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Environment
Agency Wales

Consent to Discharge

Water Resources Act 1991 (as amended by the Environment Act 1995)

Consent Holder(s)

**Amgen Rhondda Limited
Bryn Pica Landfill Site
Llwydcoed
Aberdare
Rhondda Cynon Taff
CF44 0BX**

Consent to Discharge from

**Gelli Spoil Tip
Nant y Gwyddon Landfill Site
Gelli
Rhondda Cynon Taff
CF41 7TL**

Consent Number

AN0385601

Environment Agency Wales

Rivers House, St. Mellons Business Park, St. Mellons, Cardiff, CF30EY
Tel: 08708 506506 Fax: 02920 362286

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Consent to Discharge

Conditions of Consent for trade effluent consisting of site drainage

Consent to Discharge

Water Resources Act 1991
Section 88, Schedule 10
(as amended by the
Environment Act 1995)



Asiantaeth yr
Amgylchedd Cymru
Environment
Agency Wales

Consent to Discharge

Consent Number
AN0385601

To:
Amgen Rhondda Limited ("the Consent Holder")
Bryn Pica Landfill Site
Llwydcoed
Aberdare
Rhondda Cynon Taff
CF44 0BX

The Environment Agency ("the Agency") in pursuance of its powers under the Water Resources Act 1991 (as amended by the Environment Act 1995) hereby consents to the making of a discharge:

Of:
Trade effluent consisting of site drainage ("the Discharge")

From:
Surface water run-off from Gelli Spoil Tip.

At:
Nant y Gwyddon Landfill Site, Gelli, Rhondda Cynon Taff, CF41 7TL.

To:
Nant Y Gwyddon

Subject to the conditions set out in this notice of Consent to Discharge.

Subject to the provisions of Paragraphs 7 and 8 of Schedule 10 of the Water Resources Act 1991 (as amended by the Environment Act 1995), no notice shall be served by the Agency, altering this consent, without the agreement of the Consent Holder, during a period of 4 years from the date this notice is issued.

This Consent is issued on: **4.7.05** date

This Consent takes effect on: **4.7.05** date

Signed

DH Williams

Team Leader Environment Management



1 **Conditions of Consent for trade effluent consisting of site drainage**

1.1 **Nature**

1.1.1 The Discharge shall consist solely of trade effluent consisting of site drainage.

1.2 **Place of Discharge**

1.2.1

The Discharge shall be made in the manner and at the place specified as:

- a discharging to Nant y Gwyddon;
- b at National Grid Reference SS 98370 94214;
- c shown marked "CONSENT POINT" on Site Plan attached to this consent.

1.3 **Sampling Point Requirements**

1.3.1 The outlet to controlled waters shall be constructed and maintained so that a representative sample of the Discharge may be obtained at National Grid Reference SS 98370 94214 as shown marked "SAMPLE POINT" on the Site plan attached to this consent.

1.4 **Composition**

1.4.1 The Discharge shall not contain more than 60 milligrammes per litre of suspended solids (measured after drying at 105°C).

1.4.2 The Discharge shall not contain more than 5 milligrammes per litre of total oil and grease.

1.4.3 The Discharge shall not contain more than a pH value of 9 pH units or less than a pH value of 6.0 pH units.

1.5 **Works Operation**

1.5.1

- a The plant shall be operated and the effluent treated in a manner which, so far as reasonably practicable, minimises the polluting effects of the Discharge on controlled waters.
- b This condition does not require any alteration of the type of treatment used from that specified in the application.

1.6 **Maintenance**

1.6.1

The plant shall be operated and maintained in accordance with good operational practice such that:

- a it remains fully operational except at times of unavoidable mechanical or electrical breakdown which shall be attended to, and the Agency informed of the failure, as soon as practicable after the failure;
- b following a failure all equipment shall be returned to normal operation as soon as practicable;
- c it shall be desludged at sufficient frequency and in such a manner to prevent excessive carryover of suspended solids.

1.7

Recording and Reporting

1.7.1

- a** The Consent Holder shall establish and operate a documented maintenance programme and record all non-routine actions undertaken that may have adversely affected effluent quality. Copies of the programme shall be made available for inspection by the Agency's officers at all reasonable times.
- b** On request the Consent Holder shall supply the Agency with a written report on the maintenance and all non-routine actions that may have adversely affected effluent quality
- c** The Consent Holder shall as soon as reasonably practicable report to the Agency all non-routine actions that may have adversely affected effluent quality.

2

Site plan

See attached drawing no. AM5474/3/007

SITE LOCATION PLAN

The map illustrates the geographical context of the Upper Gelli Tip. It shows the following locations and features:

- Communities and Towns:** Pentre, Ystrad Cymru, Llwynypia, Tontpandy, and Cwm Clydach.
- Rivers and Waterways:** River Taff, Cwm Clydach, and various smaller streams.
- Roads:** A1, A119, A115, and various local roads.
- Key Locations:** Gelli, Mynydd Gelli, Upper Gelli Tip, Gwynedd, and various farms and estates.
- Landmarks:** Llwynypia Mountain, Clydach Vale Country Park, and various schools and churches.

ENCIA

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PLATE 1



DRAWING TITLE

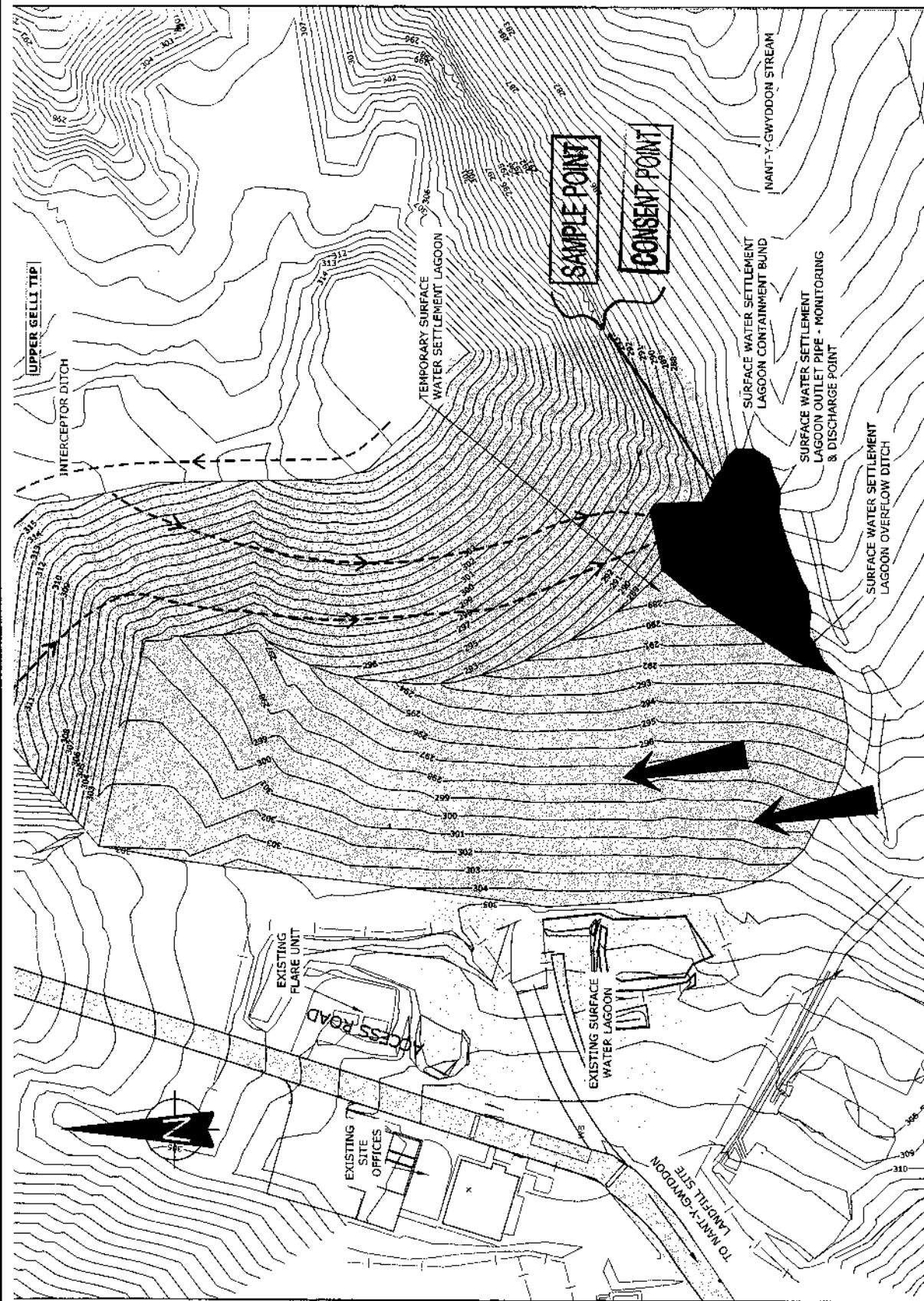
REV.	DESCRIPTION	DATE

STATUS	
FOR COMMENT	<input type="checkbox"/>
FOR APPROVAL	<input type="checkbox"/>
DRAFT	<input type="checkbox"/>
FINAL	<input checked="" type="checkbox"/>

FOR APPROVAL	<input type="checkbox"/>
DRAFT	<input type="checkbox"/>
FINAL	<input checked="" type="checkbox"/>

DRAWING NO. AM5474/3/001

ASIANTAETH YR AMGYLCHEDD ENVIRONMENT AGENCY		
CONSENT	PLAN NUMBER	A20385601
AUTHORISED	SIGNATURE	D. Williams



PLAN SHOWING EXTENT OF WORKS AND PROPOSED LANDFORM AT UPPER GELLI TIP

TOP OF TIP

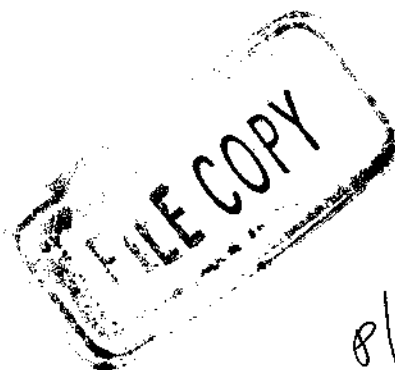
INTERCEPTOR DITCH

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Asiantaeth yr
Amgylchedd Cymru
Environment
Agency Wales

Mr D. Baker
Encia Consulting Ltd
Encia House
Audby Lane
Wetherby
West Yorkshire
LS22 7RD



Ein cyf/Our ref:
ACSC/CUST/SE/MS/AN0385601
Eich cyf/Your ref:

Dyddiad/Date: 05 July 2005

Dear Mr. Baker

WATER RESOURCES ACT 1991, SCHEDULE 10 (AS AMENDED BY THE ENVIRONMENT ACT 1995) APPLICATION FOR CONSENT TO DISCHARGE TRADE EFFLUENT BY AMGEN RHONDDA LTD FROM GELLI SPOIL TIP ADJACENT TO NANT-Y-GWYDDON LANDFILL SITE, GELLI, RHONDDA CYNON TAFF, CF41 7TL.

APPLICATION NO: AN0385601

Further to your application the Agency has decided that consent should be given subject to conditions. I enclose the Agency's formal consent to discharge trade effluent at Gelli Spoil Tip adjacent to Nant-Y-Gwyddon Landfill Site, Gelli, Rhondda Cynon Taff, CF41 7TL.

Under the present Scheme of Charges for Discharges to Controlled Waters an annual charge will be made for all consents to discharge, except where the discharge is of sewage effluent of five cubic metres or less per day. The charge is based on information derived from the conditions attached to the consent to discharge, as outlined in the enclosed leaflet.

If you consider that the conditions imposed by the consent are unreasonable you have a right of appeal to the Secretary of State for the Environment at National Assembly for Wales at Cathays Park, Cardiff CF10 3NQ.

Notice of an appeal must be given in writing within three months of this notification and must be accompanied by a statement of the grounds of appeal.

If granted, a consent under Schedule 10 of the Act, covers water quality considerations only. It does not alter the need to obtain any other consents or approvals which might be required in connection with your proposal under other legislation. For example it does not give any right or permission to discharge where land is not owned by the applicant.

Asiantaeth yr Amgylchedd Cymru
Plas-yr-Afon, Parc Busnes Llanelwng, Llanelwng, Caerdydd,
CF3 0EY
Llinell gwasanaethau cwsmeriaid: 08708 506 506
Epost: enquiries@environment-agency.gov.uk
www.asiantaeth-amgylchedd.cymru.gov.uk

Environment Agency Wales
Rivers House, St Mellons Business Park, St Mellons, Cardiff,
CF3 0EY
Customer services line: 08708 506 506
Email: enquiries@environment-agency.gov.uk
www.environment-agency.wales.gov.uk

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Environment
Agency Wales

Please take careful note that if the holder of the consent changes, you must inform the Agency IN WRITING as soon as possible of the name of the new holder. This is to ensure that the rights and charges associated with the Consent are transferred to the new holder. A Certificate of Holder notice will be sent to you shortly which is designed for this purpose, and should be kept safely with the Consent until required.

If you have any queries regarding the enforcement of this consent, please do not hesitate to contact David Williams, Team Leader Environment Management, Environment Agency Wales.

Yours sincerely

A handwritten signature in black ink, appearing to read 'MS' followed by a stylized flourish.

MATTHEW SIMON
External Relations
South East Area
Direct Dial: 02920 245330



P/R



ASiantaeth YR
AMGYLCHEDD
ENVIRONMENT
AGENCY

WATER RESOURCES ACT 1991 (schedule 10)

(as amended by the Environment Act 1995)

Application for new consent/variation to an existing consent* to discharge

(* delete as appropriate)

Regional/Area Address: Environment Agency Wales External Relations Rivers House St. Mellons Business Park St. Mellons Cardiff CF3 0EY	Official Use Only Dist/Area Ref: Application No. AN0385601. Date Received: 11/4/01 Fee Received: <div style="text-align: right;"> <i>Paid</i> <i>£106.</i> <i>ms.</i> </div>
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Each applicant must complete the main form and may need to complete a separate annexe if appropriate. Please look through the form and read the notes carefully before you complete it. Processing of your application will be aided by full and accurate completion of all relevant sections and provisions of the necessary plans. If you have any queries regarding the form please contact the person given in the notes.

NOTE:

All information contained within this application will be made available on the public register unless there is a request to withhold any of it. Any such request should provide a full justification stating why the information needs to be withheld (see note xiii).

1 SITE ADDRESS

1.1 Address or other sufficient description of land or premises to which this application applies.

GELLI SPILL TIP ADJAZENT TO
NANT-Y-GWYDDON LANDFILL SITE
GELLI, RHONDDA CYNON TAF

Post Code:

CF41 7TL

2 DETAILS OF DISCHARGE(S)

2.1 State the nature of the discharge(s) (see note i and ii) - tick one or more boxes as appropriate:

Sewage Effluent - volume of 5 cubic metres per day or less

Sewage Effluent - volume greater than 5 cubic metres per day (**complete annexe 1**)

Sewage Effluent discharged under storm or emergency conditions (**complete annexe 2**)

Cooling Water (**complete annexe 3**)

Trade Effluent (including site drainage) (**complete annexe 3**)

Others (please specify)

<input checked="" type="checkbox"/>

SURFACE WATER RUN-OFF

2.2 Please state the maximum quantity it is proposed to discharge in any one day

1700 m³/day

Briefly state how this figure was calculated (see note ii).

SEE APPENDIX 4, NOTES
DRAWING No: AM 5474/1/007

2.3 a) Indicate proposed means of discharge - tick as appropriate and show on plan:
(for 1, 2 & 3 please state dimensions below)

1. Pipe

☒

4. Borehole

☐

7. Sub-Irrigation System

☐

2. Channel

☐

5. Well

☐

8. Combination of 6 & 7

☐

3. Culvert

☐

6. Soakaway

☐

9. Other (please specify below)

☐

b) National Grid Reference(s) of point(s) of discharge (see note iii). E 194 237, N 298, 201

5 5 9 7 9 9 7 9 4 5 8 4

(please indicate on accompanying plans)

2.4 a) The Agency will normally require adequate provision for the taking of samples of the discharge in a safe and convenient manner at any time. Please indicate the means proposed (see note iv) - tick as appropriate and show on plan:

At the outlet

☒

At a manhole or sampling chamber

☐

Other (please specify)

b) National Grid Reference(s) of sampling point(s) (if different from 2.3 b) above).

(please indicate on accompanying plans)

c) What flow measurement facilities will be provided (see note v)?
Please give details.

3 SITE DETAILS

3.1 Please give the name of the relevant Planning Authority.

PHONDA CYNON TAF BOROUGH COUNCIL

3.2 Please give details of the premises - tick as appropriate:

- | | | | |
|---|--------------------------|----------------------------|-------------------------------------|
| 1. Single Dwelling | <input type="checkbox"/> | 6. Fish Farm | <input type="checkbox"/> |
| 2. Multiple Dwellings | <input type="checkbox"/> | 7. Mineral Workings | <input checked="" type="checkbox"/> |
| 3. Industrial Premises | <input type="checkbox"/> | 8. Water Services plc STW | <input type="checkbox"/> |
| 4. Vehicle Parking Area | <input type="checkbox"/> | 9. Water Supply | <input type="checkbox"/> |
| 5. Commercial Premises (please specify) | <input type="checkbox"/> | 10. Other (please specify) | <input type="checkbox"/> |

3.3 Please indicate source of the water supply - tick as appropriate:

- | | | | |
|--|-------------------------------------|---|--------------------------|
| 1. Well | <input type="checkbox"/> | 5. River (please give name below) | <input type="checkbox"/> |
| 2. Borehole | <input type="checkbox"/> | 6. Estuary (please give name below) | <input type="checkbox"/> |
| 3. Precipitation (eg rain or snow) | <input checked="" type="checkbox"/> | 7. Coastal Water (please give name below) | <input type="checkbox"/> |
| 4. Mains (please state water supply company) | <input type="checkbox"/> | <input type="text"/> | |

4 DETAILS OF RECEIVING ENVIRONMENT

4.1 Receiving Medium - tick the category(s) to which the proposed discharge(s) is(are) to be made:

- | | | | |
|--|-------------------------------------|---------------------------------|--------------------------|
| 1. Estuarial Water (tidal river or stream) | <input type="checkbox"/> | 5. Into Land | <input type="checkbox"/> |
| 2. River or Stream (non-tidal) | <input checked="" type="checkbox"/> | 6. Onto Land | <input type="checkbox"/> |
| 3. Canal | <input type="checkbox"/> | 7. Directly into Groundwater | <input type="checkbox"/> |
| 4. Lake, Lock or Pond | <input type="checkbox"/> | 8. Coastal Water (see note vii) | <input type="checkbox"/> |

State name of receiving water if known:

WORKS WILL BE TEMPORARY CIRCA 24 MONTHS

- 2.5 a) Type of Treatment Plant(s) to be used (please specify make and model) - tick as appropriate:

Septic Tank ☐ Package Sewage Treatment Works ☐ Other ☐

N/A

- b) Will the treatment process involve the use of any chemicals (eg ferric salts, polyelectrolytes). If yes please give details.

Y/N

N/A

- 2.6 a) On what date do you anticipate the discharge will commence?

01/05/05

- b) If you require the consent for a limited time period please give dates;

from: 01/05/05

to: 01/05/05

- c) If the discharge is not continuous please detail the period/circumstances when it will occur.

N/A

- 2.7 a) Are there any existing consents for discharges from the premises (see note vi)?

~~Y~~/N

If yes, please give the reference numbers (Any further information should be given in Section 5.3).

- b) Has any person had a Prohibition Notice serviced on them in respect of this site?
If yes, please give the reference number.

~~Y~~/N

5 DETAILS OF APPLICANT AND OTHER INFORMATION

5.1 (See general notes and note ix)

- (a) Full name and postal address of applicant. This should be the person who will become the consent holder should consent be issued.

AMGEN RHONDDA LIMITED
Bryn Pica
LLWYDCOE
ABERTARE, RHONDDA CYNON TAF

Post Code:

CF 44 0BX

Daytime Telephone Number:

01685 870 770

Company Registration Number (if appropriate):

3687641

- (b) Agent (if any) - Full name and postal address.

* ENCIA CONSULTING LIMITED
* ENCIA HOUSE
* AUDBY LANE
* WETHERBY
* WEST YORKSHIRE

Post Code: LS 22 7RD

Contact Name and Daytime Telephone Number: AND. BAKER 01937 589955

5.2

Please give full name and address to which bills should be sent if different to that given above:

*
* N/A (AS 5.1a)
*
*
*

Post Code:

Daytime Telephone Number:

5.3 Are there any other factors to be taken into account? Please continue on a separate sheet if necessary.

4.2 In the case of sub-irrigation systems, soakaways or boreholes:

(a) Is any part of the system within 5 metres of the boundary of the premises?

Y/N

(b) Is any part of the system within 10 metres of a watercourse?

Y/N

(c) Is any part of the system within 50 metres of a borehole or spring?

Y/N

(d) For wells and boreholes state dimension(s) in metres.

m

(e) For sub-irrigation systems, soakaway pits, wells and boreholes, state maximum depth in metres.

m

(f) For boreholes, state details of lining in metres:

(i) Depth of lining

m

(ii) Depth of perforated lining

m

(iii) Depth of unperforated lining

m

(g) A percolation test must be carried out in accordance with British Standard BS6297:1983.

Have the results been provided?

Y/N

4.3 Is there a foul sewer available to which the discharge(s) could be made (see note viii)?

Y/N

If yes, please give the reasons it is not practical to connect to it (eg distance, flow etc).

N/A

DECLARATION

We:

1. apply under the Water Resources Act 1991 (as amended by the Environment Act 1995) for consent to discharge, as described in this Application. "This Application" means this page, all the other pages of this form and any attached annexes, the attached plan(s), any other sheets attached, and any other written information supplied to support the application.
2. enclose the required application fee, payable to the Environmental Agency (see note x).
3. enclose 3 copies of the plan(s) and location maps with all relevant information clearly marked (see note xi).
4. will pay required advertising costs (see note xii).
5. confirm that we will notify the Environment Agency of any changes in the information in this application which might be material to the continuation of the consent.
6. confirm that the information given in this application and any questions which the Environment Agency may have about it is true to the best of our knowledge, information and belief and are not aware of any other facts or information which might affect the granting of a consent, or conditions which might be put on it (see note xiii).
7. confirm that we will pay any annual charges due should a consent be granted YES. If no please indicate who will be completing section 5.2 above (see note xiv).

SIGNED:		PRINT NAME:	
ON BEHALF OF:		DATED:	
..... 5. 01. 05			

CONFIDENTIALITY

I/we apply for commercial confidentiality and enclose a full written justification (see note xv).

SIGNED:	DATED:
---------------	--------------

PLEASE RETURN THIS FORM TO THE ADDRESS GIVEN ON THE FRONT PAGE



ASiantaeth YR
AMGYTHDD
ENVIRONMENT
AGENCY

ANNEXE 4

WELSH REGION SUPPLEMENTARY INFORMATION ANNEXE

Please complete this annexe for every proposed discharge.

Official Use Only
Application No.

For all proposed discharges:

1. Site Name.

GELLI SPILL TIP, ADJACENT TO
NANT-7-GWYDDON LANDFILL SITE,
GELLI, RHONDDA CYNON TAF, CF 41 7TL

2. Is this application being made to reinstate a lapsed Consent?

☒ N

If so, please state the Number of the lapsed Consent:

N/A

IMPORTANT: If you are in need of advice on either part of Question 2, please contact the Agency Regional Consents Section on 01222 770088.

3. If the proposed discharge is to be made down a pipe, channel or culvert (as given in Section 2.3 of the main application form), please state the diameter (including units):

150MM PIPE TO STREAM

4. Please indicate the anticipated cost of the proposed scheme, including any alternatives which may have been considered:

PART OF CIRCA £1.5 MILLION REMEDIATION
CONTRACT FOR NANT-7-GWYDDON LANDFILL SITE.
NO PRACTICABLE AVAILABLE ALTERNATIVE

5. Is there any trade effluent component in the proposed discharge?

☒ N

If yes, please confirm here that you have completed and enclosed Annex 3:

Tick

6. Will the proposed discharge be pumped or made under gravity? (please circle) ~~Pumped~~ / Gravity

If pumped, please state the maximum pump rate in l/sec:

N/A l/s

For proposed discharges of sewage in storm or emergency conditions:

7. Please confirm here that you have completed and enclosed both Annexes 1 and 2:

Tick


8. Please state:

Population served (head)	
Consumption (l/head/day) default = 180	
Infiltration (m ³ /day)	
Industrial effluent flow (m ³ /day)	
Dry Weather Flow (m ³ /day)	
Soc A (l/sec)	
Predicted spill frequency (per annum)	

IMPORTANT NOTES FOR ALL CONSENT APPLICATIONS:

1. **Whoever signs the declaration on the main application form takes responsibility for the discharge, and will become the registered consent holder, if consent is given. In the case of a 'body corporate' (eg a public limited company ('plc'), limited, company, local authority), the 'body corporate' will be the registered consent holder, and the person with the delegated authority to sign on behalf of the 'body corporate' should give their job title.**
2. **Agents making an application on behalf of a client, must attach their clients written authority.**
3. **If the name and/or address of the applicant changes after submission of this application to the Environment Agency, the applicant must inform the Agency in writing.**

APPENDIX 4
SURFACE WATER MANAGEMENT SYSTEMS DESIGN CALCULATIONS

Encia Consulting Engineers		Page 1
Encia House Audby Lane Wetherby LS22 7RD	Gelli Tip Surface Water Storage	
Date Dec-04 File	Designed By M.Pearse Checked By <i>R. Hanley</i>	
Micro Drainage	Source Control W.9.4 net	

Summary of Results for 100 year Return Period

Storm Duration (mins)	Maximum Control (m3/s)	Maximum Outflow (m3/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m3)	Status
15 Summer	0.0098	0.0098	288.9665	0.9665	279.2	O K
30 Summer	0.0111	0.0111	289.2425	1.2425	428.3	O K
60 Summer	0.0124	0.0124	289.5385	1.5385	621.1	O K
120 Summer	0.0135	0.0135	289.8105	1.8105	829.3	O K
180 Summer	0.0140	0.0140	289.9626	1.9625	960.5	O K
240 Summer	0.0144	0.0144	290.0655	2.0655	1054.7	O K
360 Summer	0.0148	0.0148	290.1955	2.1955	1181.7	O K
480 Summer	0.0151	0.0151	290.2725	2.2725	1261.2	O K
600 Summer	0.0152	0.0152	290.3205	2.3205	1312.0	O K
720 Summer	0.0153	0.0153	290.3565	2.3565	1351.1	O K
960 Summer	0.0155	0.0155	290.4115	2.4115	1412.1	O K
1440 Summer	0.0158	0.0158	290.4835	2.4835	1493.9	O K
2160 Summer	0.0160	0.0160	290.5565	2.5565	1579.5	O K
2880 Summer	0.0162	0.0162	290.6095	2.6095	1644.1	O K
4320 Summer	0.0163	0.0163	290.6595	2.6595	1705.8	O K
5760 Summer	0.0163	0.0163	290.6695	2.6695	1718.8	O K
7200 Summer	0.0163	0.0163	290.6595	2.6595	1706.6	O K
8640 Summer	0.0162	0.0162	290.6375	2.6375	1678.5	O K
10080 Summer	0.0161	0.0161	290.6065	2.6065	1640.5	O K
15 Winter	0.0098	0.0098	288.9665	0.9665	279.3	O K
30 Winter	0.0111	0.0111	289.2435	1.2435	428.9	O K
60 Winter	0.0124	0.0124	289.5405	1.5405	622.1	O K
120 Winter	0.0135	0.0135	289.8125	1.8125	831.2	O K
180 Winter	0.0140	0.0140	289.9655	1.9655	963.2	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
15 Summer	81.61	19
30 Summer	63.19	33
60 Summer	46.61	64
120 Summer	32.09	122
180 Summer	25.46	182
240 Summer	21.51	242
360 Summer	16.86	362
480 Summer	14.11	480
600 Summer	12.27	600
720 Summer	10.96	670
960 Summer	9.17	790
1440 Summer	7.17	1056
2160 Summer	5.68	1488
2880 Summer	4.87	1904
4320 Summer	3.90	2764
5760 Summer	3.33	3584
7200 Summer	2.94	4400
8640 Summer	2.66	5192
10080 Summer	2.44	6048
15 Winter	81.61	18
30 Winter	63.19	33
60 Winter	46.61	62
120 Winter	32.09	120
180 Winter	25.46	178

Encia House
Audby Lane
Wetherby LS22 7RD

Gelli Tip

Surface Water Storage

Date Dec-04
File

Designed By M.Pearse

Checked By  R. Hanby


Micro Drainage

Source Control W.9.4 net

Summary of Results for 100 year Return Period

Storm Duration (mins)	Maximum Control (m3/s)	Maximum Outflow (m3/s)	Maximum Water Level (m OD)	Maximum Depth (m)	Maximum Volume (m3)	Status
240 Winter	0.0144	0.0144	290.0695	2.0695	1058.4	O K
360 Winter	0.0148	0.0148	290.2015	2.2015	1187.9	O K
480 Winter	0.0151	0.0151	290.2815	2.2815	1270.3	O K
600 Winter	0.0153	0.0153	290.3325	2.3325	1324.7	O K
720 Winter	0.0154	0.0154	290.3705	2.3705	1365.7	O K
960 Winter	0.0155	0.0155	290.4175	2.4175	1418.0	O K
1440 Winter	0.0157	0.0157	290.4815	2.4815	1491.2	O K
2160 Winter	0.0159	0.0159	290.5365	2.5365	1555.2	O K
2880 Winter	0.0160	0.0160	290.5655	2.5655	1590.8	O K
4320 Winter	0.0160	0.0160	290.5615	2.5615	1585.3	O K
5760 Winter	0.0159	0.0159	290.5225	2.5225	1539.1	O K
7200 Winter	0.0157	0.0157	290.4635	2.4635	1471.1	O K
8640 Winter	0.0155	0.0155	290.3945	2.3945	1392.8	O K
10080 Winter	0.0152	0.0152	290.3205	2.3205	1311.9	O K

Storm Duration (mins)	Rain (mm/hr)	Time-Peak (mins)
240 Winter	21.51	238
360 Winter	16.86	352
480 Winter	14.11	466
600 Winter	12.27	576
720 Winter	10.96	684
960 Winter	9.17	876
1440 Winter	7.17	1110
2160 Winter	5.68	1580
2880 Winter	4.87	2048
4320 Winter	3.90	2944
5760 Winter	3.33	3808
7200 Winter	2.94	4680
8640 Winter	2.66	5456
10080 Winter	2.44	6256

Encia House
Audby Lane
Wetherby LS22 7RD


Gelli Tip

Surface Water Storage

Date Dec-04

Designed By M.Pearse

File

Checked By  R. Hanley

Micro Drainage

Source Control W.9.4 net

Rainfall Details

Region	ENG+WAL	Cv (Winter)	0.600
Return Period (years)	100	Shortest Storm (mins)	15
M5-60 (mm)	23.000	Longest Storm (mins)	10080
Ratio-R	0.150	Summer Storms	Yes
Cv (Summer)	0.600	Winter Storms	Yes

Time / Area Diagram

Total Area (ha) = 2.350

Time	(mins)	Area
from:	to:	(ha)
0	4	2.350

Encia House
Audby Lane
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Surface Water Storage

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File

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Micro Drainage

Source Control W.9.4 net



Tank/Pond Details

Invert Level (m) 288.000 Ground Level (m) 292.000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.00	38.0	2.40	1112.0	4.80	2098.0	7.20	2098.0	9.60	2098.0
0.40	277.0	2.80	1334.0	5.20	2098.0	7.60	2098.0	10.00	2098.0
0.80	424.0	3.20	1580.0	5.60	2098.0	8.00	2098.0		
1.20	577.0	3.60	1835.0	6.00	2098.0	8.40	2098.0		
1.60	732.0	4.00	2098.0	6.40	2098.0	8.80	2098.0		
2.00	912.0	4.40	2098.0	6.80	2098.0	9.20	2098.0		

Hydro-Brake Outflow Control

Design Head (m) 4.000 Diameter (mm) 129
Design Flow (m³/s) 0.0200 Invert Level (m) 288.000
Hydro-Brake Type MD5

Depth (m)	Flow (m ³ /s)	Depth (m)	Flow (m ³ /s)	Depth (m)	Flow (m ³ /s)	Depth (m)	Flow (m ³ /s)	Depth (m)	Flow (m ³ /s)
0.10	0.0042	0.80	0.0090	2.00	0.0141	4.00	0.0200	7.00	0.0265
0.20	0.0071	1.00	0.0100	2.20	0.0148	4.50	0.0212	7.50	0.0274
0.30	0.0075	1.20	0.0110	2.40	0.0155	5.00	0.0224	8.00	0.0283
0.40	0.0074	1.40	0.0118	2.60	0.0161	5.50	0.0235	8.50	0.0292
0.50	0.0076	1.60	0.0126	3.00	0.0173	6.00	0.0245	9.00	0.0300
0.60	0.0080	1.80	0.0134	3.50	0.0187	6.50	0.0255	9.50	0.0308

