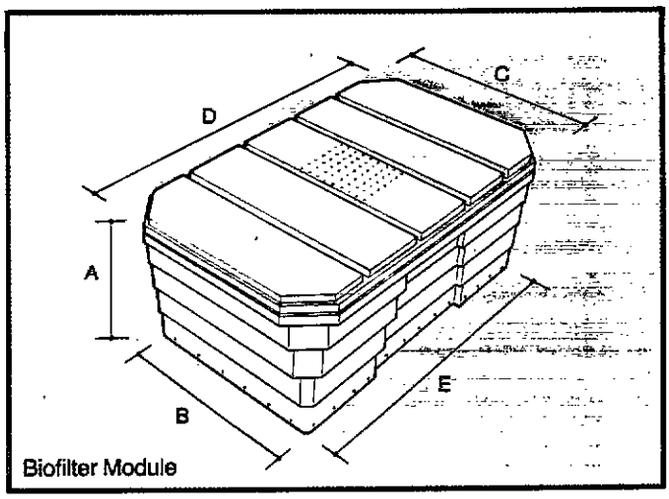
Table 1 Dimensions (mm)

Description	A	B	C	D	E
Sump	1850	720	480	–	–
Biofilter Module	760	1185	1400	2150	1935



TECHNICAL SERVICE

For further information on any aspect of single dwelling or package installation, contact the Company at the address below.



INSTALLATION

Installations are carried out by Puraflo either above or below ground depending on the aesthetic requirements and site conditions.

Figures 3(a) and 3(b) show installations below ground where treated effluent is discharged either into a ditch or river or directly to the subsoil. In both cases, the biofilter Modules are placed on a 200mm thick granular bed. It should be noted that where an outlet pipe is used, the excavation is lined with a heavy gauge polythene membrane.

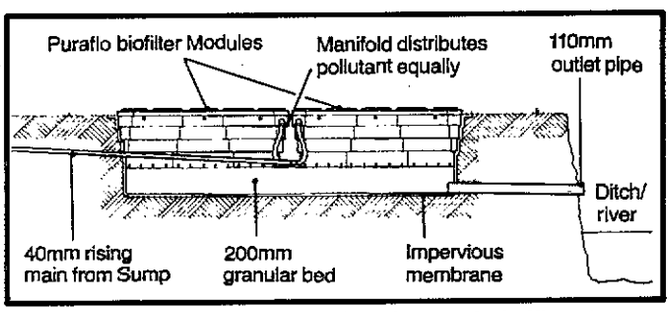


Figure 3(a) Puraflo system discharging treated effluent into open ditch, stream or river

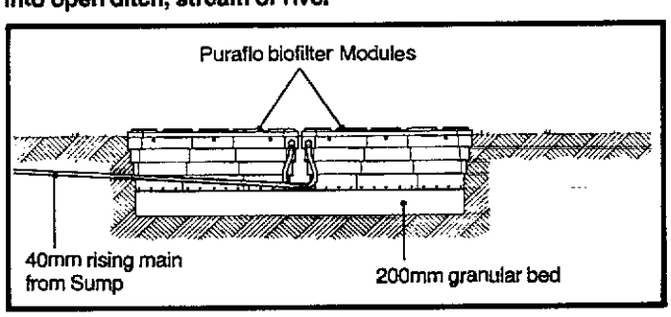


Figure 3(b) Puraflo system discharging directly into subsoil where suitable

Note: Final position of Puraflo modules can be located above or below ground depending on site conditions.

PURAFLO

Pollution Control for a *Better* Environment

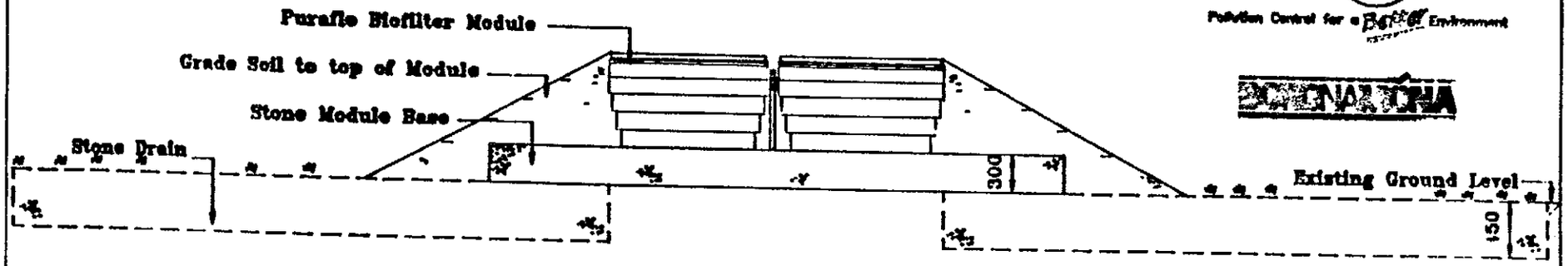
Developed by

BORD NA MÓNA
THE IRISH PEAT BOARD

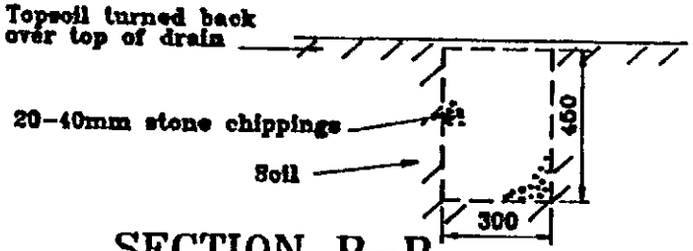
Puraflo Limited, Bord na Mona,
Newbridge, Co. Kildare.
Tel: 045/31201. Fax: 045/33240.

1/90 E & OE

PURAFLO BIOFILTER MODULE

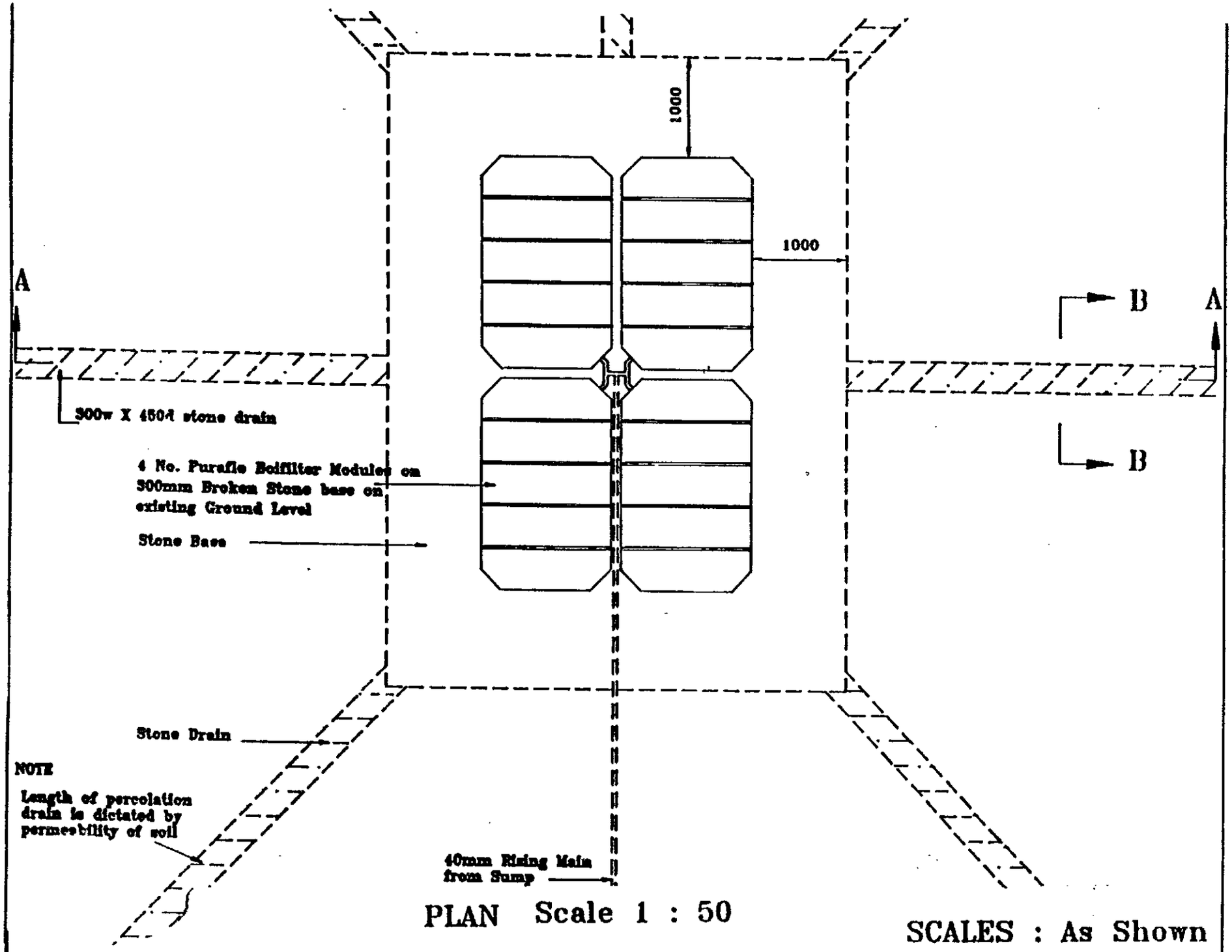


SECTION A–A Scale 1 : 50



SECTION B–B
Scale 1 : 20

SCALES : As Shown
All Dimensions in millimetres



PLAN Scale 1 : 50

SCALES : As Shown

All Dimensions in millimetres

Our Ref: PL 6/5/86178
P.A. Reg. Ref: 91A/380

An Bord Pleanála
Floor 3 Blocks 6 & 7
Irish Life Centre
Lower Abbey Street
Dublin 1
tel (01) 728011

25/10

The Secretary,
Dublin County Council,
Planning Department,
Block 2,
Irish Life Centre.

DEVELOPMENT
29 OCT 1991
CONTROL

Date: 22nd October 1991.

Appeal re: Bungalow, garage and septic tank at Glassamuckey, Boherrahneena, County Dublin.

Dear Sir/Madam,

Enclosed for your information is a copy of correspondence received in relation to the above-mentioned appeal. While it is not necessary for you to furnish any comments on the correspondence, you may do so if you wish. Any such comments should be forwarded within fourteen days from the date of this letter to ensure that they will be taken into consideration in the determination of the appeal.

Please quote the above appeal reference number in any further correspondence.

Yours sincerely,

Suzanne Lacey.
Suzanne Lacey

BP 553A

DUBLIN COUNTY COUNCIL
PLANNING DEPT.
RECEIVED
23 OCT 1991

89 Clontarf Road,
Dublin 3.

4th October, 1991. ??

A Bord Pleanala,
Irish Life Centre,
Lower Abbey Street,
Dublin 1.

Rec'd 3/10

P.A. Ref: 91A/380,

Your Ref: Pl 6/5/86178.

Dear A Chara,

I wish to reply to copy of letters received from the Lee family of Glassamuckey Brakes Tallaght regarding my appeal to An Bord Pleanala.

I have already stated in reply to the Lee family in previous correspondence, that the sewerage treatment system, has no overflow it does not need it. I can put the matter no further.

There is no right of way across my land, there is no need for it. The well or stream referred to is in the lane at the bottom of the land which is a public right of way for all.

It is untrue of the Lee family to say I am not a native of the area and has no need to live there, I have owned the land for upwards of 25 years, as can been seen from an inspection of the Folio.

Regarding the photograph of the Lee Household, the photograph was taken from the site of the proposed new Bungalow by myself and a witness.

The Lee family maintain the photograph which was enclosed by me is not of their property. I enclose once more two photographs marked 'A' and 'B'. Photograph 'A' shows the out houses of the Lee family, the dwelling house cannot be seen, being hidden by trees. Photograph 'B' depicts the view from my proposed site. These photographs speak for themselves.

Yours faithfully,

James Ledwith

James Ledwith.

Our Ref: PL 6/5/86178
P.A. Reg. Ref: 91A/380

Ref 24/9.

An Bord Pleanála

Floor 3 Blocks 6 & 7
Irish Life Centre
Lower Abbey Street
Dublin 1
tel (01) 728011

The Secretary,
Dublin County Council,
Planning Department,
Block 2,
Irish Life Centre.

Date: 19th September 1991.

Appeal re: Bungalow, garage and septic tank at Glassamuckey, Boherrahneena, County Dublin.

Dear Sir/Madam,

Enclosed for your information is a copy of a letter received by the Board in relation to the above-mentioned appeal.

Please quote the above appeal reference number in any further correspondence.

Yours faithfully,

Suzanne Lacey
Suzanne Lacey

Encl.

BP 555

RL 6/5/86178

P.A. Ref: 91A/380.

Glasnamucky Brakes
Tallaght.
9th Sept 91.

AN BORD PLEANÁLA
RECEIVED
16 SEP 1991

Dear Ms Bermingham,

Thank you for the correspondence regarding the above appeal dated 28th Aug. We wish to reply to letter from Mr. Leduith.

The photograph which was enclosed is not of our property, therefore as pointed out in previous correspondence the appliant is not a native of this area and has no need to live here. The points raised in his letter do not refer to our objections. All points in our objection still stand.

Yours Faithfully

Deirdre Lee.

Deirdre Lee.

Glassamucky Brake
Ref No. P.A. 91A/380. Tallaght
10th Sept 91.

AN BORD PLEANALA
RECEIVED
16 SEP 1991

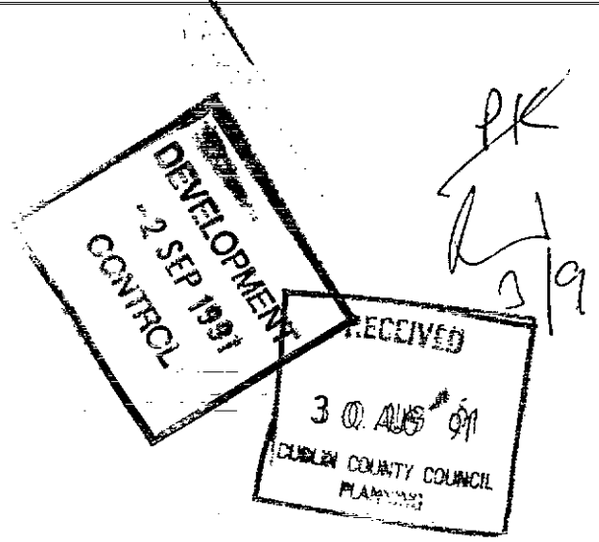
Dear Madam,

Thank you for your recent letter regarding the above appeal 28th Aug. I wish to reply to Mr Leduiths letter.
Paragraph 1. As can be seen from photograph which was enclosed my privacy has already been invaded and as I already told you my house would be overlooked by a stranger noting his address from your correspondence.
Paragraph 2 Is Mr Leduith saying that it is o.k. for septic-tank overflow to flow into spring well. With my farming background of over 70 yrs I say it is not and must not be allowed to happen.
Paragraph 5. The right of way referred to has been used for generations to carry water, refer to neighbours objections to County Council Planning Dept.

Yours Sincerely

Margaret Lee

Our Ref: PL 6/5/86178
P.A. Reg. Ref: 91A/380



The Secretary,
Dublin County Council,
Planning Department,
Irish Life Centre.

An Bord Pleanála

Floor 3 Blocks 6 & 7
Irish Life Centre
Lower Abbey Street
Dublin 1
tel (01) 728011

Date: 28th August, 1991.

Appeal re: Bungalow, garage and septic tank at Glassamuckey, Boherraheena, County Dublin.

Dear Sir/Madam,

Enclosed for your information is a copy of a letter received by the Board in relation to the above-mentioned appeal.

Please quote the above appeal reference number in any further correspondence.

Yours faithfully,

Angela Bermingham.
Angela Bermingham.

Encl.

BP 555

Your Ref: PL 6/5/86178
P.A. Reg. Ref: 91A/380

89 Clontarf Road
Dublin 3.

21st August 1991

An Bord Pleanala
Floor 3 Blocks 6&7
Irish Life Centre
Lower Abbey Street
Dublin 1

Dear Ms. Lacey,

Thank you for the correspondence regarding the above appeal dated 7th August 1991.

I wish to reply to the letters from the Lee Family, Glassamucky Brake, Tallaght, dated 31st July. I have seriously looked at the objections and compared them to the site, and cannot see in any way how the matters raised are relevant to the application.

I wish to make a few points, the site will be nicely landscaped, planted in trees and shrubs. The view from Lee's house on to site is obscured by large trees as per photo no. 1, also trees in front of house.

Regarding the spring well, I would like to refer to paragraph 4 and 5 of letter dated 4th July 1991, in any event the livestock do urinate and excrete into any drinking area, knowing this because I'm from farming background. I own this site for upwards of 25 years, I'm not a stranger to the area.

The main road at the site is 16 to 17 ft wide plus a margin, I will be willing to remove the hedge and erect a new fence backwards off the margin.

Referring to odours from tank, it is my belief that odours go upwards as the puraflo system is free of odours, also the site is higher than the Lee household.

There has never been a right of way through site, there is a laneway at bottom of site, its the right of way for all.

I trust the comments enclosed are acceptable and will be considered as part of my appeal.

Yours faithfully,

James Ledwith

James Ledwith

View from site of proposed Bungalow onto Lee's Residence

Outhouses in View only: dwelling obscured by trees.

An Bord Pleanala,
Floor 3,
Blocks 6 & 7,
Irish Life Centre,
Lower Abbey Street,
Dublin 1.

Our Ref: 91A/0380

Your Ref: PL6/5/86178

Date: 4 - 9 ~~29 July~~ 1991

RE: Proposed bungalow, garage and septic tank at Glassamucky, Bohernabreena for J. Ledwith.

Dear Sir/Madam,

I refer to your letter dated 8th July, 1991, enclosing correspondence regarding the above appeal.

It is considered that the grounds of appeal do not raise any new matter which in the opinion of the Planning Authority would justify a change of attitude to the proposed development. The points raised have been dealt with in the Planning Authority's decision order dated 16th May, 1991.

Yours faithfully,

for Principal Officer.

L.D

Our Ref: PL 6/5/86178
P.A. Reg. Ref: 91A/380

An Bord Pleanála

Floor 3 Blocks 6 & 7
Irish Life Centre
Lower Abbey Street
Dublin 1
tel (01) 728011

9/8

The Secretary,
Dublin County Council,
Planning Department,
Block 2,
Irish Life Centre.

Date: 7th August 1991. 09 AUG 91

Appeal re: Bungalow, garage and septic tank at Glassamuckey, Boherrahneena, County Dublin.

Dear Sir/Madam,

Enclosed for your information is a copy of correspondence received in relation to the above-mentioned appeal. While it is not necessary for you to furnish any comments on the correspondence, you may do so if you wish. Any such comments should be forwarded within twenty-one days of the date of this letter to ensure that they will be taken into consideration in the determination of the appeal.

Please quote the above appeal reference number in any further correspondence.

Yours faithfully,

Suzanne Lacey
Suzanne Lacey

DEVELOPMENT CONTROL

Encl.

BP 553

86178

Glassamucky Brakes
Tallaght
29th July 91.

The Secretary
An Bord Pleanala
Irish Life Centre
Lower Abbey St.

31/7/91
F15 Cag
02H 208

Re: Planning Application Ref. 91A/038
Bungalow, garage and Septic tank. J. Ledwith

Dear Secretary,

We wish to support Dublin County Councils decision to refuse planning permission for the above development on the following grounds.

1. The site is located in an area not zoned for housing.
2. The applicant is not a native of the area and has no need to live here, therefore we believe this is speculation building, and would set a precident for further dwelling applications
3. The roads are substandard and dangerous and another entrance onto such roads could lead to traffic accidents.
4. Our view would be obstructed and the proposed building would be an invasion on

our privacy.

5. The odour from proposed septic tank would be carried on the prevailing wind to our dinning room and kitchen area.

6. There is a right of way through the site in question. This right of way has been enjoyed by local residents for generations and this could be endangered by the proposed development.

We would therefore ask you to refuse planning permission for this development.

Yours Sincerely

Patrick Lee.

Deirdre Lee.

P.S. Please find enclosed £15 for fee.

Our Ref: PL 6/5/86178
P.A. Reg. Ref: 91A/380

9/8

An Bord Pleanála

Floor 3 Blocks 6 & 7
Irish Life Centre
Lower Abbey Street
Dublin 1
tel:(01) 728011

The Secretary,
Dublin County Council,
Planning Department,
Block 2,
Irish Life Centre.

09 AUG 91

Date: 7th August 1991.

Appeal re: Bungalow, garage and septic tank at Glassamuckey, Boherrahneena, County Dublin.

Dear Sir/Madam,

Enclosed for your information is a copy of a letter received by the Board in relation to the above-mentioned appeal.

Please quote the above appeal reference number in any further correspondence.

Yours faithfully,

Suzanne Lacey
Suzanne Lacey

DEVELOPMENT CONTROL 12 AUG 1991

Encl.

BP 555

Glassamucky Brakes
Tallaght
30th July 91

The Secretary
An Bord Pleanala
Irish Life Centre
Lower Abbey St.

Re: Planning Application Ref 91A/038
Bungalow, garage & Septic tank J. Ledwith

Dear Secretary,

I wish to support Dublin Co Council's decision to refuse planning permission for the above development on the following grounds.

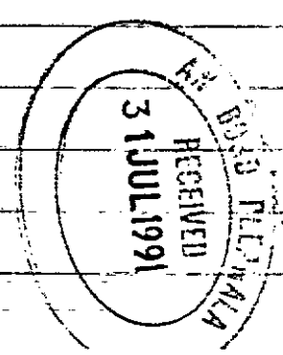
1. My house where I have lived for over 50 years would be overlooked by a stranger and this would be terrible as my privacy would be gone.
2. The spring well adjacent to the lower boundary would be efected by the septic tank, and this is the only source of water for my livestock and poultry. And also for many of my neighbours livestock.
3. As this applicant has no intrest in this area I could see this house being sold many times over the years.

4. I believe the surface water would bring overflow from septic tank onto road at entrance to my house.

I therefore ask you to refuse planning permission for this development. Also enclosed £15 cheque for fee.

Yours Sincerely

Margaret Lee



COMHAIRLE CHONTAE ATHA CLIATH

Tel. 704755
Ext. 268/269

Planning Department,
Irish Life Centre,
Lr. Abbey Street,
Dublin 1.

Your Ref. 6/S/86178
Our Ref. 91A.380

22.07.91

An Bord Pleanala,
Blocks 6 and 7,
Irish Life Centre,
Lr. Abbey Street,
Dublin 1.

LOCAL GOVERNMENT (PLANNING & DEVELOPMENT) ACTS, 1963 TO 1983

PROPOSAL : BUNGALOW, GARAGE AND SEPTIC TANK AT GLASSAMUCKY, BOHERNABREENA.

APPLICANT : J. LEDWITH

Dear Sir,

With reference to your letter dated 08.07.91 I enclose herewith:-

(1) & (2) A copy of the application which indicated the applicant's interest in the land or structure.

(3) A copy of the public notice given, i.e. EV. HERALD 02.05.91

(4) The plan(s) received from the applicant on 19.03.91

(6) & (7) A certified copy of Manager's Order P/NOSS/91 together with technical reports in connection with the application.

(5) HISTORY DOC'S FOR TA-2107 SEE PL 6/S/53453 90A.1686 INCLUDED

Yours faithfully,

M Mustagh

for PRINCIPAL OFFICER

Encls.

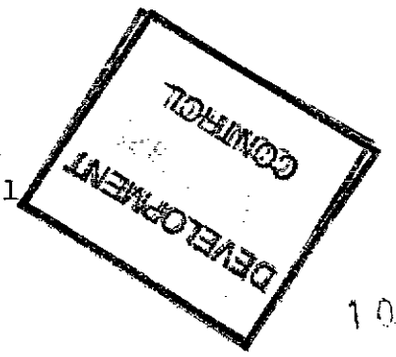
215

Our Ref: PL 6/5/86178
Your Ref: 91A/380

An Bord Pleanála

Floor 3 Blocks 6 & 7
Irish Life Centre
Lower Abbey Street
Dublin 1
tel (01) 728011

The Secretary,
Dublin County Council
Planning Department,
Block 2,
Irish Life Centre.



10 JUL 91

Date: 8th July 1991.

Planning authority decision re: Bungalow, garage and septic tank at Glassamuckey, Boherahneena, County Dublin.

Dear Sir/Madam,

Enclosed is a copy of an appeal under the Local Government (Planning and Development) Acts, 1963 to 1990, in relation to the above-mentioned decision. So that consideration of the appeal may proceed, you are requested to forward to the Board within two weeks:

(1) The application made to the planning authority.
(2) Particulars of the applicant's interest in the land or structure, as supplied to the planning authority.
(3) A copy of the public notice, whether published in a newspaper or on the site.
(4) Any drawings, maps, particulars, information, evidence or written study received or obtained from the applicant, including the ordnance survey number.
(5) Copies of requests (if any) to the applicant for further information relating to the application under appeal and copies of reply and documents (if any) submitted in response to such requests.
(6) A certified copy of the relevant Manager's Order.
(7) Copies of any technical or other reports relevant to the decision on the application.
(8) Particulars and relevant documents relating to previous decisions affecting the same site or relating to applications for similar development close by.

067

An Bord Pleanála

Floor 3 Blocks 6 & 7
Irish Life Centre
Lower Abbey Street
Dublin 1
tel (01) 728011

Please note that the other party/parties to the appeal are being notified that copies of the planning authority documents relevant to the decision which gave rise to the above-mentioned appeal will be available for inspection at your offices after the expiration of a period of fourteen days from the date of this letter. It would be appreciated if parties could be facilitated in this regard.

Copies of the representations or observations made to the planning authority in relation to the application should not be sent to the Board. It is assumed that the planning authority has notified observers of the decision made and of the right of appeal.

The planning authority may make to the Board, in writing, such observations on the appeal as it thinks fit. Where practicable, any such observations should be submitted with the documents listed above but the furnishing of the documents should not be held up until observations are available. In any event, to ensure that they will be taken into account in the determination of the appeal, any such observations should be furnished **within one month** of the date of this letter.

Please quote the above appeal reference number in any further correspondence.

Yours faithfully,

Suzanne Lacey

Suzanne Lacey

Encl.

BP 005

89 Clontarf Road,
Dublin 3.

4th July 1991

By Hand 4/7/91
£50 DRAFT
8

Your Ref: 91A/0380

An Board Pleanala,
Irish Life Centre,
Lower Abbey Street,
Dublin 1.

New Bungalow Glassamuckey Boherrahneena

Dear Sir/Madam,

I wish to appeal against the decision made on 16/5/91 in connection with proposed bungalow garage and septic tank at Glassamuckey, Boherrahneena, Co. Dublin due to my absence from home, I did not receive the notice of refusal until June 6th, 1991. (Please find enclosed a copy of letter dated 4/6/91) After enquiring from planning authority, I have been advised to proceed with my appeal.

1) I propose to use the site for to be self sufficient in organic farming and a view to an increase in the holding in the near future, in view of the high amenity of site, the Bungalow has been designed to cause little obstruction to view as is possible.

2) We propose to increase the visability at road turning, and the proposed development is purely domestic which thereby would reduce the danger to public safety, to a mimiumum, not any different of an approach to other roads, in any event one vehicle twice a day.

3) I propose that the bungalow be totally independent of public services, that is, I have researched a suitable sewerage system, and have found the Puraflo System, please find brochure and the details enclosed. I have been assured by the Manufacturer that this system which is in operation on sites in the Dublin area, and is satisfactory. Water supply will be obtained from a sunk well indicated on site plan, electric pumped into house.

4) Again I have been assured by the Manufactures that once the sewerage water has been treated through the system it has a proven final effluent quality of BOD 10 mg/1 and 15 mg/1 and is recommended in the latest edition of SR6 Recommendations for septic tank drainage systems, by E.O.L.A.S.

I intend to empty treated effluent tank twice annually and will make an undertaking to do same, it will not flow onto site.

Yours faithfully,

James Ledwith

James Ledwith

Dublin County Council Comhairle Chontae Atha Cliath Planning Department

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
Lower Abbey Street,
Baile Atha Cliath 1.
Dublin 1.
Telephone. (01)724755
Fax. (01)724896

James Ledwith
89 Clontarf Road,
Dublin 3.

91A/0380

4 June 1991

Re: Proposed bungalow, garage and septic tank at Glassamucky, Bohernabreena for J. Ledwith.

Dear Sir,

I enclose herewith, Notification of Decision to Refuse Permission, dated 16.05.91, in connection with the above, which was sent to you by Registered Post on 16.05.91, and which was returned by the Postal Authority marked "Gone Away".

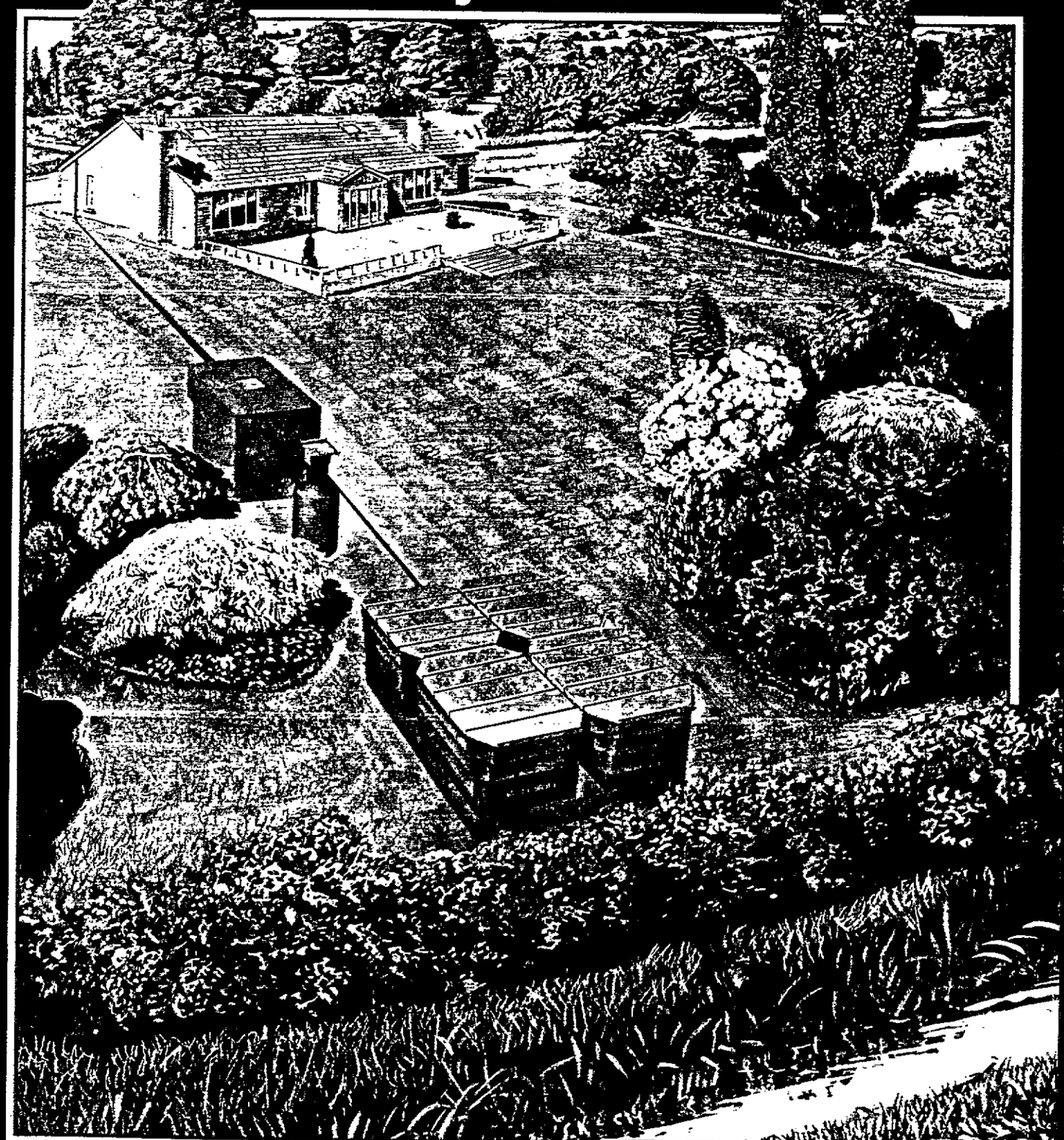
Yours faithfully,

J. de Barra
for Principal Officer.

Enc.

PURAFLO

Septic Tank Effluent Treatment System



Developed by

BORDNAMÓNA

THE IRISH PEAT BOARD

Pipework and Ducting

The Puraflo System includes the following pipework:

110mm uPVC connecting pipe and fittings between septic tank and Sump.
40mm PE rising main between Sump and biofilter Module.
50mm uPVC duct for electrical cable.
110mm uPVC drainage pipe for final effluent (optional).

Electrical Controls

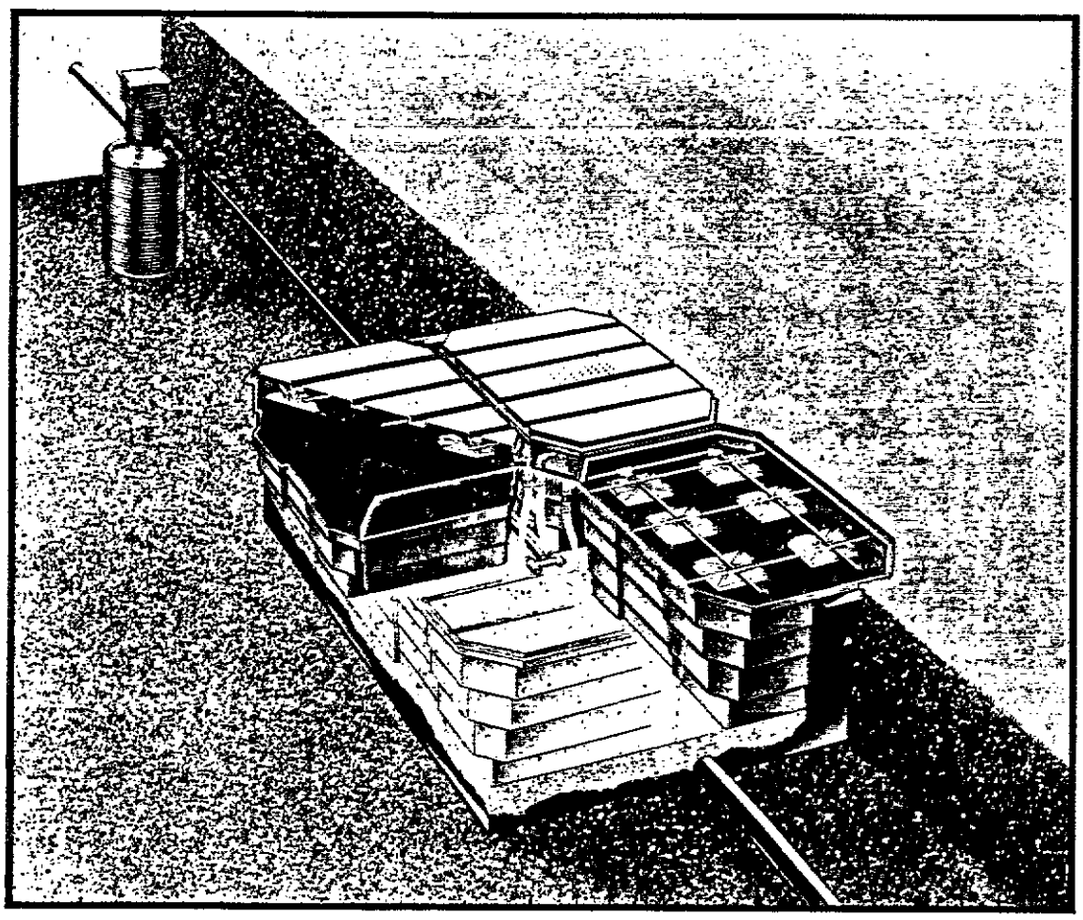
The System incorporates a submersible pump within the Sump and a visual/audible warning unit for installation at the power source.

PACKAGE SYSTEMS

Package Systems for groups of dwellings and other applications are designed to suit individual hydraulic and biological loadings and are constructed on site. In all cases, Puraflo will provide the design layout, supply and install the pumping and electrical equipment, all distribution pipework, bio-fibre peat media and a roof with odour control panels. If required, Puraflo will supply and install the Sump and the containing structure for the media.

SEPTIC TANK INSTALLATIONS

In addition to the Effluent Treatment System, Puraflo can supply and install approved septic tank units with all necessary pipes and fittings.



PE rising main between Sump and biofilter Modules. 50mm uPVC duct for electrical cable and 110mm uPVC for the discharge of final effluent (optional).

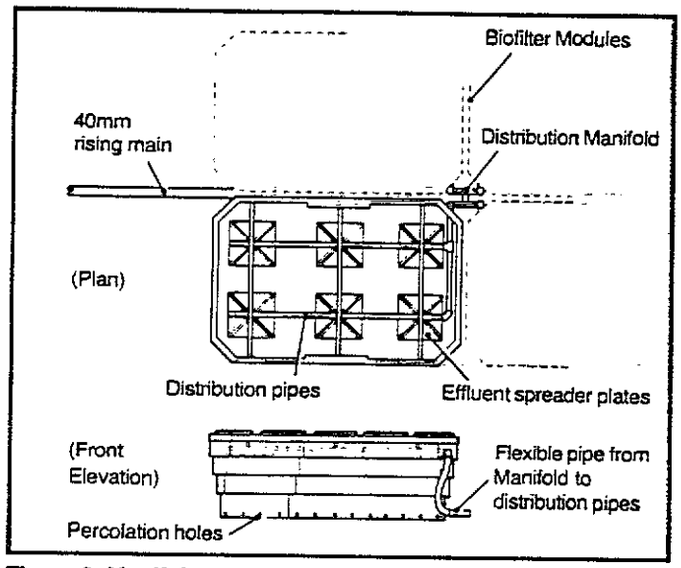
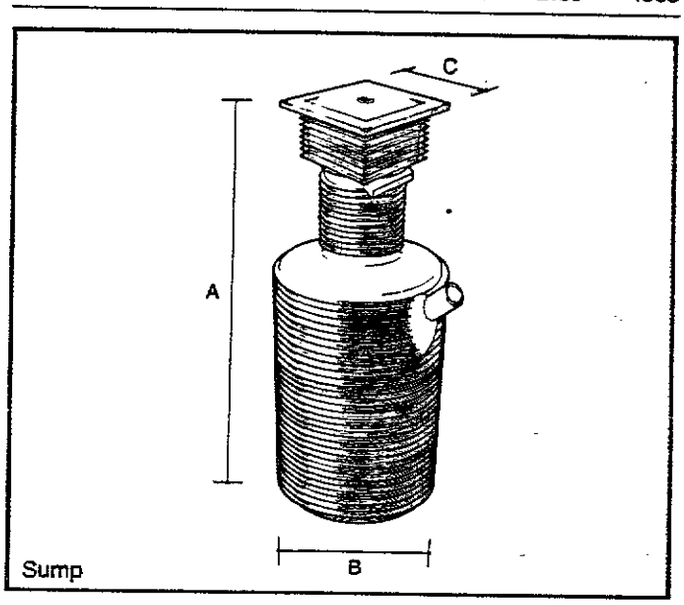


Figure 2 Manifold Distribution System

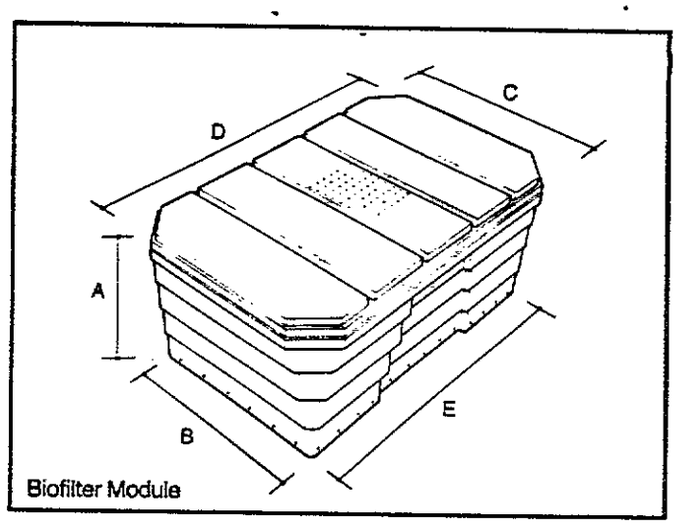
Table 1 Dimensions (mm)

Description	A	B	C	D	E
Sump	1850	720	480	–	–
Biofilter Module	760	1185	1400	2150	1935



TECHNICAL SERVICE

For further information on any aspect of single dwelling or package installation, contact the Company at the address below.



INSTALLATION

Installations are carried out by Puraflo either above or below ground depending on the aesthetic requirements and site conditions.

Figures 3(a) and 3(b) show installations below ground where treated effluent is discharged either into a ditch or river or directly to the subsoil. In both cases, the biofilter Modules are placed on a 200mm thick granular bed. It should be noted that where an outlet pipe is used, the excavation is lined with a heavy gauge polythene membrane.

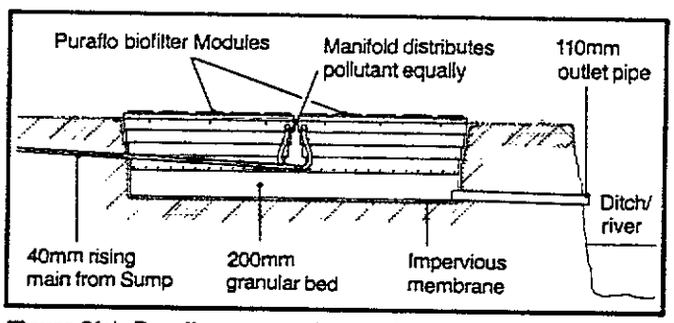


Figure 3(a) Puraflo system discharging treated effluent into open ditch, stream or river

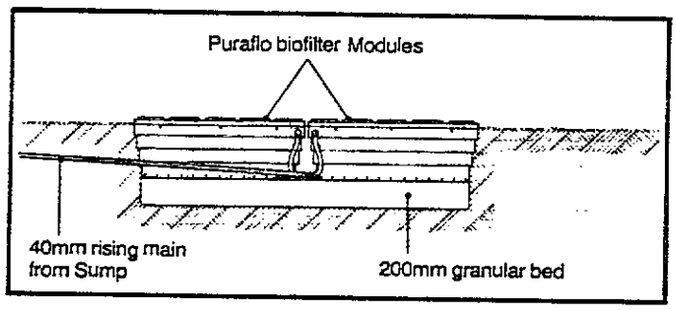


Figure 3(b) Puraflo system discharging directly into subsoil where suitable

Note: Final position of Puraflo modules can be located above or below ground depending on site conditions.

PURAFLO

Pollution Control for a *Better* Environment

Developed by

BORD NA MONA

Puraflo, Bord na Mona,
Newbridge, Co. Kildare.
Tel: 045/31201. Fax: 045/33240.

1/90 E & OE

PURAFLO

TECHNICAL INFORMATION SHEET

SINGLE DWELLINGS

Septic Tank Effluent Treatment System

THE PROBLEM OF POLLUTION

The average pollution BOD generated by sewage effluent from the occupants of a domestic dwelling is 0.06kg/head/day.

Where the effluent is discharged from a septic tank, serious contamination of ground or surface water can occur where site conditions are not suitable.

Surface water contamination is most prevalent in areas where impervious soils dominate. Where a percolation area fails, a common method used to try to prevent effluent backing-up to the house is to pipe from the outlet of the septic tank to the nearest drain. This leads to an ongoing insidious pollution which is sometimes difficult to recognise.

In the case of ground water pollution, the situation applies in reverse. Where there is a poor over burden of soil on fissured rock (mostly limestone), there is a direct run-off into the ground water system from the septic tank. This underground water system may be used for domestic consumption with the householder being unaware in most cases, of the pollution risk.

THE PURAFLO PROCESS FOR POLLUTION CONTROL

Bord na Móna scientists have developed the Puraflo System to treat effluent from a septic tank which is working correctly and must have been installed in accordance with SR6 (EOLAS).

The operating principle of Puraflo is based on a form of aerobic biological treatment with filtration using a special blend of peat fibre as the medium.

PERFORMANCE

A Puraflo installation will produce a high quality final effluent with an average BOD (biochemical oxygen demand) of less than 10mg/l and average TSS (total suspended solids) of less than 15mg/l. Coliform and ammonia removal of up to 99% and 90% respectively is also achieved. All quoted figures are well within the normal requirements of Health Organisations.

THE PURAFLO SYSTEM

For a single dwelling, the System consists of a Sump and Pump Unit, 4 biofilter Modules, connecting pipework and ducting and electrical controls.

The Sump and Pump Unit is installed at the outlet from the septic tank with the effluent being pumped to the biofilter Modules (see Figure 1). The biological process begins at this stage with the effluent being distributed evenly over the surface of the treatment media.

SYSTEM LOADING

The Puraflo Domestic Installation will cater for a dwelling house of up to five bedrooms and will treat 1 cubic metre of effluent per day. At this loading, the dwell time in the media will be six days. Dwell time is an important factor in the efficiency of the biological process.

The special blend of peat fibre and peat, and the predetermined and accurate compaction factor of the media ensures an evenly controlled flow. Where domestic situations larger than five bedrooms are proposed, the Puraflo Domestic Installation can be enlarged accordingly.

PURAFLO SYSTEM COMPONENTS

Sump and Pump Unit

Manufactured from corrosion free polyethylene. Incorporates a 450mm square galvanised steel frame and cover which is designed for pedestrian loading and has a safety grid fitted below the cover. Sump dimensions are given in Table 1.

A fully submersible pump within the Sump is rated at 0.33KW single phase and is capable of pumping up to 5 metres head. The pump should be withdrawn from the Sump annually, hosed down, inspected and the strainer checked for blockage prior to replacement.

Biofilter Modules

Each Module is moulded from polyethylene and is packed with a special blend of peat fibre media, developed by the research department of Bord na Móna to give optimum retention time and performance on a continuing basis. The four biofilter Modules required for a single dwelling have a surface area of 10m^2 and are 0.76m deep. The effluent received from the Sump through a 40mm polyethylene rising main is distributed over the peat fibre media to meet designed hydraulic and biological loading rates. (Module dimensions are given in Table 1).

Distribution Pipework

A manifold system of uPVC pipes and fittings ensures an even distribution of effluent over the total area of the peat fibre media (see Figure 2).

Other pipework supplied with the Puraflo System comprises: 110mm uPVC between septic tank and Sump, 40mm

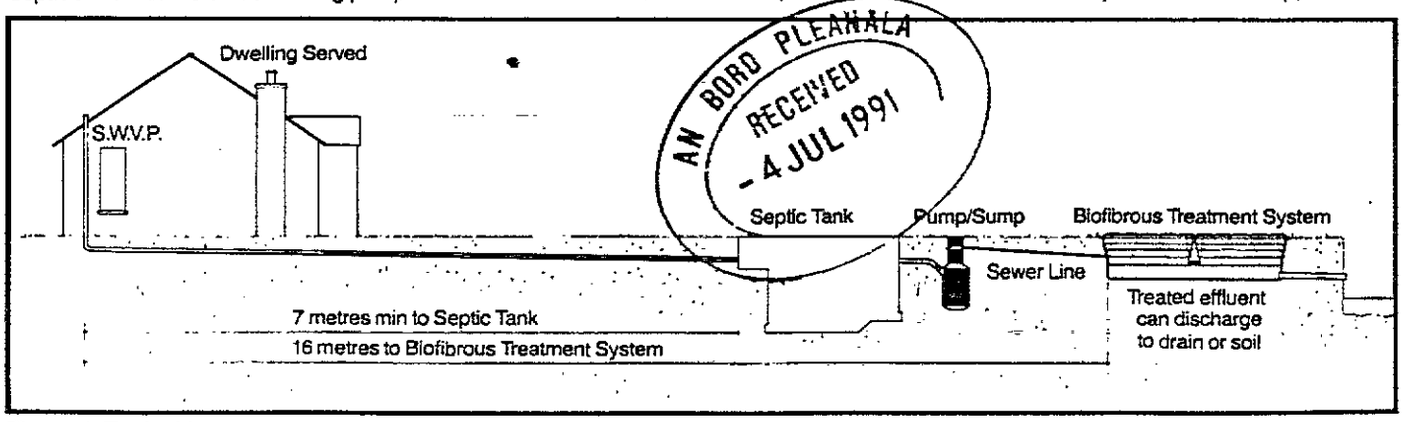
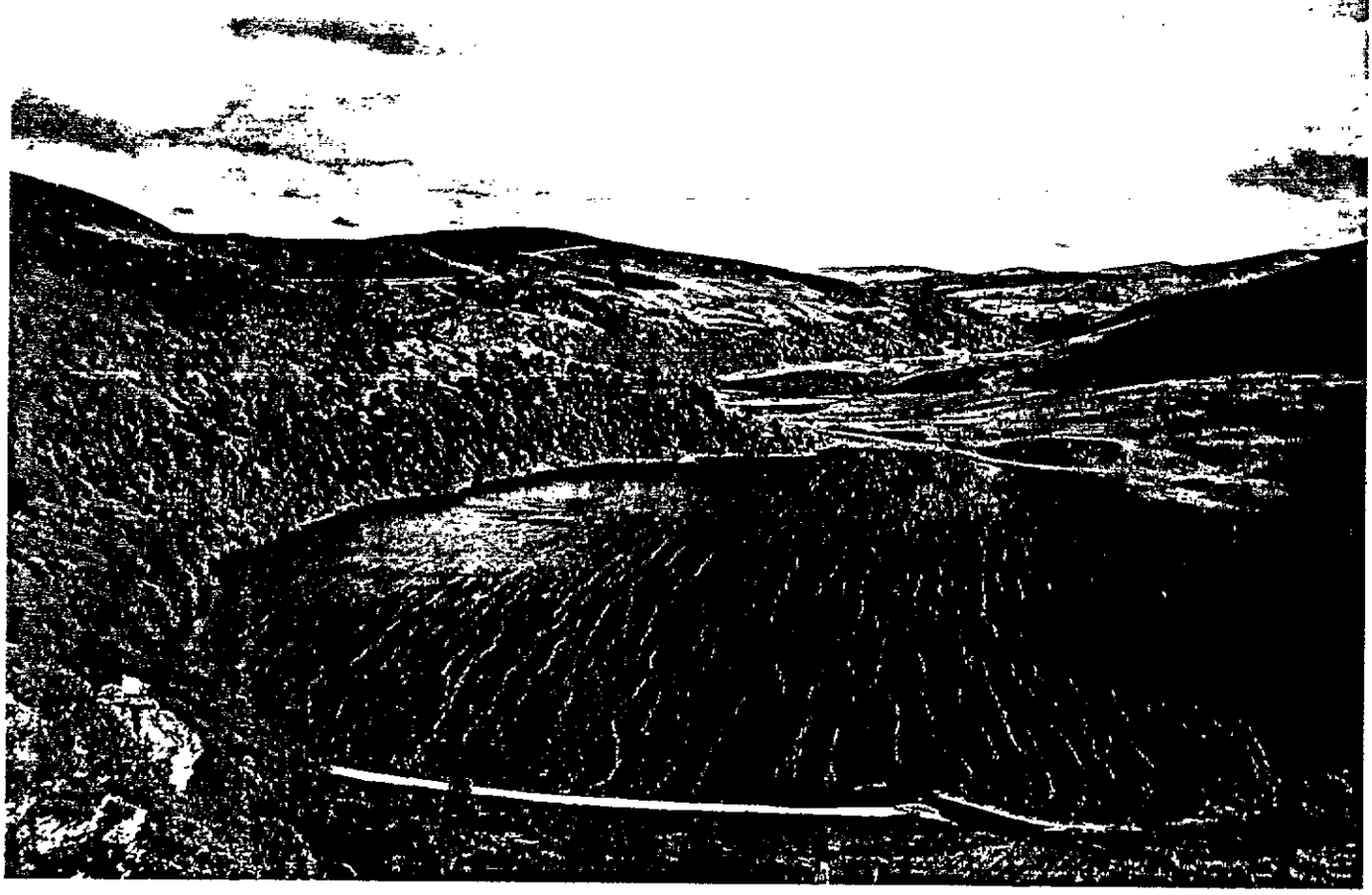


Figure 1 Typical Layout

FOR MILLIONS, THIS IS BEAUTY AT ITS PUREST. FOR ONE MILLION IRISH PEOPLE, IT'S A BATHROOM.



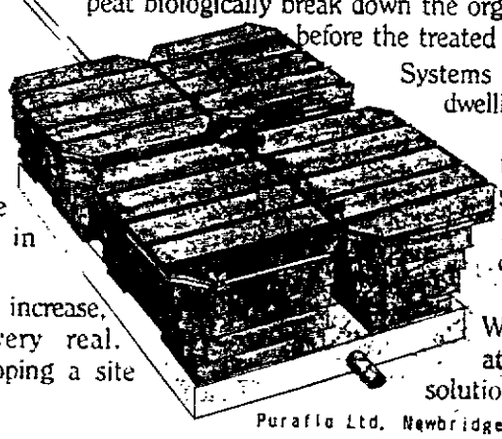
PURAFLO

Septic tanks are a fact of life. One million people who do not have access to a public sewage system, use them for household discharges.

Which means that the sewage waste of one million people is seeping into the ground. If there is excessive soakage, wells and underground water sources can be polluted.

Or, where soakage is insufficient, waste can run along the ground resulting in pollution of ponds, lakes and rivers.

With users of septic tanks on the increase, the risk to our environment is very real. That's why individuals or builders developing a site must consider Puraflo.



Puraflo is a newly developed septic tank effluent treatment system. The system consists of a pump and a group of peat fibre bio-filter modules which incorporate effluent distribution and odour control. The inherent micro-organisms within the peat biologically break down the organic pollution present in sewage before the treated water is finally discharged.

Systems can be designed for individual dwellings or groups - mobile home sites, marinas, public houses, hotels, factories, nursing homes or schools.

In trials with Puraflo, a 99% coliform reduction was achieved.

Septic tanks are a fact of life. With our environment increasingly at risk, Puraflo is a practical solution to their effect.

Puraflo Ltd. Newbridge, Co. Kildare, Ireland. Tel. 045 31201

PURAFLO

PURAFLO SEPTIC TANK EFFLUENT TREATMENT SYSTEM

In rural Ireland, more than 400,000 septic tanks have been installed to serve approximately one million people who do not have access to a public sewage system.

Many Local Authorities and other Health Organisations are becoming increasingly concerned about the potential dangers posed by the discharge from septic tanks. For example, effluent seeping into ground with excessive soakage can percolate away rapidly to pollute a nearby well or indeed, any other underground water source. Conversely, where ground soakage is insufficient, surface water systems can be polluted and ponding with unpleasant odours can occur, all factors being likely to contribute to poor health.

Bord na Móna, the Irish Peat Board, has developed the Puraflo Septic Tank Effluent Treatment System as the solution to these problems.

The domestic Puraflo System consists of a Sump, Pump and a group of specialised peat fibre biofilter Modules which incorporate effluent distribution and odour control facilities. Many Puraflo systems have already been installed for single dwellings and groups of houses. The final effluent from these is of excellent quality, exceeding the requirements of all Health Organisations.

APPLICATIONS

The Puraflo Modular System is designed to treat domestic sewage from individual dwellings. The biofilter Modules are a pleasant green colour and are easily installed to blend with the surroundings.

The Company also provides a design and construct package for housing estates and group schemes, caravan or mobile home sites, marinas, holiday camps, public houses, hotels and restaurants, factory offices and canteens, rural schools and nursing homes.

TESTS AND APPROVALS

The performance of the Puraflo System confirms the work carried out in the United States where the first comparable installation was completed in Maine in 1978. This continues to give excellent results and subsequent scanning electron microscope studies of the specialised media have shown that there is no deterioration of the peat fibre structure. All test sites (approximately 40) in the United States and Canada continue to operate successfully without interim replacement of any of the biofilter peat fibre media.

The State of Maine (Department of Human Services, Health Engineering Division) has approved the biofilter peat media system for the treatment of septic tank effluent when properly designed and installed.

In Ireland, many successful trials have been carried out over recent years and test results indicate a very high level of reduction (>95%) of BOD (biochemical oxygen demand) and TSS (total suspended solids). In addition, a 99% coliform reduction is also achieved, considerably exceeding the requirements of Local Authorities for effluent discharge.

Consultancy and technical advice has been provided by EOLAS (The Irish Science and Technology Agency) who are continuing to monitor the results of a number of Puraflo installations.

THE PURAFLO PROCESS

A specific type of peat fibre was identified by research and development as being highly effective in the treatment of the polluting substances in domestic sewage. By maintaining aerobic conditions within the peat, the inherent micro-organisms biologically break down the organic pollutants present in the sewage before the treated effluent is finally discharged to the soil, drain or stream.

PERFORMANCE

The Puraflo process will produce a final effluent with an average BOD of less than 10mg/l and average TSS of less than 15mg/l.

THE PURAFLO SYSTEM
Single Dwellings

The Puraflo System, for which a patent application is pending, is designed to treat effluent from a properly operating septic tank which has been installed in accordance with SR6 (Recommendations for Domestic Effluent Treatment and Disposal from a Single Dwelling House: EOLAS). It consists of a Sump and Pump Unit, connecting pipework and ducting, four biofilter Modules and electrical controls.

Sump and Pump Unit

The Sump is moulded from brown polyethylene and is designed for installation below ground. It incorporates a 450mm × 450mm galvanised steel frame and cover, is suitable for pedestrian loading and has a safety grid fitted below the cover. Sump dimensions are given in Table 1.

A submersible pump within the Sump has a flexible pipe connection to a 40mm polyethylene rising main. Pre-set automatic pump controls are provided to deliver the correct amount of effluent to the biofilter Modules. Table 1 gives the overall dimensions of a Module.

Biofilter Modules

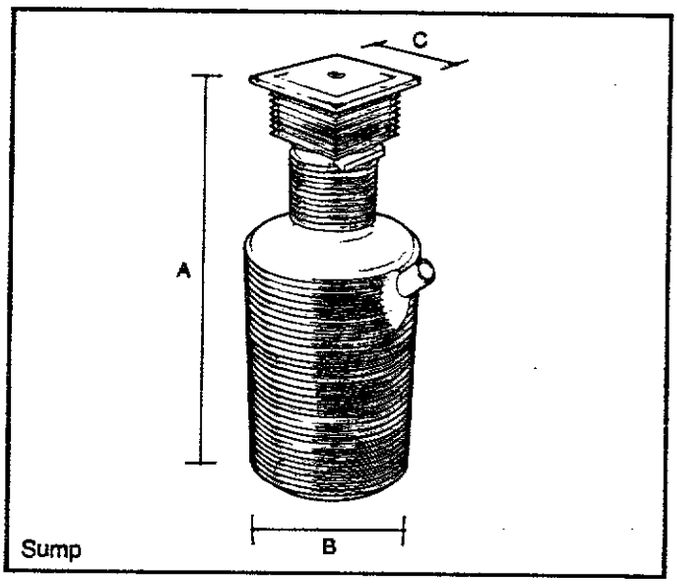
These are moulded from green polyethylene and are supplied to site complete and ready for connection to the rising main. Four Modules are required for a single domestic dwelling. The Modules contain a special blend of peat fibre media and a system which ensures even distribution of the effluent.

The media is unaffected by normal usage of household detergents and toilet cleaning agents. An effective odour control facility is provided within each Module.

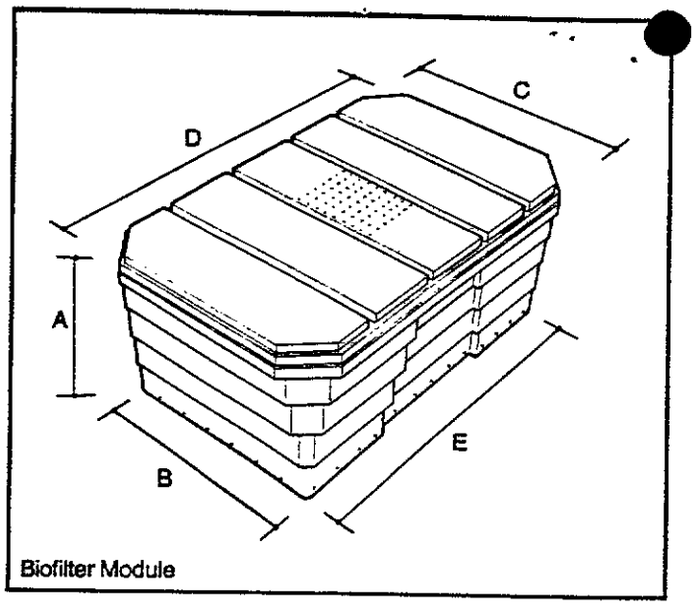
MAINTENANCE

Although the Puraflo System is virtually maintenance free, it is recommended that the septic tank and the treatment system be inspected annually to ensure continued satisfactory operation.

The biological sewage treatment process can be affected by unusual hydraulic or biological loadings, chemicals, antibiotics or excess grease.



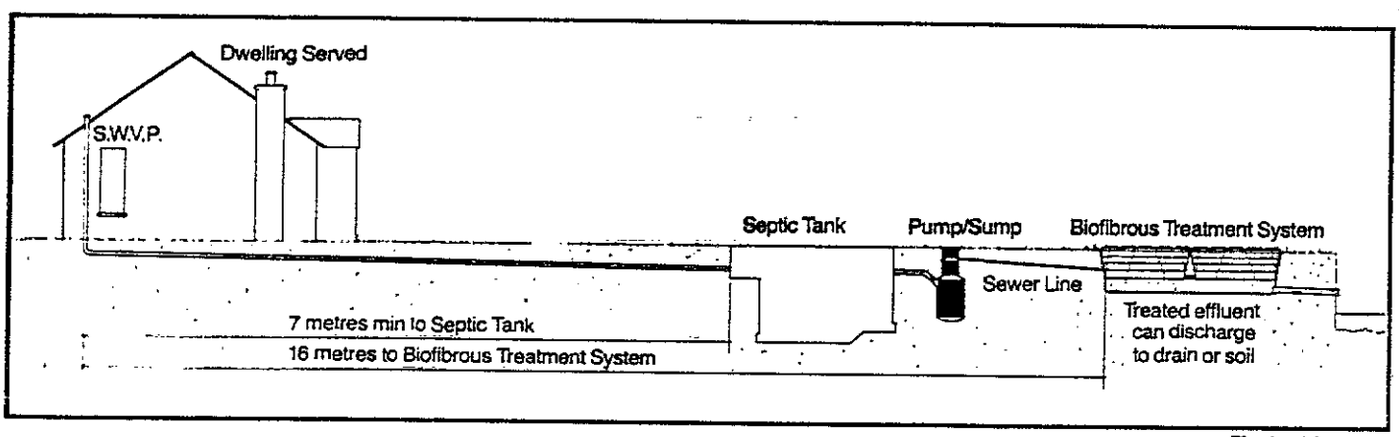
Sump



Biofilter Module

Table 1 Dimensions (mm)

Description	A	B	C	D	E
Sump	1850	720	480	–	–
Biofilter Module	760	1185	1400	2150	1935



Typical Layout

The Puraflo System Offers:

- **Low capital outlay**
- **Low running costs – average 20p per month for normal domestic usage**
- **No moving parts**
- **Complete flexibility of site layout**
- **Proven final effluent quality of BOD <10mg/l and TSS <15mg/l**

PURAFLO

Pollution Control for a *Better* Environment

Developed by

BORDNAMÓNA

For technical information sheets and further information, contact:
Puraflo Limited, Ballyforan, Ballinasloe,
Co Galway, Ireland
Telephone: 0903 4200

1/90E & OE

James Ledwith
89 Clontarf Road,
Dublin 3.

91A/0380

4 June 1991

Proposed bungalow, garage and septic tank at Glassamucky, Bohernabreena for J. Ledwith.Re:

Dear Sir,

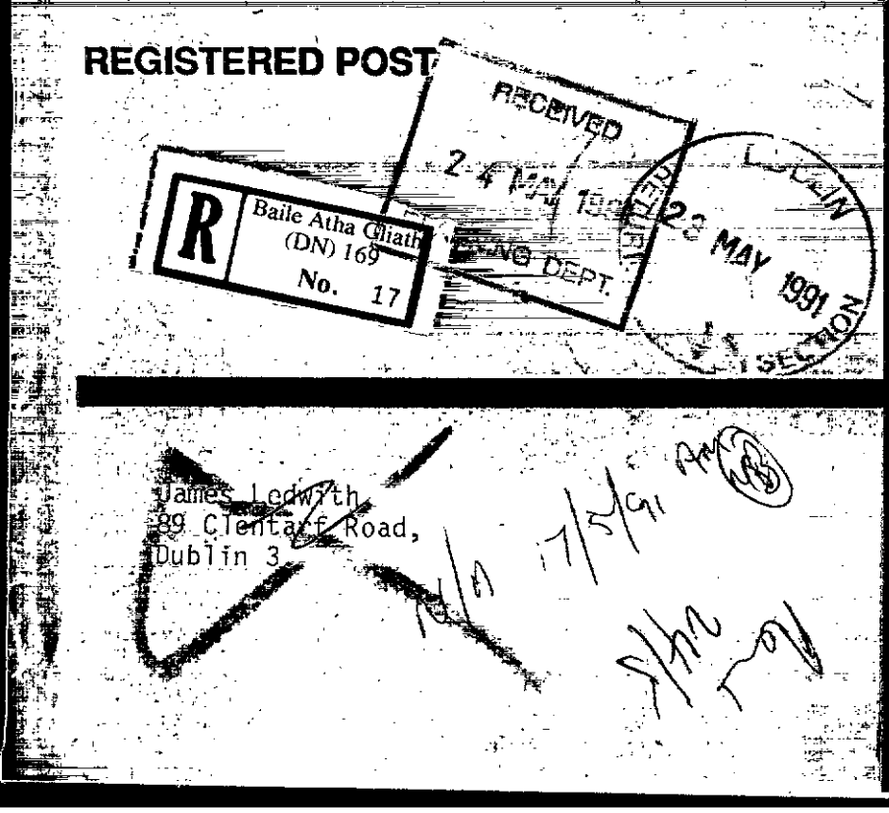
I enclose herewith, Notification of Decision to Refuse Permission, dated 16.05.91, in connection with the above, which was sent to you by Registered Post on 16.05.91, and which was returned by the Postal Authority marked **"Gone Away"**.

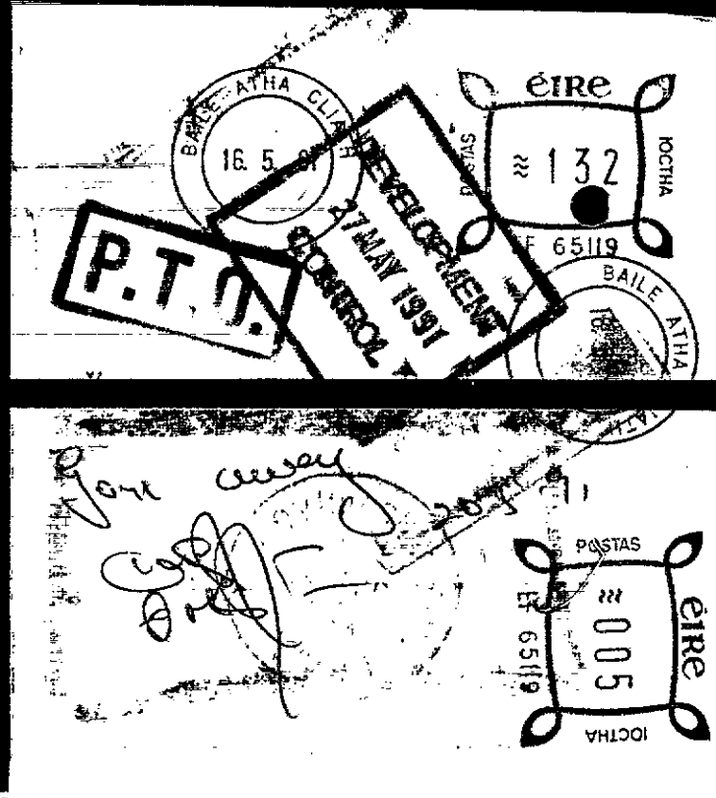
Yours faithfully,

J. deB

for Principal Officer.

Enc.





James Ledwith
89 Clontarf Road,
Dublin 3

COMHAIRLE CHONTAE ÁTHA CLIATH

DUBLIN COUNTY COUNCIL
46/49 UPPER O'CONNELL STREET,
DUBLIN 1.

RECEIPT CODE

BYE LAW APPLICATION.

REC. No. N 39125

PAID BY

CASH
CHEQUE
M.O.
B.L.
I.T.

£55.00

Received this 2nd day of ~~April~~ May 1991.

from James Ledwith

the sum of fifty five Pounds

Pence, being balance of fee on 91A/0380

Balance Class B

Michael O'Hara Cashier

S. CAREY
Principal Officer

DUBLIN COUNTY COUNCIL

Tel. 724755 (ext. 262/264)

PLANNING DEPARTMENT,
BLOCK 2,
IRISH LIFE CENTRE,
LR. ABBEY STREET,
DUBLIN 1.

NOTIFICATION OF A DECISION TO REFUSE:

[redacted] PERMISSION: [redacted]

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963-1983

To James Ledwith, — Register Reference No. 91A/0380

89 Clontarf Road, — Planning Control No.

Dublin 3. — Application Received 19/3/91

— Additional Information Received

Applicant J. Ledwith,

In pursuance of its functions under the above-mentioned Acts, the Dublin County Council, being the Planning Authority for the County Health District of Dublin, did by order, P/ 2088/91 dated 16/5/91 decided to refuse:

[redacted] PERMISSION [redacted]

For Proposed Bungalow, garage and septic tank at Glassamucky, Bohernabreena.

for the following reasons:

1. The site is located in an area zoned 'G' in the 1983 County Development Plan where it is the objective of the Planning Authority "to protect and improve high amenity areas". The proposed development does not conform with the Councils policy for development in high amenity areas as stated in Paragraph 2.26.4 of the written statement of the Development Plan which states, inter alia, "..... the plan designates areas of high amenity and it is the policy of the Council that any development not related directly to the area's amenity potential or its use for agriculture, mountain, or hill farming shall be prohibited". The proposed development would also interfere with views across the site and would be seriously injurious to the amenities of the area. The proposed development would contravene materially a development objective indicated in the Dublin County Development Plan 1983 for the use primarily of this area for amenity/agricultural purposes.

2. The proposed development would generate additional turning movements onto a very substandard road and would thereby endanger public safety by reason of traffic hazard.

Signed on behalf of the Dublin County Council Rose Kenny
for PRINCIPAL OFFICER

Date 16/5/91

NOTE: (1) An appeal against the decision may be made to An Bord Pleanala by the applicant within one month from the date of the decision. The appeal shall be in writing and shall state the subject matter of the appeal and grounds of the appeal and should be addressed to **An Bord Pleanala, Irish Life Centre, Lower Abbey Street, Dublin 1.** An Appeal lodged by an applicant or his agent with An Bord Pleanala will be invalid unless accompanied by a fee of £30 (Thirty Pounds). (2) A party to an appeal making a request to An Bord Pleanala for an oral Hearing of an appeal must, *in addition* to (1) above, pay to An Bord Pleanala a fee of £30 (Thirty Pounds). (3) A person who is not a party to an appeal must pay a fee of £10 (Ten Pounds) to An Bord Pleanala in relation to an appeal. When an appeal has been duly made and has not been withdrawn, An Bord Pleanala will determine the application for permission as if it had been made to them in the first instance.

FUTURE PRINT LTD.

3. There are no public piped services available to serve the proposal. The proposed development would be premature by reference to the existing deficiency in the provision of water supplies and sewerage facilities and the period within which the constraints involved may reasonably be expected to cease.

4. The site is situated on a steep slope overlooking the upper reservoir at Bohernabreena and is close to a feeder stream which discharges into the reservoir. The effluent from the proposed biodisc sewage treatment plant would eventually enter this feeder stream and would have an adverse effect on the quality of water in the reservoir. The proposed development would be prejudicial to public health.

Senior Staff Officer.

KEVIN V. CARROLL A.I.A.Arch.
Architect
KEON'S TERRACE
LONGFORD

Telephone: (043) 41148

91A/0380
1.0.0.1
Mrd A.1

Your Ref: 91A - 0380

Dublin County Council,
Planning Dept,
Block 2, Irish Life Centre,
Lr. Abbey St.,
Dublin 1.

10 MAY 91

9th May 1991

New Bungalow at Glassamucky, Bohernabreena.

Dear Sirs,

Further to above planning application, I wish to revise our proposals for the effluent treatment plant to service the above bungalow.

It is my clients intention to install the Puraflo Effluent Treatment System (see enclosed literature) in lieu of Klargester Biodisc, as this has a proven final effluent quality of BOD 10mg/1 and TSS 15mg/1.

It is also my clients intention to empty septic tank twice annually and will make an undertaking re same.

This system has been recommended in the latest edition of S.R. 6 'Recommendations for Septic Tank Drainage Systems', published by I.I.R.S.

Yours sincerely

Kevin V. Carroll A.I.A.Arch.

PURAFLO

TECHNICAL INFORMATION SHEET

SINGLE DWELLINGS

Septic Tank Effluent Treatment System

THE PROBLEM OF POLLUTION

The average pollution BOD generated by sewage effluent from the occupants of a domestic dwelling is 0.06kg/head/day.

Where the effluent is discharged from a septic tank, serious contamination of ground or surface water can occur where site conditions are not suitable.

Surface water contamination is most prevalent in areas where impervious soils dominate. Where a percolation area fails, a common method used to try to prevent effluent backing-up to the house is to pipe from the outlet of the septic tank to the nearest drain. This leads to an ongoing insidious pollution which is sometimes difficult to recognise.

In the case of ground water pollution, the situation applies in reverse. Where there is a poor over burden of soil on fissured rock (mostly limestone), there is a direct run-off into the ground water system from the septic tank. This underground water system may be used for domestic consumption with the householder being unaware in most cases, of the pollution risk.

THE PURAFLO PROCESS FOR POLLUTION CONTROL

Bord na Móna scientists and Wavin Ireland have developed the Puraflo System to treat effluent from a septic tank which is working correctly and must have been installed in accordance with SR6 (EOLAS).

The operating principle of Puraflo is based on a form of aerobic biological treatment with filtration using a special blend of peat fibre as the medium.

PERFORMANCE

A Puraflo installation will produce a high quality final effluent with an average BOD (biochemical oxygen demand) of less than 10mg/l and average TSS (total suspended solids) of less than 15mg/l. Coliform and ammonia removal of up to 99% and 90% respectively is also achieved. All quoted figures are well within the normal requirements of Health Organisations.

THE PURAFLO SYSTEM

For a single dwelling, the System consists of a Sump and Pump Unit, 4 biofilter Modules, connecting pipework and ducting and electrical controls.

The Sump and Pump Unit is installed at the outlet from the septic tank with the effluent being pumped to the biofilter Modules (see Figure 1). The biological process begins at this stage with the effluent being distributed evenly over the surface of the treatment media.

SYSTEM LOADING

The Puraflo Domestic Installation will cater for a dwelling house of up to five bedrooms and will treat 1 cubic metre of effluent per day. At this loading, the dwell time in the media will be six days. Dwell time is an important factor in the efficiency of the biological process.

The special blend of peat fibre and peat, and the predetermined and accurate compaction factor of the media ensures an evenly controlled flow. Where domestic situations larger than five bedrooms are proposed, the Puraflo Domestic Installation can be enlarged accordingly.

PURAFLO SYSTEM COMPONENTS

Sump and Pump Unit

Manufactured from corrosion free polyethylene. Incorporates a 450mm square galvanised steel frame and cover which is designed for pedestrian loading and has a safety grid fitted below the cover. Sump dimensions are given in Table 1.

A fully submersible pump within the Sump is rated at 0.33KW single phase and is capable of pumping up to 5 metres head. The pump should be withdrawn from the Sump annually, hosed down, inspected and the strainer checked for blockage prior to replacement.

Biofilter Modules

Each Module is moulded from polyethylene and is packed with a special blend of peat fibre media, developed by the research department of Bord na Móna to give optimum retention time and performance on a continuing basis. The four biofilter Modules required for a single dwelling have a surface area of 10m^2 and are 0.76m deep. The effluent received from the Sump through a 40mm polyethylene rising main is distributed over the peat fibre media to meet designed hydraulic and biological loading rates. (Module dimensions are given in Table 1).

Distribution Pipework

A manifold system of uPVC pipes and fittings developed by Wavin Ireland Limited ensures an even distribution of effluent over the total area of the peat fibre media (see Figure 2).

Other pipework supplied with the Puraflo System comprises: 110mm uPVC between septic tank and Sump, 40mm

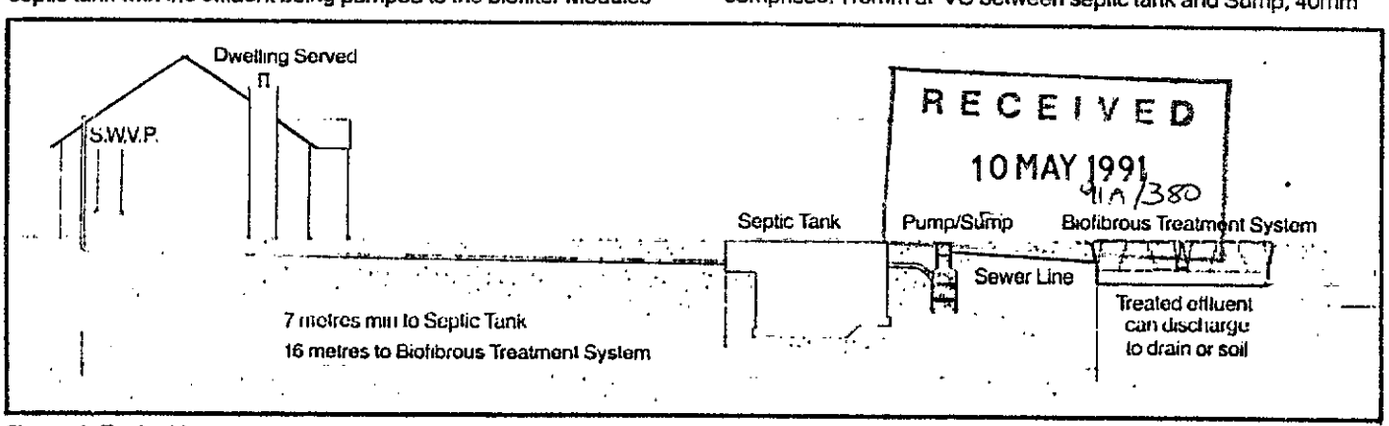


Figure 1 Typical Layout

46'2

PURAFLO

PURAFLO SEPTIC TANK EFFLUENT TREATMENT SYSTEM

In rural Ireland, more than 400,000 septic tanks have been installed to serve approximately one million people who do not have access to a public sewage system.

Many Local Authorities and other Health Organisations are becoming increasingly concerned about the potential dangers posed by the discharge from septic tanks. For example, effluent seeping into ground with excessive soakage can percolate away rapidly to pollute a nearby well or indeed, any other underground water source. Conversely, where ground soakage is insufficient, surface water systems can be polluted and ponding with unpleasant odours can occur, all factors being likely to contribute to poor health.

A joint venture between Bord na Móna and Wavin Ireland developed the Puraflo Septic Tank Effluent Treatment System as the solution to these problems.

The domestic Puraflo System consists of a Sump, Pump and a group of specialised peat fibre biofilter Modules which incorporate effluent distribution and odour control facilities. Many Puraflo systems have already been installed for single dwellings and groups of houses. The final effluent from these is of excellent quality, exceeding the requirements of all Health Organisations.

APPLICATIONS

The Puraflo Modular System is designed to treat domestic sewage from individual dwellings. The biofilter Modules are a pleasant green colour and are easily installed to blend with the surroundings.

The Company also provides a design and construct package for housing estates and group schemes, caravan or mobile home sites, marinas, holiday camps, public houses, hotels and restaurants, factory offices and canteens, rural schools and nursing homes.

TESTS AND APPROVALS

The performance of the Puraflo System confirms the work carried out in the United States where the first comparable installation was completed in Maine in 1978. This continues to give excellent results and subsequent scanning electron microscope studies of the specialised media have shown that there is no deterioration of the peat fibre structure. All test sites (approximately 40) in the United States and Canada continue to operate successfully without interim replacement of any of the biofilter peat fibre media.

The State of Maine (Department of Human Services, Health Engineering Division) has approved the biofilter peat media system for the treatment of septic tank effluent when properly designed and installed.

In Ireland, many successful trials have been carried out over recent years and test results indicate a very high level of reduction (>95%) of BOD (biochemical oxygen demand) and TSS (total suspended solids). In addition, a 99% coliform reduction is also achieved, considerably exceeding the requirements of Local Authorities for effluent discharge.

Consultancy and technical advice has been provided by EOLAS (The Irish Science and Technology Agency) who are continuing to monitor the results of a number of Puraflo installations.

THE PURAFLO PROCESS

A specific type of peat fibre was identified by research and development as being highly effective in the treatment of the polluting substances in domestic sewage. By maintaining aerobic conditions within the peat, the inherent micro-organisms biologically break down the organic pollutants present in the sewage before the treated effluent is finally discharged to the soil, drain or stream.

PERFORMANCE

The Puraflo process will produce a final effluent with an average BOD of less than 10mg/l and average TSS of less than 15mg/l.

THE PURAFLO SYSTEM
Single Dwellings

The Puraflo System, for which a patent application is pending, is designed to treat effluent from a properly operating septic tank which has been installed in accordance with SR6 (Recommendations for Domestic Effluent Treatment and Disposal from a Single Dwelling House: EOLAS). It consists of a Sump and Pump Unit, connecting pipework and ducting, four biofilter Modules and electrical controls.

Sump and Pump Unit

The Sump is moulded from brown polyethylene and is designed for installation below ground. It incorporates a 450mm × 450mm galvanised steel frame and cover, is suitable for pedestrian loading and has a safety grid fitted below the cover. Sump dimensions are given in Table 1.

A submersible pump within the Sump has a flexible pipe connection to a 40mm polyethylene rising main. Pre-set automatic pump controls are provided to deliver the correct amount of effluent to the biofilter Modules. Table 1 gives the overall dimensions of a Module.

Biofilter Modules

These are moulded from green polyethylene and are supplied to site complete and ready for connection to the rising main. Four Modules are required for a single domestic dwelling. The Modules contain a special blend of peat fibre media and a system which ensures even distribution of the effluent.

The media is unaffected by normal usage of household detergents and toilet cleaning agents. An effective odour control facility is provided within each Module.

Dublin County Council Comhairle Chontae Atha Cliath **Planning Department**

Building Control Department,
Liffey House,
Tara Street,
Dublin 1.
Telephone:773066

Bloc 2, Ionad Bheatha na hEireann,
Block 2, Irish Life Centre,
Sraid na Mainistreach Iacht,
Lower Abbey Street,
Baile Atha Cliath 1.
Dublin 1.
Telephone. (01)724755
Fax. (01)724896

Register Reference : 91A/0380

Date : 20th March 1991

LOCAL GOVERNMENT (PLANNING AND DEVELOPMENT) ACTS, 1963 TO 1990

Dear Sir/Madam,

DEVELOPMENT : Bungalow, garage and septic tank.

LOCATION : Glassamucky, Bohernabreena.

APPLICANT : J. Ledwith

APP. TYPE : PERMISSION/BUILDING BYE-LAW APPROVAL

With reference to above, I acknowledge receipt of your application received on 19th March 1991.

Yours faithfully,

.....

PRINCIPAL OFFICER

James Ledwith,
89 Clontarf Road,
Dublin 3.

90A-1886

1686 Recd 19.3

COMHAIRLE CHONTAE ÁTHA CLIATH
(DUBLIN COUNTY COUNCIL)

PLANNING APPLICATION FORM

DUBLIN PLANNING OFFICE
BLOCK 2
IRISH LIFE CENTRE,
LR. ABBEY STREET,
DUBLIN 1
Telephone 724755

1. Location of proposed development Postal address of Site or Building (if none, give description sufficient to identify and quote ordnance sheet reference). GLASSAMUCKY BOHERNA BREENA. CO. DUBLIN. O.S. DUBLIN 25-5 and 25-9

2. Name of applicant JAMES LEDWITH Tel. No. 01-335357

   Address of applicant 89 CLONTARF RD. DUBLIN 3.

BYE LAW APPLICATION REG. No. N/L

3. State applicant's interest in site (i.e. freehold, leasehold etc.) OWNER (FREEHOLD)

4. Name and address of person responsible for preparation of plans. KEVIN V CARROLL ARCHITECT, KEONS TCE. LONGFORD. Tel. No. 043-4[redacted]

5. Address to which notifications should be sent. 89 CLONTARF RD. DUBLIN 3.

FEE PAID £32 DATE 20/3
RECEIPT No. N 34271

6. Brief description of proposed development including the purpose for which the lands (and/or buildings) are to be used. If for more than one purpose give details. DWELLING

Ev Herald 2/3/91

7. Method of Drainage BIODISC SEWAGE TREATMENT PLANT

8. Source of water supply DRILLED WELL.

9. (a) Floor area of proposed development 1240 sq. ft. (gross) ~~sq. metres~~ (b) Area of site 0·77 acre.

10. Does the proposal involve:–
    (a) Demolition or partial demolition of any habitable house NO
    (b) ... use than for human habitation of any habitable house NO

CO. DUBLIN — Permission for new bungalow, garage and septic tank at Glassamucky, Boherna Breena — J. Ledwith.

11. ... of a material change of use, state:

19 MAR 91

   (a) Present use(s) or use(s) when last used
   (b) Proposed use(s)

12. List of documents enclosed with application 4 copies plans Cheque £32. 4 location Maps. Copy of NOTICE. 4 OUTLINE SPECS.

13. Other relevant details DETAILS OF SEWAGE TREATMENT PLANT (4 No. details insts) 4 No. SITE PLANS

14. Signature of applicant (or his agent) Kevin V Carroll Date 15.3.91

255

FOR OFFICE USE ONLY

Application type P | BBL

Date acknowledged 91A/0380

1, 12.4.4

RECEIPT CODE

COMHAIRLE CHONTAE ÁTHA CLIATH

DUBLIN COUNTY COUNCIL
46/49 UPPER O'CONNELL STREET,
DUBLIN 1.

Issue of this receipt is not an acknowledgement that the fee tendered is the prescribed application fee.

N 34271

PAID BY —
CASH
CHEQUE
M.O.
B.L.
I.T.

£32.00

Received this 20th day of March 1991

from James Ledwith,
89 Clontarf Rd.,
D.3

the sum of thirty two Pounds

Pence, being fee for

pl.g application at Glassamucky

Noeleen Doane Cashier

S. CAREY
Principal Officer [illegible]

RECEIPT CODE

COMHAIRLE CHONTAE ÁTHA CLIATH

PAID BY — DUBLIN COUNTY COUNCIL
46/49 UPPER O'CONNELL STREET
DUBLIN 1.

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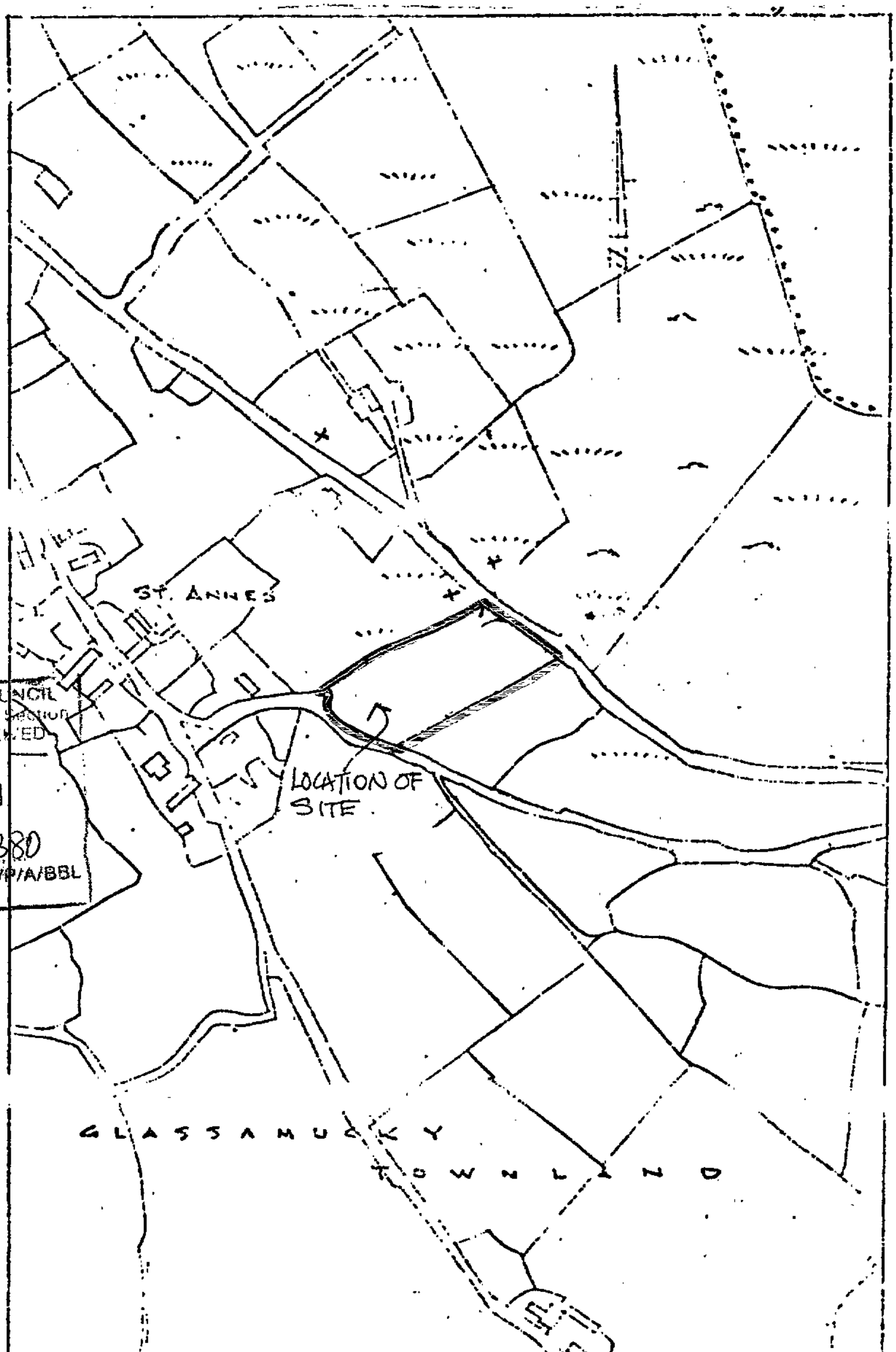
S. CAREY
Principal Officer

Class 1 x 1

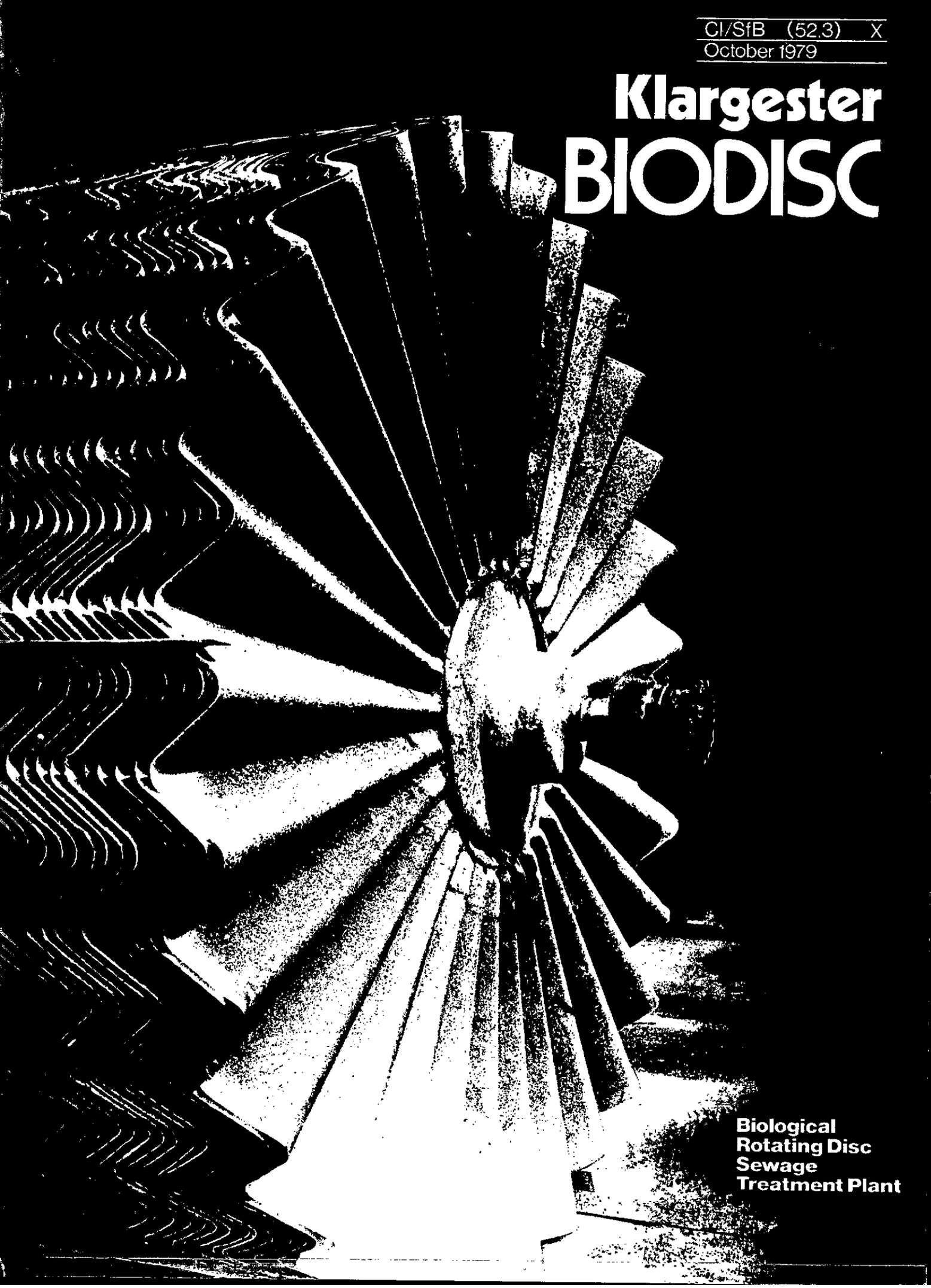
1/ 60x25



O.S. SHEETS DUBLIN 25-5 + 25-9. SCALE 1:2500.
PROPOSED NEW HOUSE AT GLASSYMUCKY - BOHERNABREENA.
FOR J. LEDWITH.
LOCATION MAP
K.V. CARROLL ARCHITECT KEONS TCE. LONGFORD.

CI/SfB (52.3) X
October 1979

Klargester BIODISC



Biological Rotating Disc Sewage Treatment Plant

Klargester BIODISC

Description

The Klargester (ACB) Biodisc is a complete self-contained sewage treatment plant, designed for small communities in a range of sizes to serve from 5 to 750 persons. Larger communities can be accommodated by modular disc plants. The complete treatment process is carried out in one totally enclosed compact unit. No additional tanks or pumps are required in the Biodisc process. Pumping to and from the unit may be required depending upon site levels.

The only moving parts are the slowly rotating discs powered by a small electric motor. Power consumption is therefore low and the noise level is negligible.

Biodiscs may be installed either above or below ground, have an aesthetically acceptable appearance and blend well with natural surroundings.

The units are fabricated in glassfibre, are comparatively light in weight, simple to install and require less land area than conventional plants. The Biodisc system can be employed, utilising in situ concrete tank work where this method is preferred.

Klargester Limited have over 25 years experience in the treatment of waste water, in particular sewage from small communities. The Klargester (ACB) Biodisc combines this wealth of operational experience with up-to-date plastics technology to provide an outstanding waste water treatment system.

Applications

The Klargester (ACB) Biodisc is ideally suited to provide sewage treatment facilities for:-

(a) housing and industrial estates
(b) isolated government establishments (e.g. R.A.F./Army camps, prisons, etc.)
(c) pubs, hotels and country clubs
(d) residential/holiday caravan sites
(e) marinas, holiday camps and country houses
(f) petrol stations and motorway service stations
(g) hospitals

Biodisc can be used in place of septic tanks.

Biodisc may be used as a temporary unit whilst remedial work is being carried out on existing facilities.

Process Design

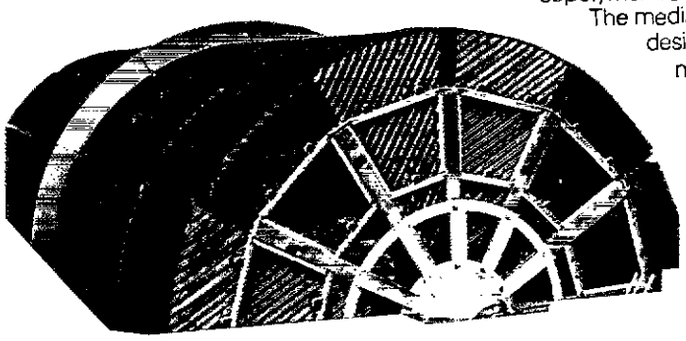
The BioDisc is suitable for a wide variety of treatment duties and to establish the most economic size of unit, it is necessary to calculate the organic and hydraulic load for each application.

The services of Klargester's technical staff are readily available for this purpose. In some situations tertiary treatment may be required and a Klargester Drum Filter or Upward Flow Klarifier can be supplied where necessary. Process improvement has been achieved by the use of recirculation of treated effluent within the biozone with optional sludge return to the primary tank.

Model 817

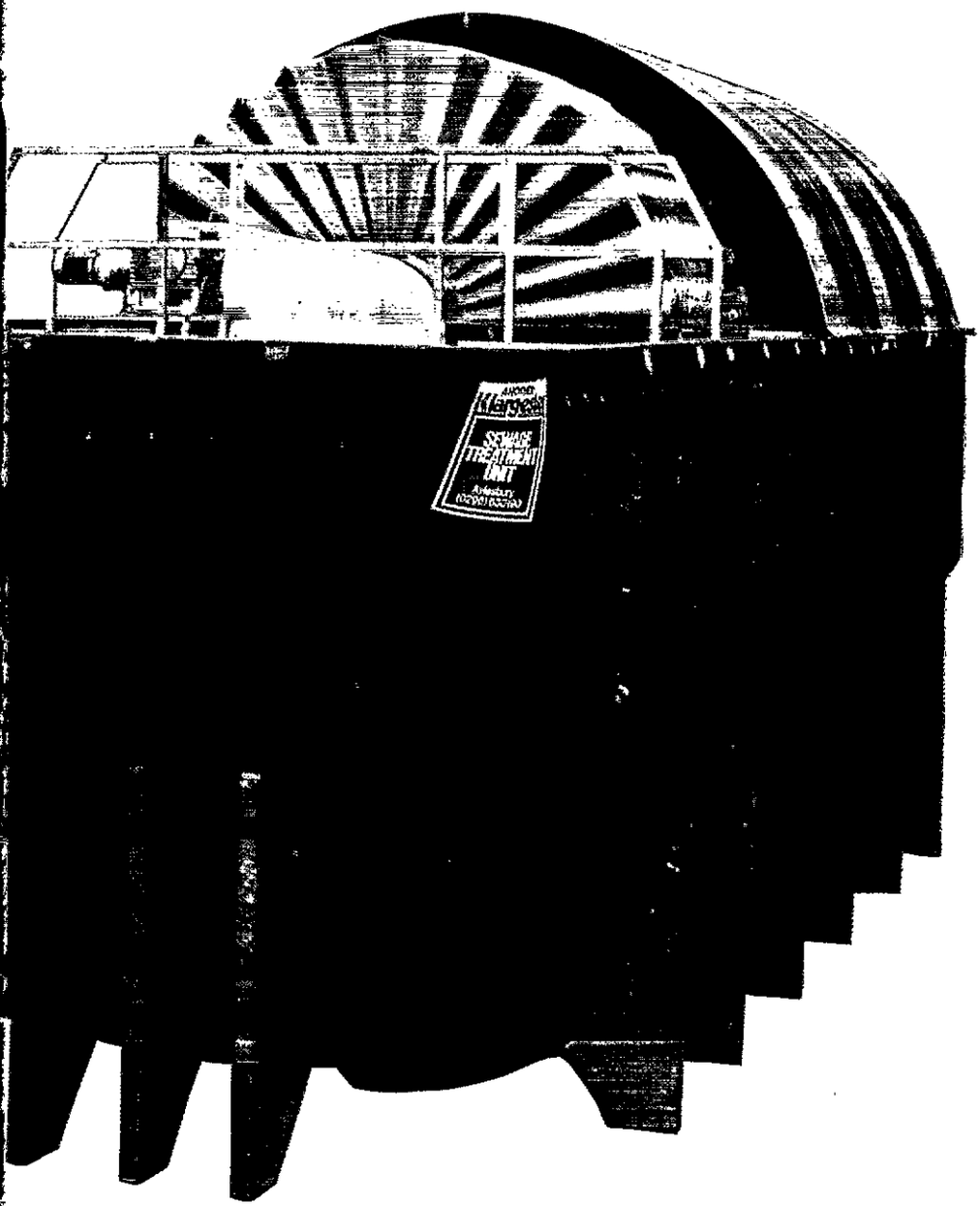
NEW SEGMENTED ROTOR

The new design of rotor which is being introduced progressively from the larger units downwards uses polypropylene copolymer as the media material. The media is arranged in packs designed for easy mechanical assembly on to the shaft. Greater surface areas are provided at minimal additional cost.



Mechanical and Electrical Specification

BioDisc is designed to conform to the Standard Code of Practice, BS 6297: 1983 - Small Sewage Treatment Wo The Code contains much valuable guidance on general design considerations such as the proximity t buildings, prevailing winds, levels, ac etc.



Tank

The main tank is of laminated glass reinforced polyester construction of adequate strength for above or below ground installation. A steel frame structure at the top of the tank supports the rotor, motor drive unit and bio zone chamber.

Rotor

The shaft is of mild steel circular hollow section with stub shafts supported in plummer block bearings. It is coated for corrosion protection.

The contactor area is provided by fluted G.R.P. discs or polypropylene media banks, according to plant size.

Motor and Drive

The rotor is driven by an integral motor gearbox unit with a totally enclosed fan cooled AC motor with final transmission by a chain drive. Where the possibility of variable site voltages exists or where voltages are not standard, special provisions should be made to ensure correct motor windings are specified.

Cover

Weatherproof G.R.P. cover completely encloses the top of the unit.

Principles of operation

The principle of the rotating biological reactor was invented as early as 1900. However, it was not until 1969 that the present system which combines primary settlement, biological treatment using rotating discs and secondary settlement in a single "packaged" unit was designed.

Primary Settlement Zone

No preliminary balancing tank is required. Crude sewage is piped direct to the Biodisc entering the baffled primary settlement zone via a deflector box which stills the flow.

The heavier solids sink to the bottom of the compartment to disperse into the main sludge zone. Any floating solids will be retained by means of a baffle. The effluent, with lighter solids still in suspension, passes into the Bio Zone at the Bio Zone inlet.

Bio Zone

The Bio Zone comprises a chamber with transverse baffles arranged so that the liquid must follow a serpentine path from Zone inlet to outlet See Fig. 2. The baffles also separate a series of slowly-rotating circular discs into banks so that the sewage passes through each bank in turn. No chemicals are added at this or any other stage of the process.

Micro-organisms naturally present in the sewage adhere to the partially immersed discs to form a biologically active film, feeding upon the impurities and rendering them inoffensive.

The organisms feed and multiply very rapidly in the presence of an ample supply of oxygen and as each portion of the film on the rotating discs is alternately in contact with settled sewage and atmospheric oxygen, conditions that are ideal for efficient purification.

The thin waste film on the surface is rich in oxygen and contributes to the high organic and oxygen uptake of the biomass.

Oxygen penetrates the biomass into its innermost colonies through mixing and diffusion.

Sludge Zone

The sludge from the primary and Bio zones collects and consolidates in the base of the unit. The unit can accommodate a large quantity of consolidated sludge before desludging is necessary. This can be done conveniently by a gully emptier or similar suction unit.

A 30pe unit serving a prestige leisure complex where aesthetic acceptability and minimal maintenance requirements were major influences on plant selection.

MODEL NO.	DIMENSIONS (mm)				WEIGHT			POWER		
	Length	Width	Tank Depth	Overall Height	Empty (T)	Full (T)	Base to Inlet Invert Pipe	Drive kW 1 ph.	Rating kW 3 ph.	Approx Daily Power Consumption kW Hours/Day
B1	1950	1700	1705	1935	0.4	2.7	1325	0.04	3 ph.	1.5
B2	3300	1700	1705	1935	0.65	4.3	1325	0.04	Available	1.5
B3	3100	2170	1925	2780	1.3	9.5	1625	0.04		1.5
B4	3800	2170	1925	2780	1.7	11.5	1625	SINGLE PHASE AVAILABLE	0.15	3
B5	4500	2170	1925	2780	1.95	14.0	1625		0.15	3
B6	4050	2700	2175	3230	2.1	18.0	1875		0.15	3
B7	4950	2700	2175	3230	2.7	22.5	1875		0.25	5
B8	5400	2700	2175	3230	3.1	25.5	1875		0.25	5
B9	6750	2700	2175	3230	3.8	35.0	1875		0.25	5
B10	6420	3200	2625	3680	4.9	42.5	2205	—	0.55	8
B11	7780	3200	2625	3680	5.5	52.5	2205	—	0.55	9
B12	9130	3200	2625	3680	6.4	60.0	2205	—	0.75	11
B13	11890	3200	2625	3680	8.5	82.0	2205	—	0.75	13
B14	8470	4240	3100	4850	9.5	75.0	2700	—	1.14	16
B15	9850	4240	3100	4850	10.2	90.0	2700	—	1.10	18
B16	10340	4240	3600	5350	12.0	119.0	3200	—	1.50	21
B17	11540	4240	3600	5350	14.0	135.0	3200	—	2.20	30

Delivery & off-loading

BioDisc units are delivered by flat type vehicles and the larger units will require craneage for offloading.

Crane requirements vary considerably, dependent upon unit size and site conditions. It is advisable to make a preliminary access check with the crane hire company.

Installation

The Company offers a comprehensive installation and commissioning service, our engineers are also available to offer expert advice to clients wishing to carry out their own installation works.

The following notes are offered for general guidance only:-

Where the site conditions are favourable, excavate and lay a concrete base and backfill with a dry lean mix concrete consolidating as backfilling proceeds.

It is generally advisable to surround the tank in dense (1:2:4 mix) concrete, 150 mm thick and fill the tank with water through the backfill process.

Klargester

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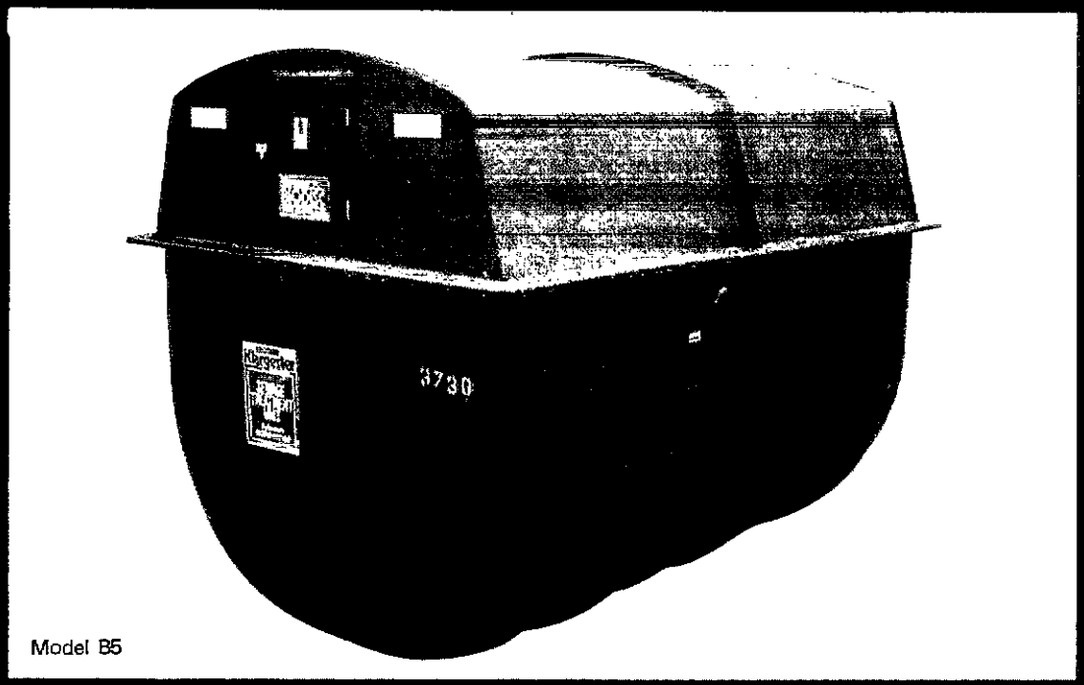


Model B5

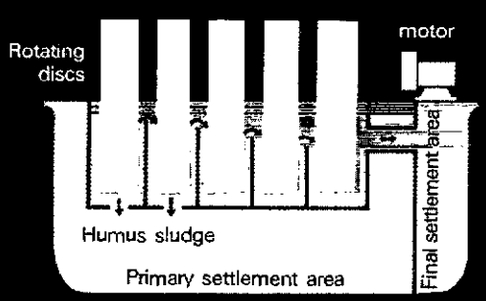


fig. 1

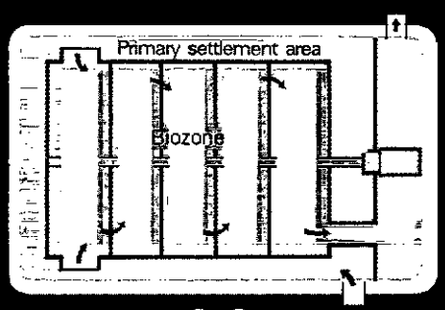
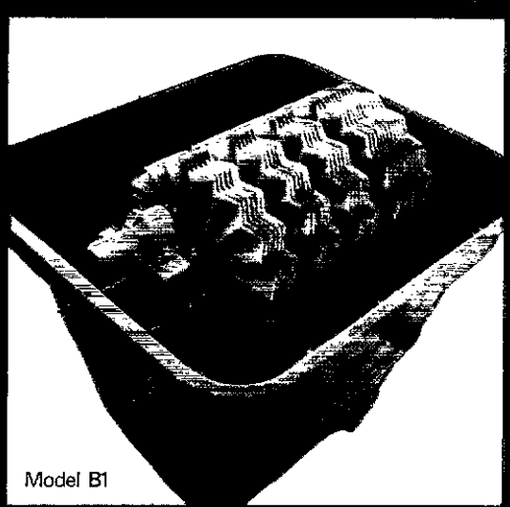


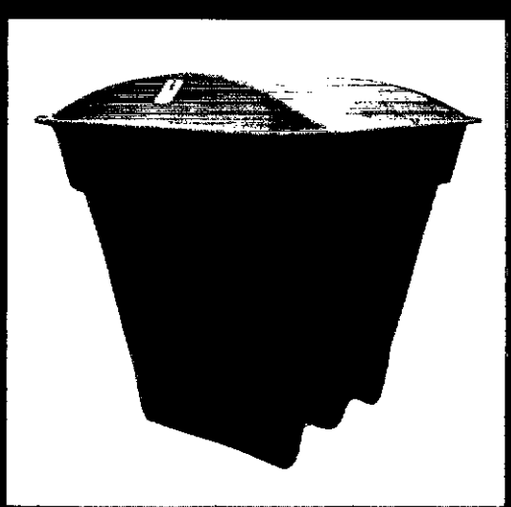
fig. 2

TYPICAL BIODISC LOADINGS

Biodisc Model	B1	B2	B4	B6	B8	B11	B14	B16	B17
Average Flow M³/d	0.3	1	3	6	12	20	40	70	100	150
BOD Applied Load Kg		0.9	1.6	3.6	6.0	12.0	21.0	30.0	45.0	



Model B1



For dimensions, weights and power requirements, see over

Manufactured under licence from AMES CROSTA BABCOCK Ltd.

Operating features

The Klargester (ACB) BioDisc relies on well established principles of biological purification. These principles have been applied using up-to-date biological methods and mechanical engineering techniques to give a treatment unit to meet today's needs.

BioDisc is compact, normally no additional items of tankwork are required.

BioDisc has excellent B.O.D. and hydraulic shock loading resistance — the treatment is carried out by captive film so that variations in flow do not cause "wash-out" as in activated sludge systems. Contact is extremely rapid and efficient because of the alternate submergence and draining.

BioDisc has low power requirements — the vertical orientation of the discs minimises resistance to rotation and the only power consumed is from a small electric motor geared to turn the discs at a slow speed.

BioDisc has low falls — discs in the reaction zone are arranged on a horizontal shaft and flow occurs by displacement with incoming waste water. Fall across the total unit is no greater than 300 mm.

BioDisc has excellent process stability — very little attention need be given to the unit after commissioning. A large sludge holding tank means that desludging is only required at 2-4 monthly intervals depending on unit size.

BioDisc produces readily settleable solids — extensive test work under a variety of conditions has shown that solids produced have good settling and de-watering characteristics.

BioDisc is enclosed which prevents tampering by unauthorised persons and eliminates danger to children. Enclosing the unit also prevents mal-operation in adverse weather conditions.

BioDisc may be installed and commissioned rapidly — units are delivered to site complete and ready for connection to influent and effluent pipes. Start up is rapid because of the highly efficient contact in the reaction zone.

BioDisc requires minimum excavation and civil engineering work — units may often be located above ground level on a simple concrete base. In other cases, it is only necessary to excavate a simple hole since the unit is self-contained. Klargester will advise on installation procedures or carry out installation themselves.

BioDisc requires little maintenance — construction of tank and covers is in corrosion free G.R.P. (glass reinforced polyester). Rotor bearings require lubrication annually or bi-annually depending on size.

Motors are weather-proofed and need servicing only at long intervals. Discs are biologically inert and do not require cleaning or replacement.

THE SPECIALISTS IN POLLUTION CONTROL

Klargester

AYLESBURY 630190

BRIEF INSTALLATION DETAILS FOR KLARGESTER BIODISC SEWAGE TREATMENT PLANTS

1) The installation of any particular unit should be carried out in accordance with the details shown on the relevant and current issue of Klargester's drawing.

2) Dig holes to dimensions indicated, making allowances for concrete backfilling, planking and strutting.

3) Keep excavation free from water.

4) Lay a concrete base to provide an adequate foundation (see Concrete Specification SK 296).

5) Lower the BioDisc Unit on to the base and set to correct levels for both inlet and outlet, the BioDisc flanges to be level in both directions.

6) Temporarily strut the BioDisc into position (5) and backfill with concrete, compacted in 200mm layers (see SK 296). As the concrete is placed around the unit, it should be ballasted with water at the same rate as concreting proceeds.

7) Withdraw planking and strutting as concreting proceeds.

8) Connect inlet and outlet drains.

9) Concrete up to levels indicated on the drawing.

10) Concrete in control panel in a position adjacent to the unit, it being essential that the control panel is close enough to ensure that nobody will enter the unit without first isolating it.

11) Connect up power supply to control panel and fit to motor/gearbox.

12) Connect up drive failure warning device and fix alarm unit.

13) Continue dewatering operations until the concrete is set.

14) Leave unit ballasted with water on completion.

15) In the event of problems, please contact Klargester Environmental Engineering Limited.

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BIO/89/1

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Klargester
AYLESBURY 630190

DESIGN CRITERIA AND BENEFITS OF BIODISC SEWAGE TREATMENT PLANTS

Unless otherwise stated, the following points need to be considered for all BioDisc applications.

1. The BioDisc is a single structure, self-contained, sewage treatment plant, which requires no other tank work on site, thereby minimising installation costs and land area required.

2. The mechanical simplicity of the BioDisc (no pumps, blowers or compressors) ensures extremely low running and maintenance costs, with the option available of either single or 3-phase equipment.

3. Individual BioDisc sizes are designed to treat specific daily sewage loadings in terms of flow (m^3) and pollution (BOD/kg) loading which are assessed from the information provided.

4. BioDisc design is based on provision of final effluent within the 20mg/litre BOD: 30mg/litre Suspended Solids Royal Commission Standard, which is normally acceptable for discharge direct to a ditch or watercourse, subject to formal consent of the Regional Water Authority. More stringent effluent standards may sometimes be required for which Klargester will make specific proposals.

5. The BioDisc is designed to treat domestic sewage with all trade effluent and surface water excluded from the system. Elsan waste from caravan parks and similar applications must also be dealt with separately.

6. Where commercial kitchens are served or any significant degree of catering takes place, a suitably sized grease trap must be installed externally and adequately maintained, so as to prevent ingress of grease or fats to the BioDisc as this may inhibit the plant's efficient performance.

7. Where commercial laundry facilities are proposed, details of flow rates, temperature and chemical cleaning agents are required to confirm compatability with our equipment.

8. Where any proposal includes the use of waste disposal units within the kitchen facility, this information will be required as there will be an increased overall pollutional (BOD/kg) loading of 30%.

9. Consistent final effluent quality and satisfactory treatment plant performance are subject to equipment being maintained in accordance with our recommendations and operation of the plant within its design parameters.

Please note all our products are now made under a BS5750 Quality Management Certificate.

BIO/89/2

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AYLESBURY 630190

POINTS FOR CONSIDERATION IN THE SITING AND INSTALLATION OF A BIODISC SEWAGE TREATMENT PLANT

1. Units should be sited in order that:

    a. Local Authority requirements are satisfied. (Normally 15 metres from the nearest habitable dwelling).

    b. Sufficient access to the unit is available to ensure efficient de-sludging.

    c. Access is available for delivery and maintenance.

2. Dimensions, standard inlet/outlet drain connection orientation and invert levels are shown on the relevant BioDisc drawing. It is possible to recess plants to accommodate inlet sewers provided:

    a. Minimum clearance of 1 metre around the unit is provided to allow for de-sludging/maintenance.

    b. Precautions are taken where necessary to prevent accumulation of ground water which may result in flooding of the BioDisc and subsequent failure of mechanical components, which are not designed for submerged operation.

    Extension GRP collars are available on certain units at extra cost, to afford additional protection on sites with particularly high water tables or in flood plains.

3. Where discharge of treated final effluent is to a receiving ditch or watercourse, attention is drawn to the need to ensure that outfalls are above top water levels at all times to prevent the drainage system surcharging.

4. Pumping systems are available to pump crude sewage to, or treated effluent from the BioDisc, should it not be possible to achieve gravity flow throughout the drainage system. Pumping to the plant would permit installation at high level, reducing civil works on difficult sites.

5. Klargester Environmental Engineering Limited personnel are always available for advice and assistance.

CONCRETE SPECIFICATION IN ACCORDANCE WITH (BS 5328 APPENDIX C).

TYPE OF MIX.		DESIGN
PERMITTED TYPE OF CEMENT.		BS 12 (OP) : BS 12 (RH) : BS 4027.
PERMITTED TYPE OF AGGREGATE (coarse and fine).		BS 882 : BS 1201
NOMINAL MAXIMUM SIZE OF AGGREGATE.		20 mm
GRADES.	C 25 (25 N/mm²)	REINFORCED & ABOVE GRD WITH HOLDING DOWN BOLTS
	C 20 (20 N/mm²)	REINFORCED (HIGH WATER TABLE) ETC.
	C 15 (15 N/mm²)	UNREINFORCED (NORMAL CONDITIONS)
MIN CEMENT CONTENT.	C 25 : C 20	240 Kg / M³
	C 15	180 Kg / M³
SLUMP.		25 mm
RATE OF SAMPLING. No OF CUBIC METRES PER SAMPLE.		5

KLARGESTER ENVIRONMENTAL ENGINEERING LTD.
COLLEGE ROAD, ASTON CLINTON,
AYLESBURY, BUCKS. ENGLAND,
Tel. Aylesbury 630190

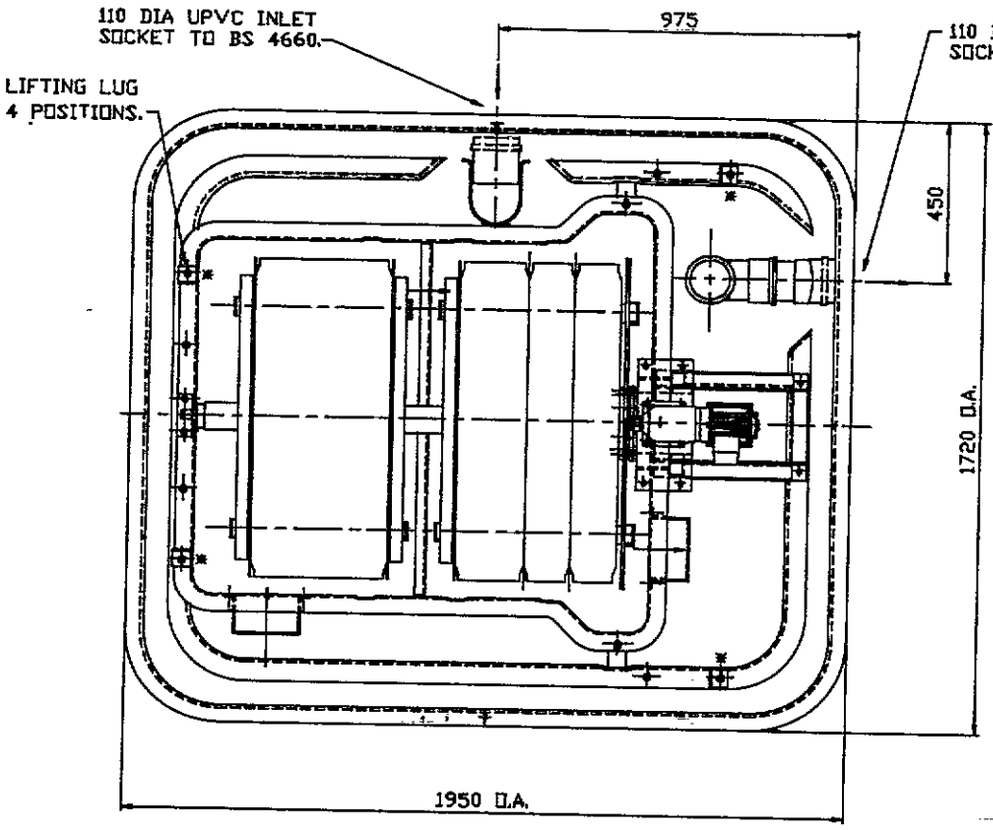
Title: CONCRETE SPECIFICATION.

JOB No.

DRG. No. SK 296.

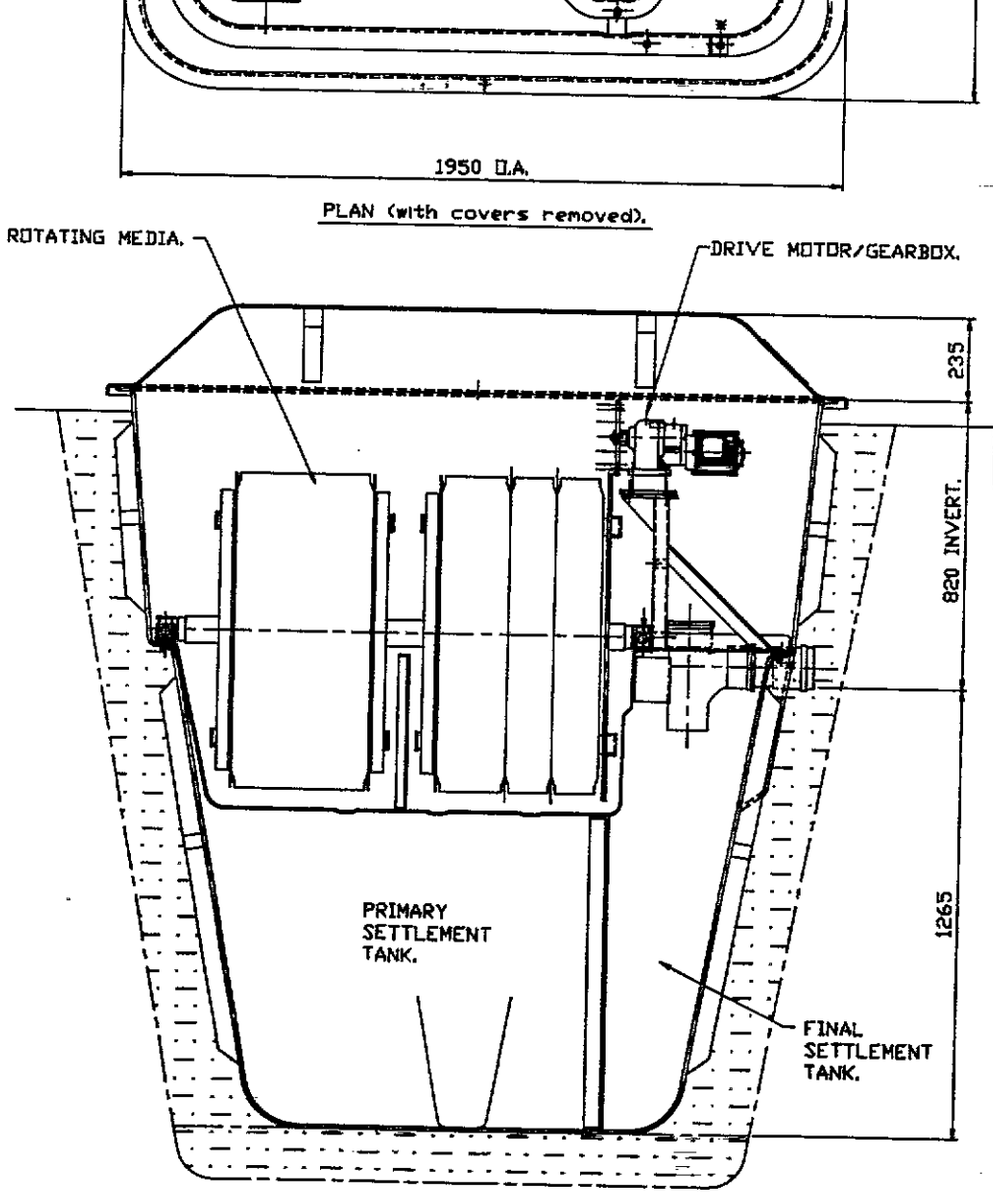
Drawn	A.M.	Issue	Date
Date	JULY 1978		
Scale	——		

KLARGESTER RESERVE THE RIGHT TO CHANGE SPECIFICATIONS WITHOUT NOTICE



PLAN (with covers removed).

GROUP DRA	
PRODUCT CODE	
B1/S/1	
B1/S/3	
B1/SG/1	
B1/SD/1	
B1/SD/3	
B1/SGD/1	

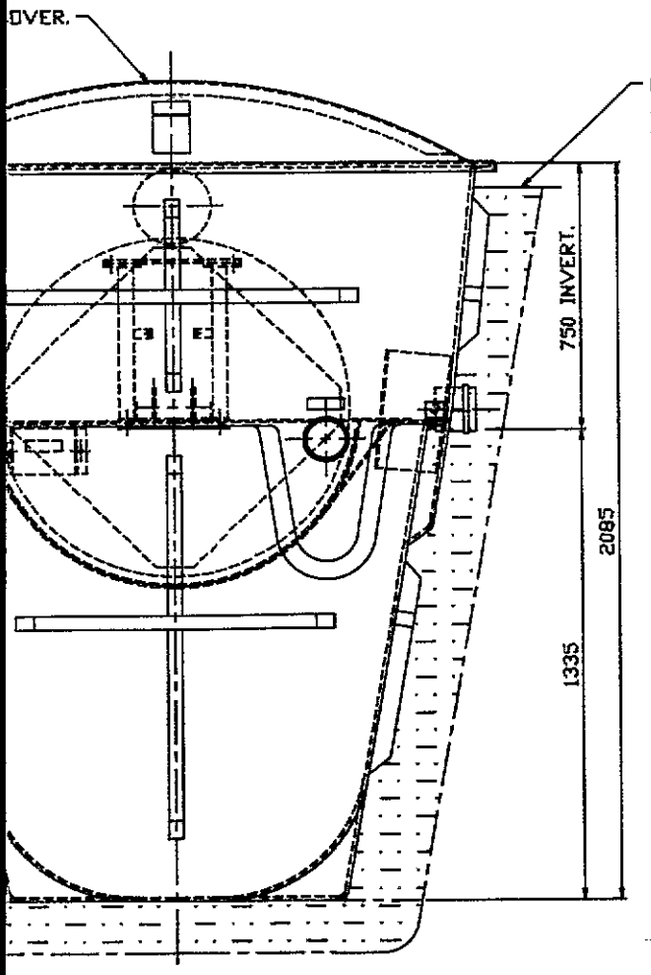


SIDE ELEVATION

WING B2-GR PRODUCT CODES.
DESCRIPTION
BIODISC MODEL B1 STANDARD INVERT SINGLE PHASE
BIODISC MODEL B1 STANDARD INVERT THREE PHASE
BIODISC MODEL B1 STANDARD INVERT SINGLE PHASE (SUB).
BIODISC MODEL B1 STANDARD INVERT SINGLE PHASE OPPOSITE HAND INLET
BIODISC MODEL B1 STANDARD INVERT THREE PHASE OPPOSITE HAND INLET
BIODISC MODEL B1 STANDARD INVERT SINGLE PHASE (SUB). OPP HAND INLET.

NOTES:-

1. BIODISC TANK & COVER ARE MANUFACTURED IN GLASS REINFORCED PLASTIC (G.R.P.) CASING IS FINISHED IN GREEN TO BS 4800 TINT 12:B:21 COVER TO BE TINT 12:B:25.
2. FOR DESLUDGING PROCEDURE SEE MAINTENANCE HANDBOOK.
3. ELECTRICAL SUPPLY:- 240 VOLTS, 2 AMPS, SINGLE PHASE.
4. BIODISC MUST BE INSTALLED WITH THE TOP FLANGE TRUE & LEVEL WITH THE HORIZONTAL PLANE.
5. FOR CONCRETE SPECIFICATION SEE KLARGESTER E.E. LTD DATA SHEET SK 296.
6. FORMATION LEVEL TO BE APPROVED, & ALL SOFT OR UNSUITABLE GROUND EXCAVATED & LEVEL MADE UP IN MASS CONCRETE OF 1:10 MIX.
7. FOR ABOVE GROUND APPLICATIONS OR ADVICE CONCERNING DIFFICULT SITE OR SOIL CONDITIONS ETC. PLEASE CONSULT KLARGESTER E.E. LTD.
8. INSTALLATION NOTES ON THIS DRAWING ARE FOR GUIDANCE ONLY & KLARGESTER E.E. LTD ACCEPT NO RESPONSIBILITY FOR CIVIL DESIGN UNLESS DIRECTLY CONSULTED FOR INDIVIDUAL PROJECTS.
9. BIODISC MUST ONLY BE LIFTED BY LUGS PROVIDED.
10. 1M MINIMUM CLEAR SPACE SHOULD BE ALLOWED AROUND UNIT FOR ACCESS & REMOVAL OF COVER.
11. CABLE ENTRY GROMMET IS SUPPLIED LOOSE, TO BE FITTED IN OPTIMUM POSITION BY CLIENT.
12. FOR DEEPER DRAIN INVERTS A 500mm EXTENSION CAN BE BUILT INTO UNIT DURING MANUFACTURE TO GIVE A MAX INLET INVERT OF 1250mm.



VIEW ON DRIVE END.

WEIGHTS Kgs.	
EMPTY	FULL
340	2400

ISSUE	DATE
9	08.3.90
8	07:11:89
7	18.12.88
6	29.3.88

THIRD ANGLE PROJECTION

ALL DIMENSIONS ARE IN MILLIMETRES – DO NOT SCALE

Klargester
PRODUCTS DIVISION
KLARGESTER ENVIRONMENTAL ENGINEERING LTD.
COLLEGE ROAD, ASTON CLINTON, AYLESBURY
BUCKS. HP22 5EW Tel: (0296) 630160

TITLE: BIODISC MODEL B1.

DRAWN	A.M.O	DATE	23:05:85
SCALE	1/10	CHECKED	MGB.

DRAWING No. B1-GR ISSUE 9

AN ROINN COMHSHAOIL

OUTLINE SPECIFICATION

FOR THE ERECTION OF A GRANT TYPE HOUSE

ISSUED BY THE DEPARTMENT OF THE ENVIRONMENT

BAILE ÁTHA CLIATH:
ARNA FHOILSIÚ AG OIFIG AN tSOLÁTHAIR.

ceannach díreach ón
OIFIG DHÍOLTA FOILSEACHÁN RIALTAIS, AN STUARA, ARD-OIFIG AN PHOIST.
BAILE ÁTHA CLIATH, 1.
nó trí aon díoltóir leabhar.

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Price 40p

INTRODUCTION

This is an outline specification for the guidance of persons erecting a dwelling house, describing minimum requirements, and is not compiled for use as a contract document. Where a development contains more than one house a fully detailed specification may be required.

The work throughout shall be executed in a proper and workmanlike manner using the best available materials of their kind, and, as far as possible, manufactured or produced within the E.E.C. All materials and workmanship necessary for the proper completion of the work, or required by good building practice, are to be taken as being specified.

Where it is intended to use methods of construction or materials not described in this specification full details shall be submitted to the Department of the Environment.

The works shall also comply with:—

(a) Relevant Irish Standard Specification (I.S.) or British Standard Specification where there is no Irish equivalent, or Provisional Specifications as above.

(b) National Building Regulations (if any).

(c) Local Authority Bye Laws, regulations or requirements.

(d) The regulations and requirements of Public Utilities (e.g. E.S.B., Posts and Telegraphs, Gas undertakings).

(e) Accepted Codes of Practice.

(f) Requirements of the Department of the Environment.

Section 1 EXCAVATIONS AND SUB-STRUCTURES

1.1 Site

The site shall be adequately drained and have no features likely to render the house unstable or uninhabitable.

1.2 Preparing Site

Clear and grade site for new building and remove or divert existing drains as required. The entire site of buildings and paved areas shall be cleared of all vegetable soil to a depth of at least 150 mm. Where the bearing quality of the ground is suspect special care shall be taken in the design of the foundations.

1.3 Excavation

1.3.1 The trenches shall be excavated to the depths and widths required to accommodate foundations or to such further depths or widths as may be necessary to ensure the stability of the structure. Trench bottoms and foundations shall be levelled off in horizontal benches. The bottom of trenches shall be not less than 450 mm below the finished ground level and kept clear of water before concreting.

1.3.2 Where other excavations close to or under the foundations are unavoidable care shall be taken to ensure the stability of the structure.

1.4 Foundations

Shall be concrete mix A, to widths and depths indicated and reinforced as necessary. Where foundations are stepped they shall overlap at least 600 mm.

1.5 Floor Level

The height of the finished floor over the highest point of the finished ground level shall be not less than 350 mm in the case of joisted floors and not less than 175 mm in the case of concrete floors. See also 2.24.

1.6 Rising Walls

Rising walls shall be of solid blockwork bedded in cement mortar, or of mass concrete, mix A to widths and heights indicated. See also 2.4.

1.7 Cement

Normal Portland Cement shall be in accordance with I.S. 1 and stored under dry conditions.

1.8 Lime

Hydrated lime to be to I.S. 8.

1.9 Water

Water shall be clean and free from harmful impurities.

1.10 Sand and Aggregates

Fine aggregates shall be clean, sharp pit or river sand free from all impurities and in accordance with I.S. 5. Coarse aggregates shall be suitably graded hard clean pit gravel or crushed stone in accordance with I.S. 5 and to sizes set out below.

1.11 Concrete Mixes

Concretes	Aggregates	Nominal Mix			28 day Strength (Newtons) Per mm²
Mix	Maximum Size	Cement	Fine Aggregate	Graded Coarse Aggregate	
A	40 mm	1	3	6	14
B	20 mm	1	2	4	21
C	14 mm	1	3	6	—

The water-cement ratio shall be kept to the minimum needed to ensure reasonable workability, but should not exceed 35 litres per 50 Kg of cement.

1.12 Cement Mortar
Shall be 1 part cement to 3 parts sand.

1.13 Lime Mortar
Shall be 1 part hydrated lime to 6 parts sand.

1.14 Gauged Mortar
Shall be 10 parts lime mortar mixed with 1 part cement just before use.

1.15 Strong Gauged Mortar
Shall be 5 parts lime mortar mixed with 1 part cement immediately before use.

1.16 Additives
Plasticisers, waterproofers, sealers and bonding agents if used, shall be used in accordance with manufacturer's instructions.

Section 2 BLOCKLAYING AND CONCRETING

2.1 Thermal Insulation
Attention is drawn to the need to insulate walls, floors and roofs to meet the requirements set out in Section 14.

2.2 Mixes
See Section 1 for concrete and mortar.

2.3 Blockwork
Concrete blocks shall be in accordance with I.S. 20 and bricks, if clay, in accordance with I.S. 91.
All blockwork and brickwork shall be properly coursed and bonded and bedded in gauged mortar.
All walls shall be carried up regularly not leaving any part 1 m lower than another.

2.4 Cavity Walls
Walls shall be formed of two solid 112 mm leaves of blocks or bricks with 50 mm cavity between. Outer and inner leaves to be tied together by accepted wall ties, not less than four per square metre with extra ties at opes. Care to be taken that mortar dropping into the cavity or lying on ties, is cleaned out, through openings left for the purpose. Head of cavities to be closed in the solid. All window, door and other opes in cavities to be sealed and so arranged as to prevent the passage of moisture. The cavity is to extend at least 150 mm below the level of the D.P.C. and shall provide for drainage of moisture to the outside, at the base.

2.5 Hollow Block Walls
225 mm hollow blocks shall be plastered externally. Bedding mortar shall be confined to abutting surfaces, and shall not enter the cavities of the block.

2.6 Solid Block Walls
225 mm solid concrete blocks shall be plastered externally.

2.7 Solid Brick Walls
Solid brick walls shall be 337 mm thick, and weather-pointed.

2.8 Masonry Walls
Masonry walling, where used, must not be less than 500 mm thick.

2.9.1 Facings
Where stone or other decorative external facing is used, care must be taken to ensure adequate structural stability, thermal insulation and absence of damp penetration.

2.9.2 Opes in External Walls
Where any duct, pipe, etc., is required to penetrate through an external wall it shall be so arranged as to prevent the passage of moisture inwards.

2.10 Pointing

All wall faces finished without plastering shall be pointed in the building mortar as the work proceeds, or the joints may be taken out 20 mm deep and pointed in cement mortar.

2.11 Party Walls

All party walls shall be 225 mm solid blockwork of density not less than 1,500 kg/m^3, plastered both sides and carried up in the solid to the plane of the upper surface of the rafters. See also 5.7.

2.12 Solid Partition

Solid partitions shall be 112 mm thick brick or block work, laid to break joint, in gauged mortar, bonded 112 mm at junctions.

2.13 D.P.C.

The damp-proof courses shall be polythene in accordance with B.S. 743 or bitumen sheeting on hessian or canvas base in accordance with I.S. 57 laid to prevent the passage of moisture and lapped adequately at joints, all as described below.

2.13.1 In all ground floor walls and breasts to full width and stepped as necessary, in cavity walls in both outer and inner leaves separately, and shall be laid not less than 150 mm over finished ground level or paved area or highest ground within one metre of house.

2.13.2 At sides of opes in cavity walls and over all opes 250 mm longer than opes and stepped down and outward all to prevent passage of moisture from outer to inner leaf.

2.13.3 Under the turned up at ends and back of all cills and external room ventilation grids and recessed edges of all concrete roof slabs.

2.13.4 In all chimney stacks immediately above the level of the flashing and under all cappings and copings.

2.13.5 Under lowest ground floor timbers and not lower than wall D.P.C.

2.13.6 Where the waterproofing membrane in a concrete floor is not level with the wall D.P.C. care shall be taken to ensure continuity of damp proofing by stepping, turning up and lapping as necessary.

2.14 Concrete Under Barges

Concrete barges, if used, shall be under slates or tiles, full width of walls and at least 75 mm thick and projecting 100 mm beyond the face of the wall, throated on the underside, suitably reinforced and tied back as necessary. See also 5.7.

2.15 Concrete Copings

Concrete copings in lengths of not more than 1 metre, shall be weathered and throated, bedded in gauged mortar on D.P.C. and pointed in cement mortar.

2.16 Lintels

Concrete lintels mix B cast in situ shall be 225 mm deep with 225 mm bearing at each side of the ope, and shall be reinforced for full length with one 10 mm mild steel for every foot of span. Bars are to be placed 25 mm from bottom of lintel. Lintels for opes greater than 2.5 m shall be specially designed. Precast concrete lintels to be as above and in addition to have 2 No. 10 mm mild steel bars at the top with 25 mm cover and to be clearly marked for correct placing. Accepted patent or proprietary lintels to B.S. 1239 to be used in accordance with manufacturer's instructions.

2.17 Window Cills

Concrete window cills shall be to I.S. 89, 65 mm thick on front face, 120 mm thick at back, and 225 mm wider than ope; reinforced adequately, seated, rebated, weathered and throated and set in gauged mortar on D.P.C. as previously specified. Care to be taken that the throating is clear of the finished wall face.

2.18 Reinforced Concrete Annexe Roofs

2.18.1 Concrete roofs, mix B shall be 40 mm thick for each metre of span, with minimum thickness of 100 mm, fine screeded and laid to falls. Where roof is recessed into a wall, form 150 mm upstand on

D.P.C. properly flashed over. The roof shall be projected 150 mm and throated at verges, with a raised fillet as necessary to prevent overspill of surface water.
Insulate underside of roof. Waterproofing additives or sealants, if used, shall be applied in accordance with manufacturer's instructions.

2.18.2 Concrete roofs shall be reinforced adequately. For example, an area 5 m x 3 m should have 12 mm mild steel bars at 150 mm centres across the short span and 6 mm bars at 300 mm centres on the 5 m span. Steel to be placed 25 mm above underside of slab and carried over bearing walls to within 25 mm of edge of slab. Reinforcing bars should not normally be lapped, but where unavoidable, the lap shall be not less than 500 mm.

2.18.3 Proprietary steel reinforcing mesh may also be used, in accordance with manufacturer's instructions.

2.19 Chimney Breasts and Stacks

2.19.1 Chimney breasts shall be built of solid concrete blocks or decorative blocks or bricks or stone, all to a thickness of not less than 112 mm bedded in gauged mortar with splayed R.C. lintel over fire ope. Each fireplace recess shall have 200 mm solid incombustible material to sides and back excluding any fireback, carried up to full height of recess. Each fireplace shall have an independent flue, separated by not less than 100 mm of solid incombustible material (excluding the thickness of any flue liner) from any other flue. Each flue shall be lined with fireclay liners to I.S. 51 not less than 200 mm internal diameter, backed with weak mortar and carried 150 mm above capping. Splayed liners shall be used in forming bends to flues. Chimney stacks over roof shall be built of 112 mm solid concrete blocks bedded in gauged mortar and plastered or, where special precautions are taken, of decorative blocks, bricks or natural stone. Due to the exceptional exposure of stacks the use of decorative blocks, bricks or natural stone in stacks may cause dampness. Special care in construction and in the design and placing of the D.P.C. is necessary.

2.19.2 Capping to stack shall be of reinforced concrete, mix C, weathered and throated, not less than 75 mm thick at edge and flaunched up around pots. Top of stack, excluding chimney pots, to be 600 mm over ridge where stack is within 600 mm of the ridge.

2.19.3 Care should be taken that construction and height of stack is such as to ensure adequate structural stability and satisfactory drawing of smoke.

2.20 Fireplaces, Heating Units, Cookers

Fireplaces to have a fireclay back and incombustible surround and to be properly gathered into flue. Enclosed cookers and heating units to be fitted to manufacturer's instructions, with incombustible flue, ventilated as necessary and shall stand on a concrete hearth projecting 150 mm from face of appliance all round.

2.21 Hearths

First floor hearths shall be 125 mm thick reinforced concrete, mix B, finished fine carried on suitable formwork on 44 mm x 22 mm battens spiked to floor joists.
Ground floor hearths shall be 125 mm, finished fine, on hardcore as necessary.
All hearths to be 150 mm wider than fire ope on each side and to project 500 mm from face of breast.

2.22 Paved Yard

Provide 10 m^2 of impervious paved area laid to falls on suitably prepared base and adjacent to back door e.g. 100 mm concrete, 50 mm tarmacadam or 50 mm paving slabs.

2.23 Concrete Floors

All concrete ground floors shall be laid on a bed of clean hardcore not less than 150 mm thick and well consolidated. Soft material shall not be used in making up level under floors. Concrete ground floor shall be 150 mm thick mix B finished fine, laid on a continuous damp proof membrane on a layer of fine sand and turned up at edges of slab as necessary to meet and seal with wall D.P.C. Polythene sheeting where used shall be not less than 1000 gauge.

2.24 Sub Floors

Concrete sub-floors to joisted timber floors shall be laid on 100 mm of hardcore as described in 2.23. Concrete shall be mix A, 100 mm thick, and finished to a level not lower than the highest adjoining ground.

2.25 Dwarf Walls
Dwarf walls 112 mm thick concrete block or brick, honeycombed for through ventilation shall be built on sub-floors, at centres not greater than 2 metres.

2.26 Suspended Concrete Floors
Where concrete suspended floors or stair landings or balconies are used, they should be finished fine and capable of carrying a superimposed load of 1.44 KN/m^2. Exposed soffits shall be insulated where necessary.

2.27 Screen and Garden Walls
Screen or garden walls shall not abut main walls of house.

Section 3 CARPENTRY AND JOINERY

3.1 Timber
Timber shall be sound, free from disease and infestation and large loose knots or waney edges, with a moisture content within the limits set out in I.S. 96. Timber for carpentry to be white deal. Timber for joinery to be red deal, hard wood or other timber suitable for the purpose and free from all defects.

3.2 Preservative
Soft wood used externally, to be pressure impregnated with coloured preservative. Softwoods in contact with concrete to be treated with coloured preservative. Frames, barge-boards, fascias to be primed before fixing.

3.3 Roof Timbers

3.3.1 Wall plates 75 mm x 100 mm fully treated with preservative, halved and spiked at headings and angles, set level and bolted down at 1 m intervals.

3.3.2 Rafters 35 mm x 115 mm minimum at 400 mm centres, treated at feet with preservative, and cut to angles, checked and twice spiked to wall plates, properly aligned to back and spiked to ridge and purlin.

3.3.3 Trimming rafters 44 mm thick around roof light and dormer opes and around chimney shafts and 50 mm clear of shaft.

3.3.4 Hip and valley rafters 44 mm x 225 mm treated at feet with preservative and fixed as for rafters above.

3.3.5 Valley and gutter boards 22 mm x 225 mm wrot, to take gutter, treated with preservative and secured to rafters.

3.3.6 Ridge board 32 mm x 175 mm set level, kept 50 mm clear of chimney shaft.

3.3.7 Purlins 75 mm x 175 mm adequately supported at intervals of approximately 2 m. Joints, where necessary, shall be half lapped over a support.

3.3.8 Struts 75 mm x 100 mm properly supporting purlins from solid bearing, or from spreaders not more than 500 mm from load bearing partitions. Where such bearing support cannot be provided, suitably trussed rafters or purlins shall be used to ensure stability.

3.3.9 Spreaders and thrust pieces 44 mm x 115 mm under struts, spiked to ceiling joists to distribute load.

3.3.10 Collar ties 35 mm x 115 mm to every rafter. Where purlins are provided, fix collars to every fourth rafter. All collars to be twice spiked to rafters.

3.3.11 Hangers and runners 35 mm x 75 mm where necessary to support ceiling joists.

3.3.12 Soffit bearers 35 mm x 75 mm to every rafter, treated with preservative.

3.3.13 Soffit at least 200 mm wide 16 mm wrot softwood, pressure impregnated or other material suitable for external use and secured to bearers.

3.3.14 Fascia 32 mm x 175 mm wrot deal, well secured to roof timbers and pressure treated.

3.3.15 Ceiling joists 35 mm x 115 mm at 400 centres, cut to angles and twice spiked to rafters. Where not in one length, form 500 mm securely spiked lap over partition walls.

3.4 Roof Trusses

Roof trusses to I.S. 193 (P), adequately braced diagonally, may be used at centres not greater than 600 mm. See also 5.2.

3.5 Floor Joists

3.5.1 First floor joists 35 mm x 175 mm at 350 mm centres for spans up to 3 m, 35 mm x 225 mm at 350 mm centres for spans up to 5 m. All to have one row 35 mm x 44 mm herring-bone bridging or 35 mm x depth of joist solid bridging. Joist to be doubled where carrying partition.

3.5.2 Trimmers and trimming joists 75 mm thick x depth of joist to opes and chimney breasts and kept 50 mm clear of breasts. Trimming and trimmed joists to be supported by approved fittings or to be checked on to battens spiked to supporting joist.

3.5.3 Ground floor joists 35 mm x 115 mm at 350 mm centres, to be spiked to wall plates (tassels). Trimming timbers to be 44 mm thick x depth of joist.

3.5.4 Ground floor tassels 44 mm x 75 mm treated with preservative set level and bearing solidly on D.P.C.

3.6 Ventilation

Provide through ventilation under timber ground floors by means of 225 mm x 150 mm metal or concrete louvred ventilators in external walls. Sealed ducts to be formed through cavities in external walls. Openings to be left in tassel walls and in rising walls of partitions and piped ducts to be formed under intervening concrete floors to ensure through ventilation. Space from surface of sub-floor to underside of bottom of ground floor joists to be not less than 125 mm.

3.7 Flooring

3.7.1 Remove all debris from sub-floors before flooring. Flooring 22 mm T & G well cramped, twice nailed with 60 mm cut brads, in narrow widths to minimise the effects of cupping and shrinkage or 18 mm flooring grade chipboard, density 700 kg/m^3 on joists at 400 mm centres with 44 mm x 44 mm noggins to support cross joints. Long joints shall be made along the centre of a joist. Adjacent sheets shall have an expansion gap of 3 mm between them, with 20 mm gap between edges of sheets and adjoining walls, the edges being treated with fungicide. Sheets should be fixed at 300 mm centres and not nearer than 12 mm to edge of sheet. Exposed chipboard floor surfaces to be sealed with resinous sealer.

3.7.2 Suspended floors. Where soffit of suspended floor is exposed externally insulate as necessary and sheet with material suitable for external use and having half hour minimum fire rating.

3.8 Grounds

Pretreated timber grounds shall be securely built in, to provide means of fixing frames and trimmings.

3.9 Stud Partitions

Studs, head and sole pieces, and bridging 35 mm x 75 mm. Studs at 350 mm to 400 mm centres. Sole piece to be well spiked to floor and if parallel to joists, shall be carried on doubled joist. Provide 2 No. rows of nogging. Where a partition is load bearing increase timber sections as required. For finish see 6.6.

3.10 Proprietary Partitions

Accepted proprietary partitions, erected to manufacturer's instructions, may be used.

3.11 Stairs

Stairs shall have 2 m headroom measured vertically from the pitch line and 1.5 m clearance measured at right angles to the pitch line; width 860 mm, going 220 mm minimum, rise 200 mm maximum.

3.12 Lighting to Stairs and Landings

3.12.1 Lighting to stairs, landings, halls and corridors shall be provided by a suitably placed window or roof-light or borrowed lighting from rooms.

Rest of Stairs

3.12.2 Stairs shall have 32 mm red deal round nosed treads and 22 mm risers all glued blocked and bracketed checked and wedged into 44 mm strings. Newel posts, balusters and hand rails to be standard machine prepared sections or suitable steel/timber combination. Open treads shall be not less than 44 mm hardwood, and may be used in accepted special construction with timber, steel or reinforced concrete.

3.12.3 Every flight shall be adequately protected on each side and have at least one handrail, secured at a height not less than 840 mm and not more than 1 m measured vertically from the pitch line.
Closed string stairs shall be to I.S. 158.

3.13 Windows

Sliding, hung or pivoted timber sashes and frames to be made from standard machine-prepared sections pressure impregnated with preservative.
Wood casement windows shall be to I.S. 63.
Galvanised steel casement windows shall be to I.S. 60.
Aluminium or P.V.C. windows of accepted make may also be used, in accordance with manufacturer's instructions.

NOTE. Glazed area to be not less than 10% of floor area of room.
Opening area to be not less than 5% of floor area of the room.

Window boards shall be 32 mm wrot, moulded on edges and corners and secured to grounds.

3.14 External Door Frames

External door frames shall be machine prepared 75 mm x 115 mm in wrot deal, rebated in the solid, secured to grounds and dowelled at foot to heel blocks.

NOTE. Under no circumstances should feet of external door frames rest on, or be set into, concrete paving or step.

3.15 Internal Door Frames

Internal door frames shall be 35 mm thick wrot deal with 16 mm planted stops or 44 mm thick wrot deal rebated in the solid, secured to grounds.

3.16 External Door

External doors shall be to I.S. 48 or I.S. 52, hung on 1½ pair 100 mm steel butt hinges.

3.17 Internal Door

Internal doors to habitable rooms shall be to I.S. 48 or I.S. 52 hung on 1 pair 100 mm steel butt hinges. Sliding doors to be not less than 44 mm thick and hung on acceptable proprietary track.

3.18 Trap Door

Form trap door 500 mm square of half hour fire rating suitably located to give access to roof space.

3.19 Hot Press

Hot press to have not less than $2m^2$ of spar shelving, 22mm x 44mm wrot, at 75mm centres supported on 22mm x 44mm battens. Where necessary, the cylinder shall be carried on 22mm T and G on 35mm x 75mm framed bearers. Hang suitable door, framed to prevent warping and fitted with suitable catch. Holes for pipes etc. to be neatly made good.

NOTE. Hot press doors are very liable to distort due to temperature differences. Consideration should be given to insulating the inner face of the door.

3.20 Fitments
All fitments and built-in units shall be of such design, material and workmanship so as to satisfy completely the demands of normal usage.

3.21 Trimmings

3.21.1 Skirtings 16mm x 100mm wrot deal to all floors well fixed to grounds. Plastic skirtings may be used where appropriate.

3.21.2 Architraves may be 16mm x 75mm wrot deal or as necessary to form neat joint, mitred at angles and securely fixed to grounds.

3.21.3 Saddles shall be hardwood, cut of 22mm x 150mm splayed, scribed to door frames and secured to floor. For external doors accepted proprietary thresholds may be used.

Section 4 IRONMONGERY AND GENERAL

4.1 Eave Gutters and Rain Water Pipes
Eave gutters and rain water pipes shall be to relevant I.S.S. and may be:-

GUTTERS	I.S.	PIPES
125 mm	42	75 mm Cast iron
125 mm	59	75 mm 14 SWG galvanised pressed steel
125 mm	71	75 mm Asbestos cement
125 mm		75 mm Aluminium
115 mm		65 mm P.V.C.

Metal and A.C. gutters to be supported on suitable brackets at not more than 2m centres, joisted with mastic compound (and gaskin washers in the case of asbestos cement) and bolted with galvanised gutter bolts and nuts. P.V.C. gutters to be supported on suitable brackets at not more than 1m centres and jointed in accordance with manufacturers instructions. Gutters to be set to falls. At least two stacks of rain water pipes shall be provided secured by holder brackets and kept clear of wall. Provide and fit all necessary matching stop ends, angles and drop nozzles, swannecks, hopper heads and toes. Rainwater pipes to discharge approximately 50mm above gully grid.

4.2 Windows
See 3.13.

4.3 Sash Fittings
All opening sashes shall be fitted with strong metal fasteners. Centre pivoted, top, side or bottom hung sashes to have suitable stay gear. Up and down sashes shall be hung on brass bushed and faced steel sash pulleys with suitable sash cords and weights or on accepted patent hanging gear.

4.4 Door Fittings
Internal doors shall be hung on one pair 100mm steel butt hinges and fitted with suitable mortice type lock or catch and complete with furniture. Provide bolt or locking device to bathroom and toilet doors.

External doors shall be hung on 1½ pair of 100mm steel butt hinges. Entrance door shall be fitted with cylinder night latch and external pull handle. Provide and fit letter place on or near door. Other external doors shall be fitted with bolt and rim or mortice lock suitable for external use. See 12.1.3.

4.5 Ventilation Grids
External openings to ventilators shall be fitted with galvanised cast iron, aluminium, concrete, or accepted P.V.C. louvred grids. See 2.13.3.

Section 5 ROOFING

5.1 Sarking Felt

Untearable sarking felt to I.S. 36 shall be laid under all slates and tiles, lapped horizontally not less than 75 mm for pitches greater than 25° and 150 mm for lesser pitches, carried down into eave gutters. Side lap shall not be less than 150 mm for pitches over 25° and 500 mm for lesser pitches. Felt to be carried fully over ridge board.

5.2 Laths or Battens

Laths or battens shall be 44 mm for rafter spacings not greater than 400 mm. For spacing up to 600 mm battens not less than 44 mm x 44 mm shall be used. Tilting fillet to be provided at eaves where necessary.

5.3 Quarry Slates

Quarry slates shall be laid to a minimum pitch of 30°, lap 100 mm fixed with 2 No. 10 gauge galvanised slating nails double course at eaves, and slate and a half at verges, with slate slip under.

5.4 Asbestos Cement Slates

Asbestos cement slates shall be to I.S.7. The normal pitch for asbestos cement slates shall be 30°, lap 100 mm. Each slate shall be fixed with 2 No. 10 gauge 35 mm galvanised nails and copper crampion at bottom. Provide double course at ridge and treble course at eaves.

Asbestos cement slates may be laid at a pitch lower than 30° in special circumstances.

5.5 Concrete Roofing Tiles (normal pitch — 30° and over)

Concrete roofing tiles (normal pitch) shall be to I.S.3 laid to a pitch of not less than 30°. Every tile in every alternative course to be fixed with 1 No. 50 mm 10 gauge galvanised nail. Lap 75 mm clear of nail hole. Pantiles shall be closed at eaves with a course of plain tiles or slate underclock and suitably coloured sand/cement pointing. Alternatively patent eave closer and filler clip may be used.

5.6 Concrete Tiles (low pitch — under 30°)

Low pitch concrete tiles shall be laid in accordance with manufacturers instructions and to the minimum pitches accepted by the Department which may not be as low as those recommended by the Manufacturers.

5.7 General

Slates and tiles to be neatly trimmed where necessary. Part tiles and slates to be adequately secured.

Drip overhang to be provided at eave and valley gutters.

At verges slates or tiles shall oversail wall face or barge, by at least 25 mm in the case of slates and 50 mm in the case of tiles, and shall be neatly pointed in suitably coloured sand/cement mortar.

Ridge and hip tiles shall be bedded in gauged mortar and pointed with cement mortar, suitably coloured; bedding and pointing to be done in one operation.

Provide suitable hip hooks, screwed to end of hip rafters. In industrial atmospheres special nails may be necessary. Over party walls the space between battens shall be filled with mortar to complete fire stop.

5.8 Flashings

Valley gutters, cover flashings and flashings to chimneys shall be

(1) No. 5 lead to B.S. 1178
(2) 22/24 gauge medium hard copper
(3) 20 gauge super-purity aluminium. (18 gauge to valleys and parapet gutters).
(4) accepted proprietary systems.

To chimney, flashing shall consist of aprons, soakers and cover flashings. The latter shall be secured in a chase in concrete block chimneys, wedged and pointed in with cement fillet formed over. To brick chimneys cover flashings shall be stepped, wedged and pointed into brick joints. Saddle pieces shall be provided at all ridges and roof intersections. Valley gutters shall be laid on felt on 20mm x 225mm wrot boarding treated with wood preservative, and turned up at edges under roof felt tiles or slates.

5.9 **Felted Flat Roofs**

Wall plates 44mm x 75mm fixed as described. Joist sizes according to span, spaced to suit decking and pitched or firred to fall of 1 to 80. Roof to project 200mm beyond face of wall, or finish with a parapet with 150mm upstand, suitably capped and flashed. Fascias and soffits as previously described. Decking 22mm T & G laid as for floors, plywood, or chipboard not less than 600 kg/m^3 of thickness.

12 mm for joists (rafters)	at 300 mm centres
15 mm for joists (rafters)	at 400mm centres
18 mm for joists (rafters)	at 500 mm centres

or proprietary decking to manufacturers instructions. Angled wood fillets at upstands and verges out of 75 mm x 75 mm.

Plywood, chipboard or wood wool decking must be kept dry at all times and should be felted immediately after fixing. Any sheets which have been allowed to get wet must be replaced, as their strength has been seriously impaired.

First layer of felt 1 ply, close random nailed all over with galvanised clout nails. Second layer 2 ply stuck down all over with special mastic solution or hot bitumen.

Final layer as for second. Each layer in reverse directions, final layer parallel to eave carried over 22mm x 44mm batten (on fascia) at eaves and down into gutter. Felt at verges to be properly finished with welted apron dressed back over champhered verge fillet. Final layer shall be mineral surfaced, or alternatively covered with light coloured pebbles or chippings stuck on suitably, or as required by local authority. On pitched roof the final layer of felt shall be laid at right angles to eave and lapped away from the prevailing wind. The pitch shall not exceed 20^{o} and the timbers shall be as described in 3.1 and 3.2. Insulate as necessary.

Section 6 PLASTERING

6.1 **External Plastering**

225mm hollow block, 225mm solid block and chimney stacks:-
scud walls in 3:1 sharp sand and cement. Apply 2 coats of plaster (1 cement: 1 lime: 6 sand). The total thickness of plaster shall be 20mm minimum. The second coat to be finished nap or smooth or combed for rough cast or pebbledash; or prepared for proprietary finish.

275mm cavity walling may be scud and one coat 1:1:6 plaster approximately 13mm thick and finished as above.

6.2 **Rough Cast**

Rough cast shall consist of 5-6 parts washed sand and pebbles: 1 part lime: 1 part cement.

6.3 **Reveals**

Plaster reveals to opes shall be 20mm thick and finished smooth with scored drip groove to soffit of head. All arrises shall be neatly finished.

6.4 **Plinths**

Plaster plinths to be finished smooth, and neatly cut off or weathered at top edge.

Plaster finish to extend below finished ground level.

6.5 Internal Plastering

Scud walls and plaster one coat 12mm thick, 1 cement: 1 lime: 6 sand.
Finish with neat gypsum plaster skim, or a grey coat of gauged mortar applied with wood float. Alternatively proprietary finishes may be used to manufacturers instructions.

6.6 Stud Partitions and Ceilings

6.6.1 Stud partitions and ceilings to be covered with 10mm plaster boards or slabs with skimmed plaster finish or alternatively 12mm patent plaster sheets, all erected, jointed and finished to manufacturers instructions.

6.6.2 All wall plastering should be carried behind skirtings and architraves.
All internal wall and ceiling finishes, including decorative finishes, shall comply with the relevant local fire requirements.

6.7 General

Precautions shall be taken to protect floors and surrounding work during plastering. Make good neatly to holes for pipework etc.

Plasticisers, water proofers, sealers, and bonding agents shall be used in accordance with manufacturers instructions.

Section 7 PLUMBING

7.1 Service Pipe

Incoming service pipe to be 15mm diameter laid in trench 600mm deep, or otherwise suitably protected against frost, and connected to internal stopcock.

7.2 Cold Water Supply

From stopcock take 15mm cold supply direct to sink with branch to high pressure ball valve in service tank, capacity 225 litres, for 3 bedroom houses or 360 litres for 4 or more bedrooms or as required by local authority. Tank to be covered and adequately supported over a partition where possible and at such height as to ensure proper working of the system. Provide 22mm overflow from tank to discharge externally. Connect to service tank 50mm over bottom of tank and take 22mm feed to 150 litre hot water cylinder to IS 161 with 22mm branch over top of cylinder to bath and 15mm connections off wash hand basin and W.C.

7.3 Hot Water Supply

An adequate water heating apparatus must be provided and fitted in accordance with manufacturers instructions. Flow and return pipes, where appropriate, shall be as recommended by the manufacturer of the heating apparatus. A 22mm copper or stainless steel expansion pipe to be taken from top of cylinder to discharge over service tank, with a 22mm do. branch to bath and 15mm connections off for wash hand basin, sink etc.

7.4 General

7.4.1 Fit full way stopcock on cold feeds from service tank and fit draw off cock at lowest convenient point of system. On no account should a stop-cock be fitted on an expansion pipe.

7.4.2 Copper piping to be not less than 18 gauge hard drawn.

7.4.3 Plastic pipes to I.S. 123, 134, or 135 where used shall be fixed at least 75mm clear of hot pipe runs. Pipes shall be fixed in straight lines as far as possible, properly jointed with patent fittings and adequately supported and secured with proper pipe clips.

7.4.4 Storage tanks and pipes to be insulated against frost where necessary.

7.4.5 Where other domestic water heating systems are used they shall be competently designed and installed.

7.5 Sink

Provide and fit in kitchen or scullery stainless steel sink and drainer to I.S. 132 suitably supported, or alternatively white glazed fireclay sink 600mm x 400mm x 250mm supported on 2 No. iron or steel brackets and fitted with suitable drainer. Sink to be provided with adequate overflow. Top of sink to be not less than 850mm over floor level. Form enclosed press, with raised floor and recessed plinth under sink and drainer.

7.6 Bath and Wash Hand Basin

Fit where indicated a bath in vitreous enamelled cast iron or other accepted material, minimum length 1700mm nominal and panelled as necessary and vitreous china wash hand basin 550mm x 400mm suitably supported and secured with not less than 150mm clearance to sides. Both to be provided with adequate overflow.

7.7 Plugs, Traps, Wastes and Taps

15mm hot and cold chrome plated brass taps to be fitted to sink and wash hand basin, and 22mm do. to bath. Provide 42mm waste fitting to bath and sink and 35mm to wash hand basin. All complete with plug and chain. Fit S or P trap, complete with cleaning eye and copper, lead or acceptable plastic waste pipe adequately secured and fitted with cleaning eyes as necessary and discharging approximately 50mm over gully trap.

7.8 W.C. Suite

Provide and fit where indicated W.C. suite, with cistern, to I.S.70, all fully supported and secured. Connect to soil pipe with proprietary flexible coupling or other acceptable joint. Cistern to be provided with adequate overflow.

7.9 Pipes shall not be jointed within the thickness of a wall.

Section 8 DRAINAGE

8.1 Trenches

Trenches shall be excavated to the necessary depths, widths and falls to allow the drains to be properly laid. The water service shall be in a separate trench from the drain. See also 1.3.2.

8.2 Drain

The main and branch drains shall be 100mm diameter laid to continuous falls of not less than 1 in 60 or not more than 1 in 30, with bends and junctions, splayed in the direction of flow, where required, and laid in straight lines from manhole to manhole. The drain shall be P.V.C., cast iron, impermeable glazed ware with flexible joints or concrete with flexible joints, all laid, jointed and back filled to manufacturers instructions or shall be socketed impermeable glazed ware or concrete supported on continuous concrete bed mix B 100mm thick x 300mm wide for full length of each pipe and haunched half way up the pipe after testing and shall be jointed in cement mortar, well worked in against 2 rings of tarred gaskin and finished with a neatly worked fillet. Clean pipe internally as necessary after each joint is made.

8.3 **Back Filling**

Immediately over pipes back fill in fine material and fill remainder of trench in selected excavated material, well rammed and remove surplus spoil.

8.4 **Drains under Roads and Buildings**

Where drains pass under roadways or are likely to be subjected to heavy traffic, they should be fully encased in 150mm concrete, mix B. Drains shall not be taken under any buildings unnecessarily, but where this is unavoidable pipes shall be cast iron, or encased in 150mm of concrete mix B or otherwise to local authority requirements and laid in straight lines. Form ducts through rising walls or foundations as necessary to avoid damage to drains.

8.5 **A.J.s, Manholes, Drop-Manholes**

Armstrong junctions or manholes as suitable shall be provided at each change in direction or gradient of drain and at septic tank and of such dimensions and spacing as to permit easy cleaning of the system. Manholes shall be built in 225mm concrete walls on 150mm thick concrete floor mix B, with glazed channels, bends and branches, suitably benched. Benching and internal walls to be finished smooth in cement mortar. Fit cast iron, reinforced concrete, or hot dipped galvanised steel frame and cover. Covers to have provision for lifting. Where required by local authority, outfall manholes shall be formed, with interceptor trap, stoppered cleaning eye and air inlet.

8.6 **Gullies and A.J.s**

Gullies and Armstrong junctions to be set level, supported on 150mm concrete bed, mix B, and connected to drain as previously specified. Armstrong junctions shall have frame and cover of cast iron, aluminium or galvanised steel.

8.7 **Gully Traps**

Gully traps shall be set in dished concrete surround, to take wastes from bath, sink and wash hand basin and discharge from rain water pipes, and shall be fitted with cast iron, aluminium, or other suitable grid.

8.8 **Soak Pits**

Where sewage disposal is to be a septic tank, rain water shall be piped to a separate soak pit, not less than 6m from the house or to a suitable watercourse.

8.9 **Septic Tank**

Septic tank, where provided, shall be located so as not to endanger any well or other source of water supply and shall be in accordance with S.R.6 1975.
Septic tanks to accepted prefabricated systems may also be used.

8.10 **Vent Shaft**

At head of drain, carry up 50mm minimum diameter vent pipe over eave level or to 1m over head of highest window within 4m of vent, secured with proper brackets and fitted with cowl or cage.

8.11 **Single Stack Drainage**

Single stack drainage, where provided, must be in accordance with British Standard Code of Practice No. 304 (1968).

8.12 **Testing**

Test plumbing and drainage on completion to ensure watertightness and efficient working of the system, and as may be required by the local authority. See also 8.2.

Section 9 ELECTRICAL INSTALLATION

9.1 Installation

Electrical installation shall be in accordance with the "National Rules for Electrical Installations" obtainable from the Electro-Technical Council of Ireland and shall have, in suitable locations, at least:-

Lighting Outlets	Socket Outlets
One in every room, landing/stairway, hall and corridor.	One in every bedroom. Three singles in one living-room. Two singles in kitchen excluding any cooker point. One in each other habitable room, entrance hall or landing.

Conduit shall be used where cable is buried in plaster. Joists shall not be notched: where necessary the cable shall be taken through holes bored in centres of joists.

Section 10 PROTECTIVE PAINTING

10.1 Preparation

All surfaces to be painted or otherwise protectively coated shall be cleaned down and prepared by wire brushing, sanding, planing or as necessary to obtain the best possible finish. Timber preservatives should be applied where already specified in 3.2 et seq.

10.2 Paints

Thinners, sealers, primers, colour washes, paints, varnishes or other brush, roller or spray applied finishes shall be of suitable manufacture for the surface and material to be covered and shall be applied strictly in accordance with the manufacturer's instructions.

10.3 Woodwork

All woodwork usually painted shall be knotted, stopped, primed and painted with two undercoats and one finishing coat. Alternatively, may be stained or dyed and knotted, primed and finished with two coats varnish.

Decorative hardwoods may be treated traditionally internally and shall be oiled or treated with suitable preservatives externally, or may be painted or varnished, as previously specified.

10.4 Metal Work

All metalwork, ironmongery, rainwater goods, shall be cleaned down, suitably primed, twice, undercoated and one coat finished.

Section 11 GLAZING

11.1 Glass

All window panes up to $0.5m^2$ shall be glazed in 3mm glass
All window panes up to $1.5m^2$ shall be glazed in 4mm glass
All window panes over $1.5m^2$ shall be glazed in 5mm or 6mm glass

All panes less than 600mm over floor shall be 6mm glass.

11.2 **Fixing**

Bathroom W.C. or other closet windows may be glazed in obscured glass to standard as above. Before glazing, timber rebates shall be painted and back puttied. Glass shall be sprigged and puttied with linseed oil putty to I.S.28 or other acceptable non-hardening compound and neatly struck off. 5mm glass and over shall be fixed with a suitable glazing slip, pinned and bedded in mastic. Galvanised steel windows shall be back puttied and finished with metal sash putty or other suitable mastic.

11.3 **General**

House to be thoroughly cleaned and all rubbish removed, on completion.

Section 12 FIRE PRECAUTIONS

12.1 **Garage**

12.1.1 Garage under first floor rooms: — the ceiling in the garage shall be 10mm plaster slab with skim coat finish or 10mm soft asbestos sheets with joints thoroughly sealed.

12.1.2 Garage directly under roof of house:— separating wall to be taken to plane of roof and treated as for party wall to complete fire stop. See 2.11 and 5.7.

12.1.3 Any door between garage and dwelling shall be self closing and door and frame shall have half hour fire rating. Garage floor shall be 100mm under floor level of house.

12.2 **Central Heating**

A central heating unit shall not be located in a garage.

Section 13 VENTILATION

13.1 **Rooms**

Every habitable room, kitchen, and scullery shall have an opening window area of not less than one twentieth of the room area, ventilated directly to open air.

13.2 **Bathrooms**

Bathroom and W.C. apartment shall be ventilated as above subject to a minimum of $0.1m^2$.

13.3 **Lobby**

A ventilated lobby shall be provided between any W.C. apartment and a living room, kitchen or scullery.

13.4 **Presses**

All built in cupboards, presses, closets and wardrobes to be adequately through ventilated.

13.5 **Under Floor**

Under floor ventilation shall be as previously specified under 2.25 and 3.6.

13.6 **Garage**

Garage must have permanent ventilation.

Section 14 THERMAL INSULATION

14.1 Insulation to be in accordance with the maximum U-values laid down by the Department of the Environment, viz. a general whole building standard not exceeding 1.25 $W/m^{2o}C$ and elemental values as follows:—

External Walls	1.10 watts per square metre per degree Celsius
Roofs	0.40 watts per square metre per degree Celsius
Ground floors	0.60 watts per square metre per degree Celsius
External parts of intermediate floors	1.10 watts per square metre per degree Celsius

U-values will be required to be calculated in accordance with the 1975 Guide Book A of the Institution of Heating and Ventilating Engineers.

The standards set out above for whole building, external walls, and external parts of intermediate floors shall be regarded as recommendations only, pending the introduction of National Building Regulations.

Examples of forms of construction giving an acceptable U-value for roofs and ground floors are:—

Pitched roof of slates or tiles on battens on sarking felt — 100mm of glass fibre laid on polythene vapour barrier over plaster slab ceiling or alternatively laid over foil-backed plaster slabs.

Ground floors — 25mm polystyrene 1m wide laid under floor slab and abutting outside walls.

METRIC CONVERSION

25mm	=	1 inch(es) approx.
50mm	=	2 " "
100mm	=	4 " "
300mm	=	12 " "
600mm	=	24 " "
1.00m	=	39.37 "
1 litre	=	0.22 gallons
1 Kilogram	=	2.20 lbs.

ERRATUM

SECTION 14 THERMAL INSULATION

The standards set out in this section for roofs and ground floors will apply forthwith.

Standards for whole building, external walls and external parts of intermediate floors will become operative when the National Building Regulations are introduced or on 1st July, 1979 which ever date is the earlier.

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