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Monaghan County Councils Phosphate Implementation Report 2006

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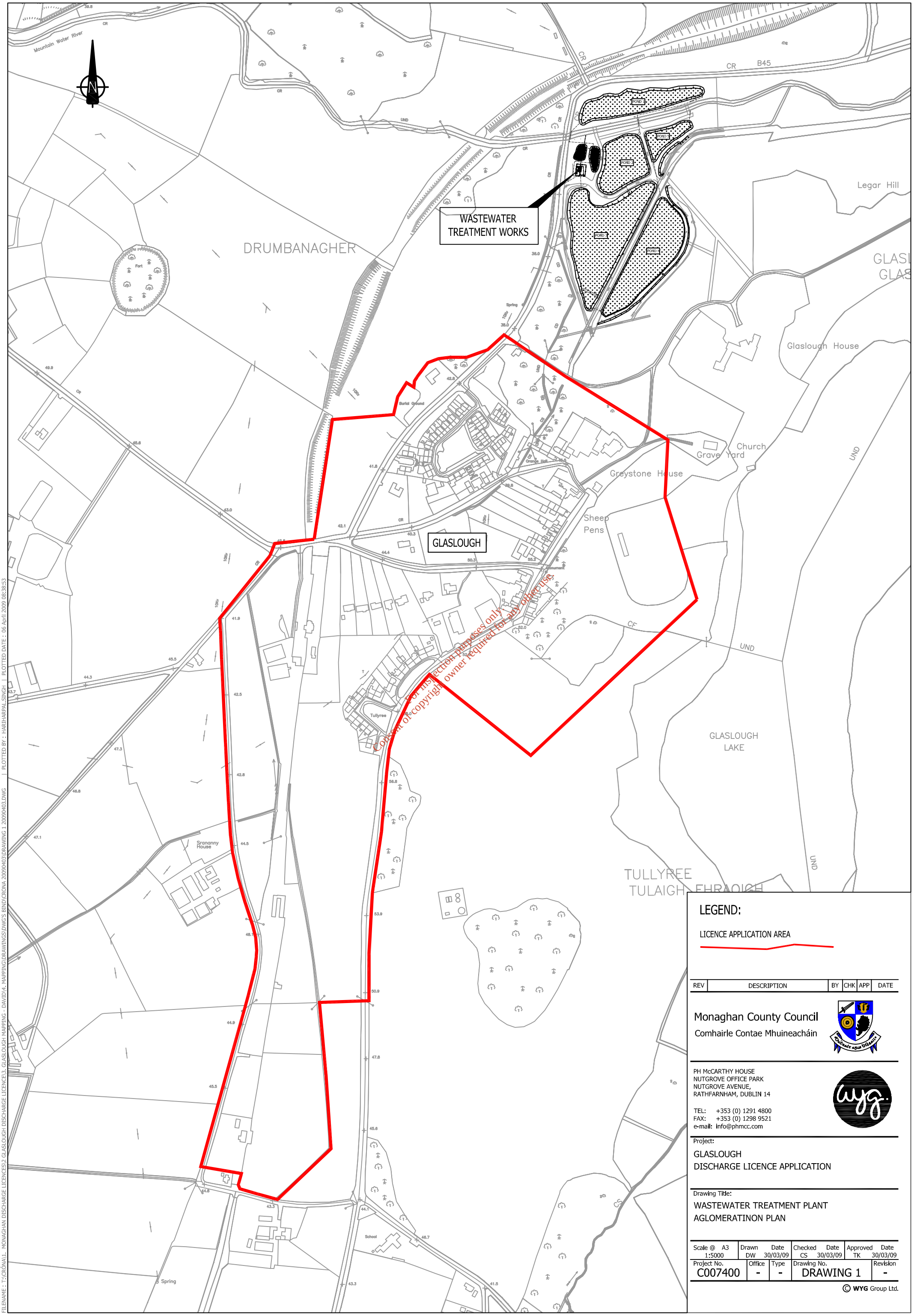

LEGEND:

LICENCE APPLICATION AREA

REV	DESCRIPTION	BY	CHK	APP	DATE

Monaghan County Council
Comhairle Contae Mhuineacháin

PH McCARTHY HOUSE
NUTGROVE OFFICE PARK
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Project:
GLASLOUGH
DISCHARGE LICENCE APPLICATION

Drawing Title:
WASTEWATER TREATMENT PLANT
AGLOMERATINON PLAN

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:5000	DW	30/03/09	CS	30/03/09	TK	30/03/09

Project No.	Office	Type	Drawing No.	Revision
C007400	-	-	DRAWING 1	-

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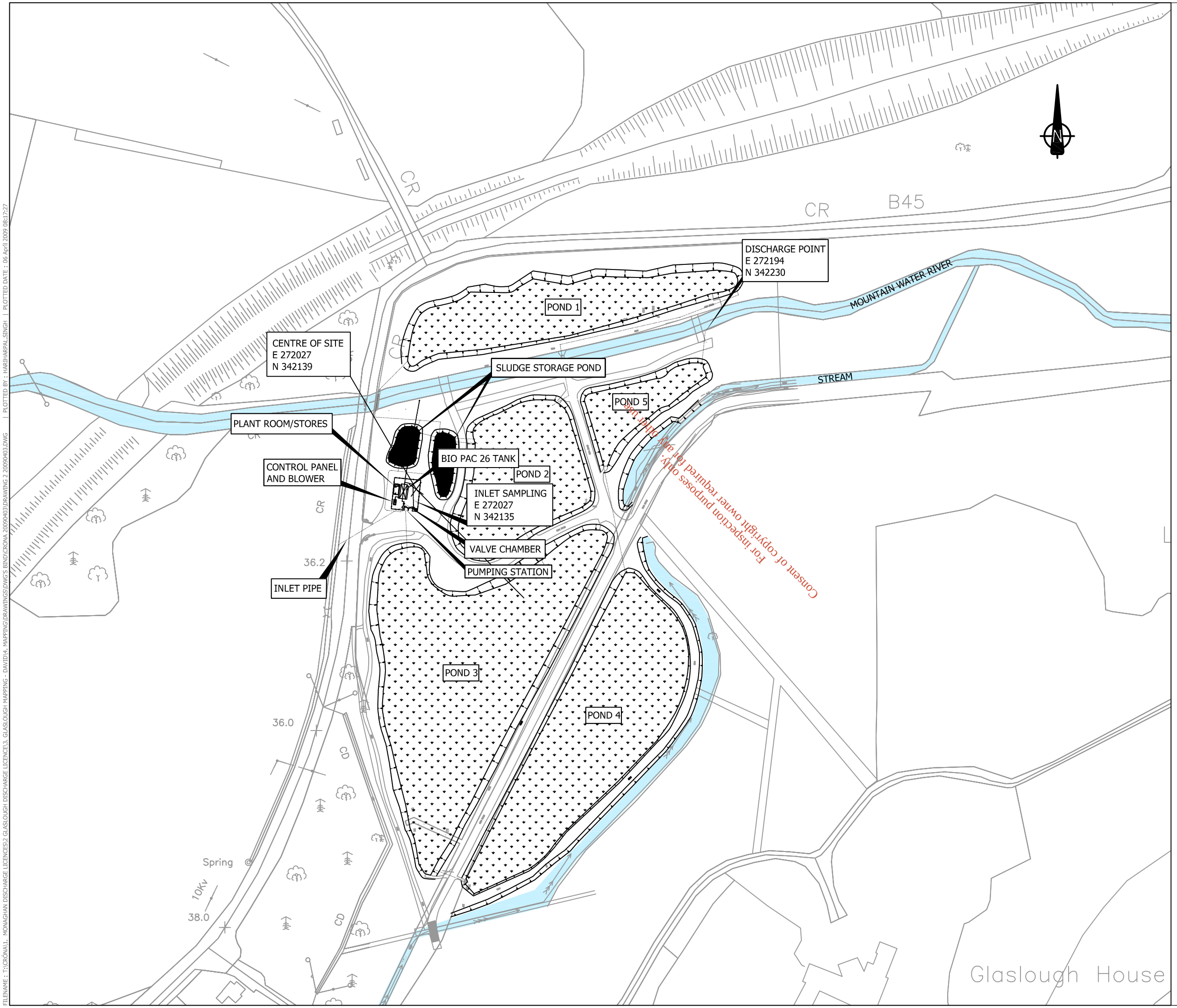

REV	DESCRIPTION	BY	CHK	APP	DATE

Monaghan County Council
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Project:
GLASLOUGH
DISCHARGE LICENCE APPLICATION

Drawing Title:
WASTEWATER TREATMENT PLANT
SITE PLAN

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:2000	DW	27/03/09	CS	27/03/09	TK	27/03/09

Project No.	Office	Type	Drawing No.	Revision
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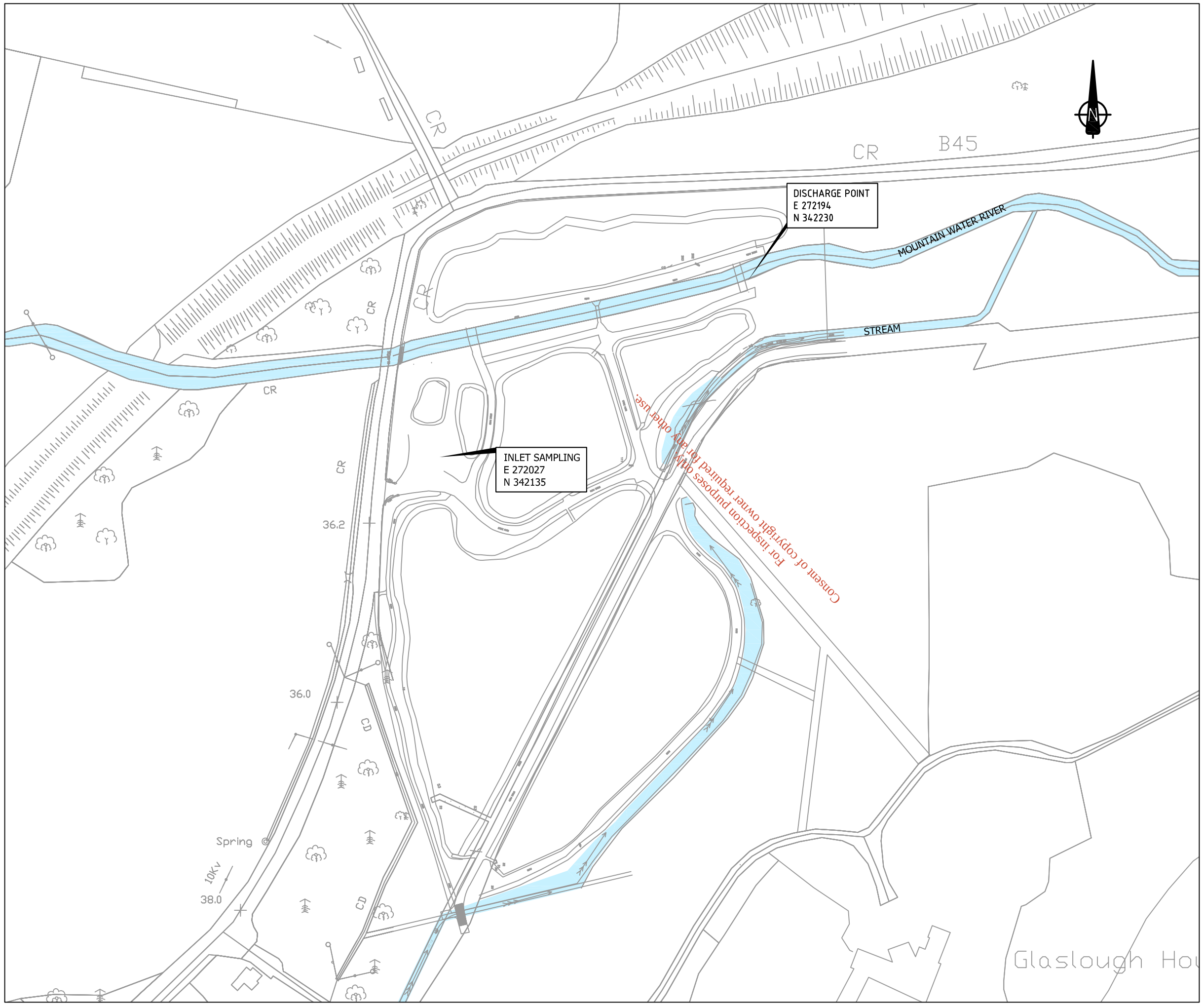
Attachment B.3



REV	DESCRIPTION	BY	CHK	APP	DATE

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Project:
GLASLOUGH
DISCHARGE LICENCE APPLICATION

Drawing Title:
WASTEWATER TREATMENT PLANT
PLAN AT DISCHARGE POINT

Scale @ A3	Drawn	Checked	Approved
1:2000	DW 27/03/09	CS	TK

Project No.	Office	Type	Drawing No.	Revision
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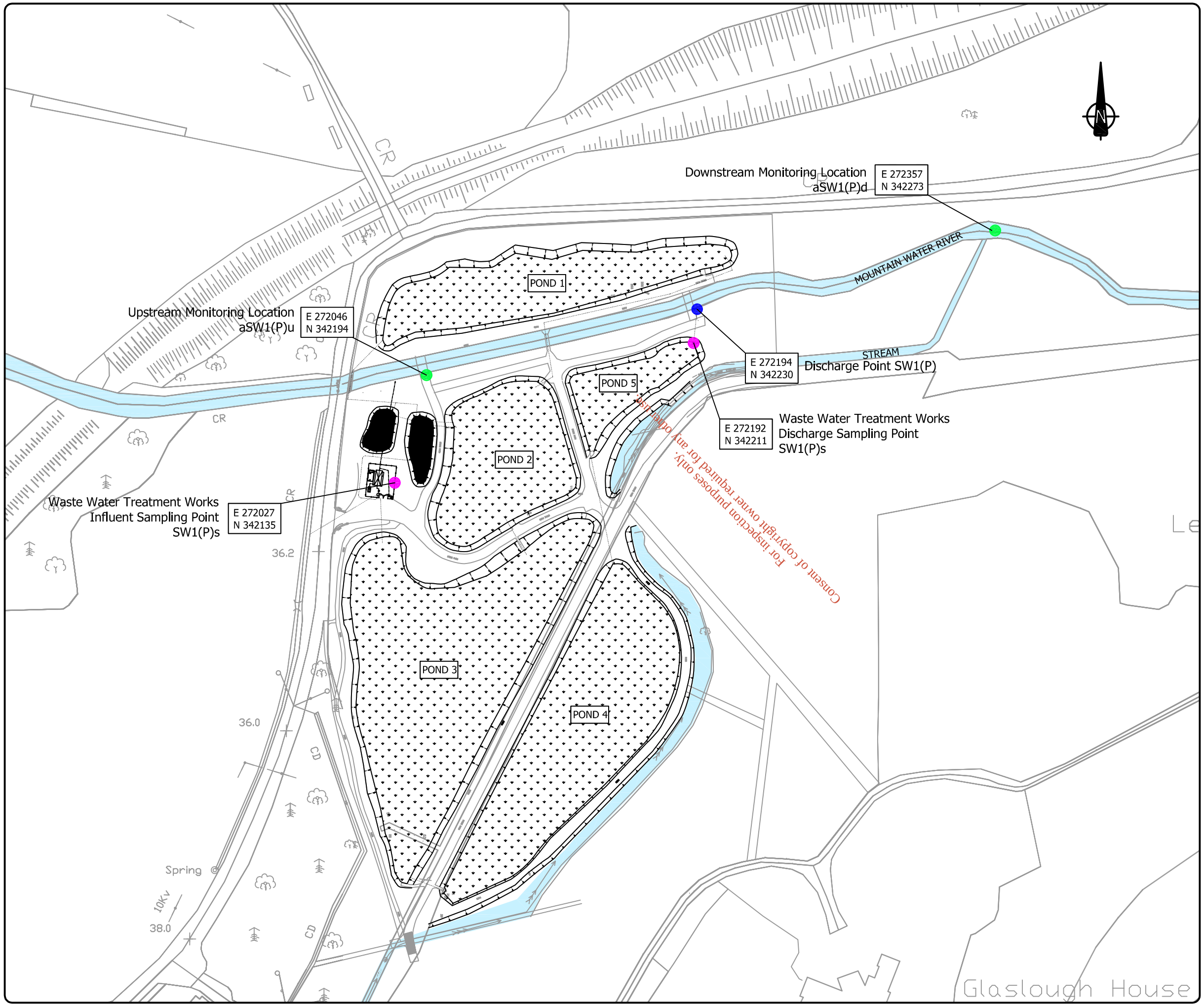

LEGEND:

- SAMPLING POINT
- MONITORING LOCATION
- DISCHARGE POINT

REV	DESCRIPTION	BY	CHK	APP	DATE
27/03/09					

Monaghan County Council
Comhairle Contae Mhuineacháin

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e-mail: info@phmcc.com

Project:

GLASLOUGH
DISCHARGE LICENCE APPLICATION

Drawing Title:

PRIMARY DISCHARGE, SAMPLING & MONITORING LOCATIONS KEY PLAN

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:2000	DW	27/03/09	CS	27/03/09	TK	27/03/09

Project No.	Office	Type	Drawing No.	Revision
C007400	-	-	DRAWING 4	-

Attachment B.6

GLASLOUGH SEWERAGE SCHEME

05-8008

PILOT SEWERAGE TREATMENT WORKS INCORPORATING INTEGRATED CONSTRUCTED WETLAND (ICW).

PROCESS DISCRIPTION DOCUMENT

Monaghan County Council

JUNE 2005

THE USE OF INTEGRATED CONSTRUCTED WETLANDS (ICWs) IN RURAL DOMESTIC WASTEWATER MANAGEMENT

Summary: "Integrated Constructed Wetlands" (ICWs) are a specific design approach to water resource management. The concept, design, application and performance are described. The approach incorporates water quality management with "landscape fit" and biodiversity along with social and economic considerations that help facilitate the required larger land areas used in ICW design compared with those generally used in other surface flow constructed wetlands. As a surface flow constructed wetland system, the cleansing capacity of the ICW is largely dependent upon the ratio of water inflow to wetland area. Precipitation-derived influent fluxes to the wetland are the primary influence in determining the required wetland area and consequently their cleansing capacity. The composition of the influent is of lower significance, with ammonium concentration having a threshold impact on the survival of the emergent plant species.

INTRODUCTION

"Integrated Constructed Wetlands" (ICWs) are a specific design approach to the use of constructed wetlands in the treatment of wastewater and to water resource management generally. As such they are ecologically engineered systems rather than being environmentally engineered solutions to improve water quality (Mitsch and Jørgensen, 1989). The ICW concept arose from the convergence of a number of factors. The principal of these was the need for improved environmental infrastructure in adjacent rural communities (Annestown and Dunhill, Co. Waterford, Ireland). These communities realised the potential for economic and social development through the restoration of their aquatic habitats. The initiative grew with Local Government, State and EU support.

The following is a presentation of the ICW concept, its design, application and performance in the catchment.

THE ICW CONCEPT

Emergent vegetated wetlands are recognised as having significant capacity for the physical, chemical and biological cleansing of polluted water. Integrated Constructed Wetlands are a specific design approach in the use of surface flow emergent vegetated constructed wetlands. They are distinguished from other surface flow emergent vegetated constructed wetland approaches, as they are designed to provide a range of ecological services. They try to provide the widest possible range of ecological conditions as found in natural wetlands including those of soil, water, plant and animal ecology. In addition, the ICW concept strives to achieve "landscape fit" and "habitat restoration/creation" into its holistic designs. These added values develop important synergies that facilitate a high degree of cleansing, sustainability and robustness. The required larger land areas used in the ICW design compared with those generally used in other constructed wetlands is offset by the site gaining new values through landscape fit and biodiversity.

BASIC REQUIREMENTS AND CONSIDERATIONS

The ICW concept strives to be holistic, as it combines capture and treatment of polluted and eutrophic water, sets the required wetland infrastructure aesthetically into the landscape, optimises its ecological function, and satisfies planning and regulatory requirements. The concept, by taking an ecosystem-based approach, focuses on all inputs and outputs to the wetland ecosystem. This ensures sustainability and robustness. These considerations help avoid exposure to malfunction through human error by being as self-managing as possible. The requirement of satisfying planning and regulatory authorities is achieved by demonstrating that the performance of an ICW is as least as good as other recognised /regulated water treatment systems through providing effective monitoring infrastructure.

DESIGN

While wetland configuration/landscape fit and emergent plant species/biodiversity are important components of the ICW design (Harrington and Ryder 2002) emphasis in this presentation is on hydraulic management.
The ICW design requires that all potential water drainage to the wetland be considered. The wetland is in effect, a bunded system. It requires that all flows are effectively collected and directed to the wetland. This may include roof water from buildings, intercepted precipitation from the farmyards (including land sloping to the yard unless deflected), dirty water from dairy washings, yard-cleaning water, silage effluent and water from open slurry pits and dungsteads. The design also requires the effective containment of all contaminated water and that the wetland should not be a source risk of either point or diffuse pollution through inadequate design and construction. Design protocols and guidelines which are in preparation will include appropriate site assessment that takes into account:

- Consideration of whether some sites may be appropriate or not
- Soil type/geology/topography/coefficients of site uniformity
- Site values for nature conservation and archaeology/built-heritage
- Characteristics of influent (particularly ammonium concentrations)
- An appropriate monitoring strategy, including consideration of adjacent wells, watercourses and ground water.

The Site chosen at Glaslough is particularly suited to an ICW being piloted there.

- The existing sewer pipes flow there at present and on site temporary treatment is currently in use on this site, as shown on the enclosed LSS survey drawing 9823/1.
- The site is adjacent the Mountain Water river with significant flows at all times of year for dilution of effluent.
- The site is well away from zoned village land and will not produce cordon sanitaria to future development.
- The nature of the existing soils to the south, are water-clogged clays, which are impermeable and would lend them to preventing horizontal seepage. Vertical seepage is to be encouraged but unlikely to be very significant on this site. To the north, the soils are much drier and free draining and a 10m buffer zone will be left between river edge and that of ponds. The elevation of ponds will be maintained at approximate current ground levels, which has never known to be subject to flooding.
- The site is adequately distanced from ancient or archaeological monuments.

- A monitoring lake will be included for sampling effluent prior to discharge to river.

Due to the low invert level of the incoming sewer pipe to the works, 2.8m deep, it will be necessary to install a pump station at the inlet. However, a pump station already exists to the temporary plant and this can be utilised to pump directly to an under-ground Primary Settlement Tank (PST). The PST is included to arrest synthetic waste from the flow (de-sludged bi-monthly), before entering another underground package pump station. A second pump station is required to deliver the sewage being pumped across the river to Pond No. 1. A hydraulic head will exist between each pond, Nos.1 to 8, so that flow is continuous between each pond in sequence, before discharging to the river.

DETERMINATION OF WETLAND AREA AND INFLUENCE OF PRECIPITATION

The cleansing efficiencies of surface flow wetland systems are based on appropriate hydraulic residence times (HRTs). This depends on having sufficient functional wetland area. The segmentation of the wetland into a number of cells and the avoidance of preferential flows through these cells by managing water depth ensure optimal functioning.

Glaslough village is currently 350pe with proposals for many more houses currently through the planning process. In principal, for domestic sewerage an allowance of 20m2/person should be allowed for the area of ICW required. To allow for future expansion of the village a further 1150pe should be designed in, giving a total of 1500pe. **Therefore the ponds should have a minimum area of 30,000m2 or 3 ha.**

The ICW concept takes into account both extreme precipitation events and the variable composition of influents in calculating wetland area.

GENERAL PERFORMANCE

The performance of all ICWs will comply with all regulatory requirements as they are proposed. Phosphorus (MRP) concentration of discharge water, ammonium and nitrate concentrations, faecal coli forms will be managed parameters.

CONCLUSIONS

The effectiveness of ICWs is largely dependent upon having an appropriate water surface area to cleanse influents. Whilst the concentration of contaminants in the influent has less influence on the area required, concentration, especially of ammonium, is important for the survival of emergent plants that provide the hydraulic resistance and reactive surfaces. The variation in ICW performance with regard to phosphorus, recognised as the most area-dependent constituent (Kadlec and Knight 1996), are shown to be strongly related to the effective area of the wetland. In the pursuit of achieving low phosphorus concentrations (< 0.2mg/l), a ratio of 20 m2 of wetland per person has been used in Glaslough.

The Integrated Constructed Wetland design is a unique approach to the use of constructed wetlands to water quality management. It utilises the ecosystem studies approach (Bormann and Likens 1981) to understand its physical, chemical and biological supporting processes. It

draws on the science of wetland ecology and on landscape aesthetics to build new values for the sites involved. They have the capacity to effectively treat a wide range of types of contaminated water in a sustainable way and to enhance site values as well as turning "problem" farm and rural derived wastewater into significant economic, social and environmental resources.

REFERENCES

Bormann F H and G E Likens (1981). Pattern and Process in a Forested Ecosystem. Springer-Verlag New York 253p.

EPA (2002) Interim Report: The biological survey of river quality 2001. Environmental Protection Agency Johnston Castle Ireland.

Harrington R and C Ryder (2002) The use of Integrated Constructed Wetlands (ICWs) in the Management of Farmyard Runoff and Waste Water. National Hydrology Seminar 2002: Water Resource and Management Sustainable Supply and Demand. Irish Nat. Committees of IHP and ICID. The Institution of Engineers of Ireland 55-63.

Kadlec R and R Knight (1996). Treatment Wetlands. Lewis Publishers. Boca Raton.

Mitsch W J and S E Jørgensen (1989). *In* Ecological Engineering: An introduction to ecotechnology. Mitsch W J and S E Jørgensen(Eds). J Wiley and Sons Inc, New York..

O'Sullivan C T (1998) Constructed Wetland Treatment Facilities for Small and Medium Size Communities. Unpublished M.Sc. Dissertation. Dep. Civil Engineering, Trinity College Dublin.

Siccama T G, F H Bormann and G E Likens (1970). The Hubbard Brook Ecosystem Study: Productivity, nutrients and phytosociology of the herbaceous layer. Ecol. Monogr. 40:389-420.

MONAGHAN COUNTY COUNCIL
PLANNING & DEVELOPMENT

This report has been prepared in accordance with Part 8 of the Planning and Development Regulations (S.I. No. 600 of 2001) and is being submitted to the members of Monaghan County Council in the course of compliance with Section 179 of the Planning & Development Act 2000
File Ref: 05/8008

A. Nature and extent of the proposed development and the principal features thereof:

The proposed development is a pilot scheme to form a Pilot Integrated Constructed Wetland for the treatment of Municipal sewerage. The works will consist of an underground primary settlement tank, underground pumping station, 8 shallow ponds, upgrading of riding trails plus construction of new entrance walls and gates (at existing entrance) in Glaslough village

B. Evaluation of the likely implication of the proposed development with respect to the proper planning and sustainable development of the area:

The proposed development provides for the enhanced treatment of urban waste water provided through an innovative pilot scheme. The development will visually integrate within the proposed location whilst also providing an essential and sustainable infrastructure for the area.

C. List of the persons/bodies who made submissions/observations with respect to the proposed development:

Eastern Regional Fisheries Board – Consider that the design of the ponds do not comply with the E.P.A recommendations in that a 'barrier is provided beneath the bed of all constructed wetlands to prevent groundwater contamination'. The ERFB thereby objects to the proposed development in that the failure to line the ponds would have a negative impact on the aquatic habitat.

D. Summary of the issues with respect to the proper planning and development of the area raised by persons/bodies who made submissions/observations and the Council's response thereto:

In response to comments and objection by Eastern Regional Fisheries Board, 10th/Aug/2005 the objection was referred to Dr. Rory Harrington from the Department of Environment, Heritage and Local Government, the following comments were submitted:

- The proposed ICW will be lined by existing on-site soil to achieve an infiltration rate of $1x10^{-8}$ m/s. This equates to c. 330mm/year as per proposed national guidance for ICW's.
  This will be achieved by compacting local soils and constructing a non-permeable soil overlay to a minimum depth of 1.5m. Site suitability tests on the soils in the proposed areas have been completed.

P05/8008

1.a. The settlement tank to be installed in accordance with the requirements as set out in the document 'Waste Water Treatment Manuals.

b. The settlement tank effluent to be disposed to a reed bed treatment system which shall be constructed in accordance with the proposals submitted and by means of an effluent percolation system installed in accordance with attached Appendix.

c. No part of effluent percolation area to radiate within 20M of any dwelling, 10M of any watercourse or 3M of any boundary.

2a. Appropriate procedures to detect pump failure/blockage etc and prevent any discharge of polluting matter to surface or groundwaters shall be put in place and agreed in writing with the Planning Authority prior to commencement of development.

b. Details of chemical storage tank(s), appropriate bunding structures, spill containment measures for delivery of bulk chemicals shall be submitted to the Planning Authority prior to commencement of development.

c. Water services should develop and implement a suitable maintenance for the proposed treatment system.

3a. Sight distances of 150 metres in each direction to be provided from a point in entrance 3.0 metres from the road edge and 1.0 metre above ground level. Sight distances to be measured to the nearside road edge in both directions. Where it is necessary to remove hedges in order to achieve this sight distance, the new boundary should be located clear of sightlines.

b. Applicant to install Cattlegrid/ACO Drain/Gullies at proposed entrance constructed on such a manner as to prevent water from the entrance flowing onto the public road. Similarly measures must be taken to prevent road surface water from flowing onto the entrance. The discharge from the above to be piped to drainage pipeline.

c. The discharge of surface water from the public road onto the site through road surface drainage and road subsoil drainage to remain unimpeded.

d. Provision to be made within the site for surface water drainage and no surface water to be allowed flow onto the public roadway.

4a. Only those hedgerows and trees which must be lowered or uprooted to provide adequate sight distances to be removed. All other trees and hedgerows bounding the site to be permanently retained in this development, to be reinforced with additional planting and to be protected from damage at all times, particularly during building operations.

b. New boundaries of site and line of recessed entrance to be planted with trees and shrubs of a species native to the area to form a naturalised hedgerow similar to existing hedgerows in the vicinity. Species to include

thorn, beech, ash, oak, hazel, sycamore and holly.

c. Planting as required above and as shown on submitted documentation to be carried out in the first planting season following commencement of works and permanently retained thereafter. Any plant which fails in the first planting season to be replaced.

d. Any boundary fencing to be of stained wood.

5. Subject to the above conditions, development shall be carried out in strict conformity with lodged plans and specifications.

REASONS FOR THE IMPOSITION OF THE ABOVE CONDITIONS ARE:

1. In the interests of proper planning and the protection of public health.
2. In the interests of proper planning and the protection of public health.
3. In the interest of proper planning and traffic safety.
4. In the interest of proper planning and development.
5. To prevent unauthorised development.

Paul Clifford
DIRECTOR OF SERVICES

DATE

APPENDIX 1

05/8008

REQUIREMENTS TO BE COMPLIED WITH REGARDING INSTALLATION OF SEPTIC TANK EFFLUENT PERCOLATION SYSTEM.

(i) The septic tank effluent to be distributed evenly to the effluent percolation system by means of a suitable distribution box.

(ii) The percolation system to consist of a minimum of 50 metres percolation pipes laid to a fall of 1:200 and be of either the following (or the equivalent):

- 110mm diameter perforated smooth wall plastic drainage pipes with perforations of 8mm diameter at 75mm centres along the pipe at 4,6 and 8 o'clock.

- 75mm diameter plain ended clay pipes in lengths of not more than 300mm, placed end to end.

(iii) The percolation pipes to be laid in trenches at least 450mm wide and bedded in 250mm depth of 20-30 mm size crushed stone. These pipes to be surrounded on sides and top by 150mm depth of similar type stone which should extend the full width of the trench.

(iv) Each individual run of percolation pipes to be not longer than 20m and be at least 2m apart. The percolation pipes to be interconnected at the end of pipe runs.

(v) Before the trenches are backfilled, the crushed stone to be covered with peat fibre, geotextiles or similar permeable durable materials. The trenches to be overfilled to allow for settlement.

Mr. Dan Doody,
Senior Executive Engineer,
Monaghan County Council.

25/8/2005

Re: Glaslough STW Planning Permission no. 05/8008

In response to comments and objection by Eastern Regional Fisheries Board, 10th/Aug/2005.

The proposed ICW will be lined by existing on-site soil to achieve an infiltration rate of $1x10^{-8}$ m/s. This equates to c. 330mm/year as per proposed national guidance for ICW's.

This will be achieved by compaction and by having about 1.5m of soil.

Site investigations of the soils of the proposed areas indicated that this is achievable.

The area of the wetland is on the basis of having $20m^2$ per person (pe). This area requirement is twice that generally applied for the treatment of urban waste water. These design criteria have been demonstrated to deliver water within the limits demanded by the Urban Waste Water Directive. In the demonstration areas of the Annestown stream, in Co. Waterford, a former Q-rating of 2 is now Q4 with trout and other water quality indicator species present.

The comment on the planning file indicating that no lining was required was a misunderstanding of the use of local soil liners and that the infiltration further enhanced cleansing of the waste water by facilitating denitrification and pathogen removal. The design criteria above will ensure that water only intermittently discharges (evapotranspiration and interception of precipitation reducing flow rates).

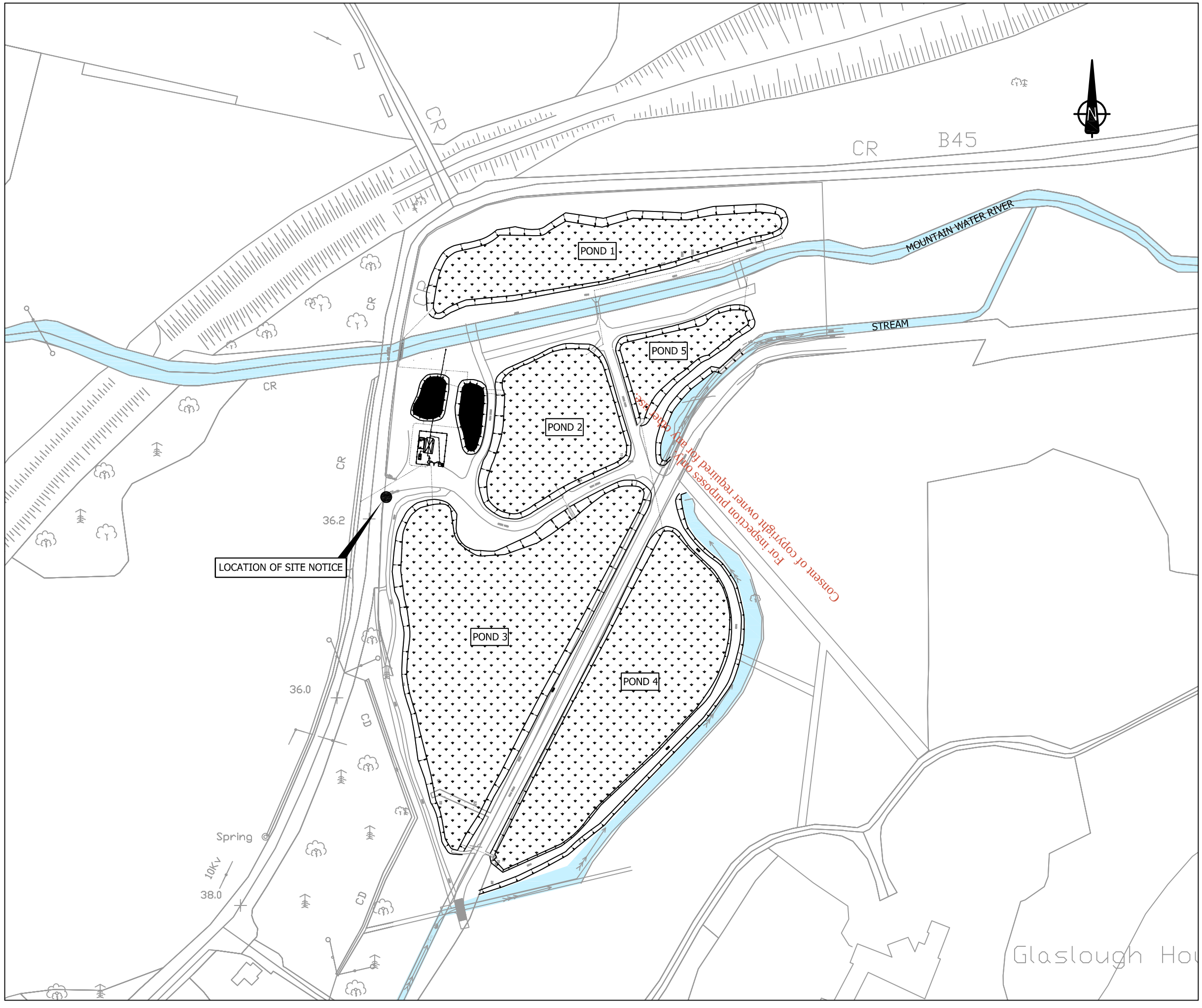
It is also proposed to install Lysimeters under the wetland ponds to accurately record infiltration rates and the quality of the infiltrate.

Further information and references are available if necessary.

Dr. Rory Harrington,
Programme Manager,
ICW Initiative,
Department of Environment, Heritage and Local Government.

051 – 854329
086 - 8075078

Attachment B.8



REV	DESCRIPTION	BY	CHK	APP	DATE

Monaghan County Council
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Project:
GLASLOUGH
DISCHARGE LICENCE APPLICATION

Drawing Title:
WASTEWATER TREATMENT PLANT
LOCATION OF SITE NOTICE

Scale @ A3	Drawn Date	Checked Date	Approved Date
1:2000	DW 27/03/09	CS 27/03/09	TK 27/03/09

Project No.	Office	Type	Drawing No.	Revision
C007400	-	-	DRAWING 5	-

SITE NOTICE

Monaghan County Council

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTE WATER DISCHARGE LICENCE

Notice is hereby given that Monaghan County Council of County Offices, The Glen, Monaghan, Co. Monaghan is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the existing Waste Water Works at Glaslough, Glaslough Village, Co. Monaghan in accordance with the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007).

The Waste Water Works comprises an Integrated Constructed Wetlands for the treatment of municipal sewerage serving Glaslough Village.

The primary discharge from the Waste Water Treatment Works is directly to the Mountain Water River (at National Grid Reference 272194E 342230N) in the townland of Glaslough, Co. Monaghan. The associated Integrated Constructed Wetlands is located at National Grid Reference 272027E 342135N also in the townland of Glaslough, Co. Monaghan.

A copy of the waste water discharge licence application shall, as soon as practicable after receipt by the Environmental Protection Agency, be available for inspection or purchase at the

- Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, Co. Wexford, Lo Call 1980 335599 Telephone: 053-9160600 Fax: 053-9160699 Email: info@epa.ie.

and at

- Monaghan County Council Offices, The Glen, Monaghan, Co Monaghan, Telephone: 047-30500, Fax: 047-82739

Submissions in relation to this application may be made to the Environmental Protection Agency at its headquarters described above.

Signed: David Fallon Director of Services **Date: 26/03/2009**

• Public Notices • Announc

Comhairle Contae Mhuineacháin www.
MONAGHAN COUNTY

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTE WATER DISCHARGE LICENCE

Notice is hereby given that Monaghan County Council of County Offices, The Glen, Monaghan, Co. Monaghan is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the Emyvale Waste Water Works at Derrygasson Upper, Co. Monaghan in accordance with the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007).

The Waste Water Works comprises a network of gravity sewers, a number of small pumping stations and associated rising main and a Waste Water Treatment Plant serving Emyvale and its environs.

The primary discharge from the Waste Water Treatment Works is directly to the Mountain Water River (at National Grid Reference 267964 E, 343554N) in the townland of Derrygasson Upper, Co. Monaghan. The associated Waste Water Treatment Plant is located at National Grid Reference 267951E, 343612N also in the townland of Derrygasson Upper, Co. Monaghan.

A copy of the waste water discharge licence application shall, as soon as practicable after receipt by the Environmental Protection Agency, be available for inspection or purchase at the

- Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, Co. Wexford, Lo Call 1980 335599
  Telephone: 053-9160600 Fax: 053-9160699 Email: info@epa.ie.

and at

- Monaghan County Council Offices, the Glen, Monaghan, Co Monaghan, Telephone: 047-30500, Fax: 047 82739

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Signed: David Fallon Date: 26/03/2009
Director of Services

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The primary discharge from the Waste Water Treatment Works is directly to the Mountain Water River (at National Grid Reference 272194E 342230N) in the townland of Glaslough, Co. Monaghan. The associated Integrated Constructed Wetlands is located at National Grid Reference **272027E 342135N** also in the townland of Glaslough, Co. Monaghan.

A copy of the waste water discharge licence application shall, as soon as practicable after receipt by the Environmental Protection Agency, be available for inspection or purchase at the

- Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, Co. Wexford, Lo Call 1980 335599
  Telephone: 053-9160600 Fax: 053-9160699 Email: info@epa.ie.

and at

- Monaghan County Council Offices, The Glen, Monaghan, Co Monaghan, Telephone: 047-30500, Fax: 047-82739

Submissions in relation to this application may be made to the Environmental Protection Agency at its headquarters described above.

Signed: David Fallon Date: 26/03/2009

APPLICATION TO THE ENVIRONMENTAL PROTECTION AGENCY FOR A WASTE WATER DISCHARGE LICENCE

Notice is hereby given that Monaghan County Council of County Offices, The Glen, Monaghan, Co. Monaghan is applying to the Environmental Protection Agency for a Waste Water Discharge Licence for the Inniskeen Waste Water Works at Lacklom, Co. Monaghan in accordance with the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007).

The Waste Water Works comprises a network of gravity sewers, a number of small pumping stations and associated rising main and a Waste Water Treatment Plant serving Inniskeen and its environs.

The primary discharge from the Waste Water Treatment Works is directly to the Fane River (at National Grid Reference **293957E, 306683N)** in the townland of Lacklom, Co. Monaghan. The associated Waste Water Treatment Plant is located at National Grid Reference **293924E, 306661N** also in the townland of Lacklom, Co. Monaghan.

A copy of the waste water discharge licence application shall, as soon as practicable after receipt by the Environmental Protection Agency, be available for inspection or purchase at the

- Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, Co. Wexford, Lo Call 1980 335599
  Telephone: 053-9160600 Fax: 053-9160699 Email: info@epa.ie.

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- Monaghan County Council Offices, The Glen, Monaghan, Co Monaghan, Telephone: 047-30500, Fax: 047-82739

Submissions in relation to this application may be made to the Environmental Protection Agency at its headquarters described above.

Signed: David Fallon Date: 26/03/2009
Director of Services

Monaghan County Council Environment Section
www.monaghan.ie

ENVIRONMENTAL AND RECREATION IMPROVEMENT FUND

Applications are now being sought from Tidy Towns Groups, Resident Associations, Youth Groups and other community based organisations wishing to avail of funding from Monaghan County Council's Environmental and Recreation Improvement Fund 2009.

The aim of this fund is to assist community groups engaged in environmental work in their locality. The type of work would typically include:-

- Maintenance of open spaces
- Tree, shrub, hedge and flower planting
- Litter management
- Painting
- Repair of fences, walls etc.

Application Form and Guidelines are available from the Environment Section. Contact 047 30593 or e-mail jmaguir2@monaghancoco.ie or download from www.monaghan.ie.

Applications will only be accepted from members of the Tidy Towns & Residents Association Network.

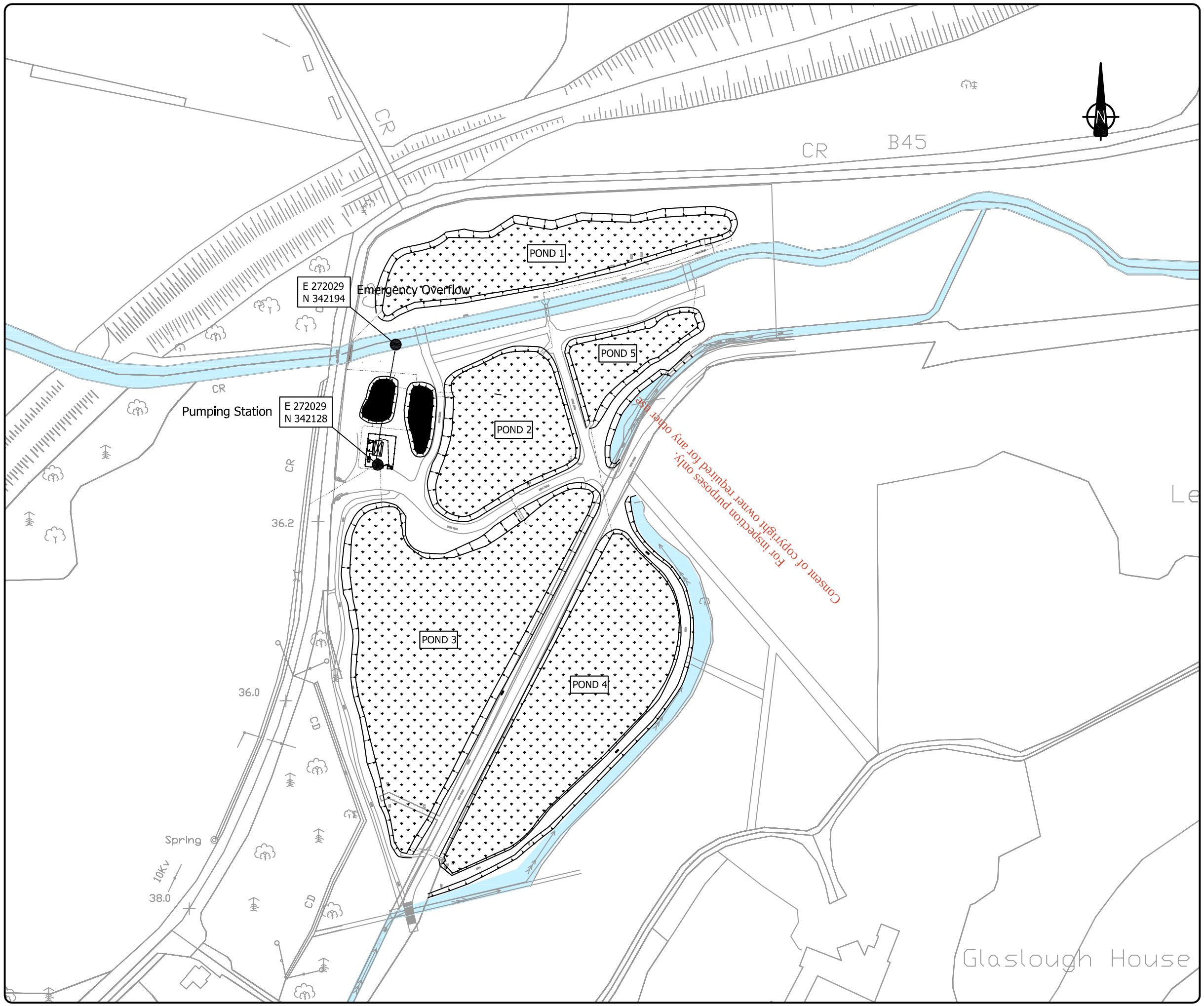
Closing date for receipt of completed applications is 24th April 2009.

Roads Act 1993 Tempo

Temporary closing of Roads pursuant to Section 75 of Roads Act 1993 a to public traffic, the road described hereunder from **Thursday 9th Apr** Works.

Road Closed
1. LS06340 & LS06341

Attachment C.1



REV	DESCRIPTION	BY	CHK	APP	DATE
	27/03/09				

Monaghan County Council
Comhairle Contae Mhuineacháin

PH McCARTHY HOUSE
NUTGROVE OFFICE PARK
NUTGROVE AVENUE,
RATHFARNHAM, DUBLIN 14

TEL: +353 (0) 1291 4800
FAX: +353 (0) 1298 9521
e-mail: info@phmcc.com

Project:
GLASLOUGH
DISCHARGE LICENCE APPLICATION

Drawing Title:
PUMPING STATION &EMERGENCY OVERFLOW LOCATION

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:2000	DW	31/03/09	CS	31/03/09	TK	31/03/09

Project No.	Office	Type	Drawing No.	Revision
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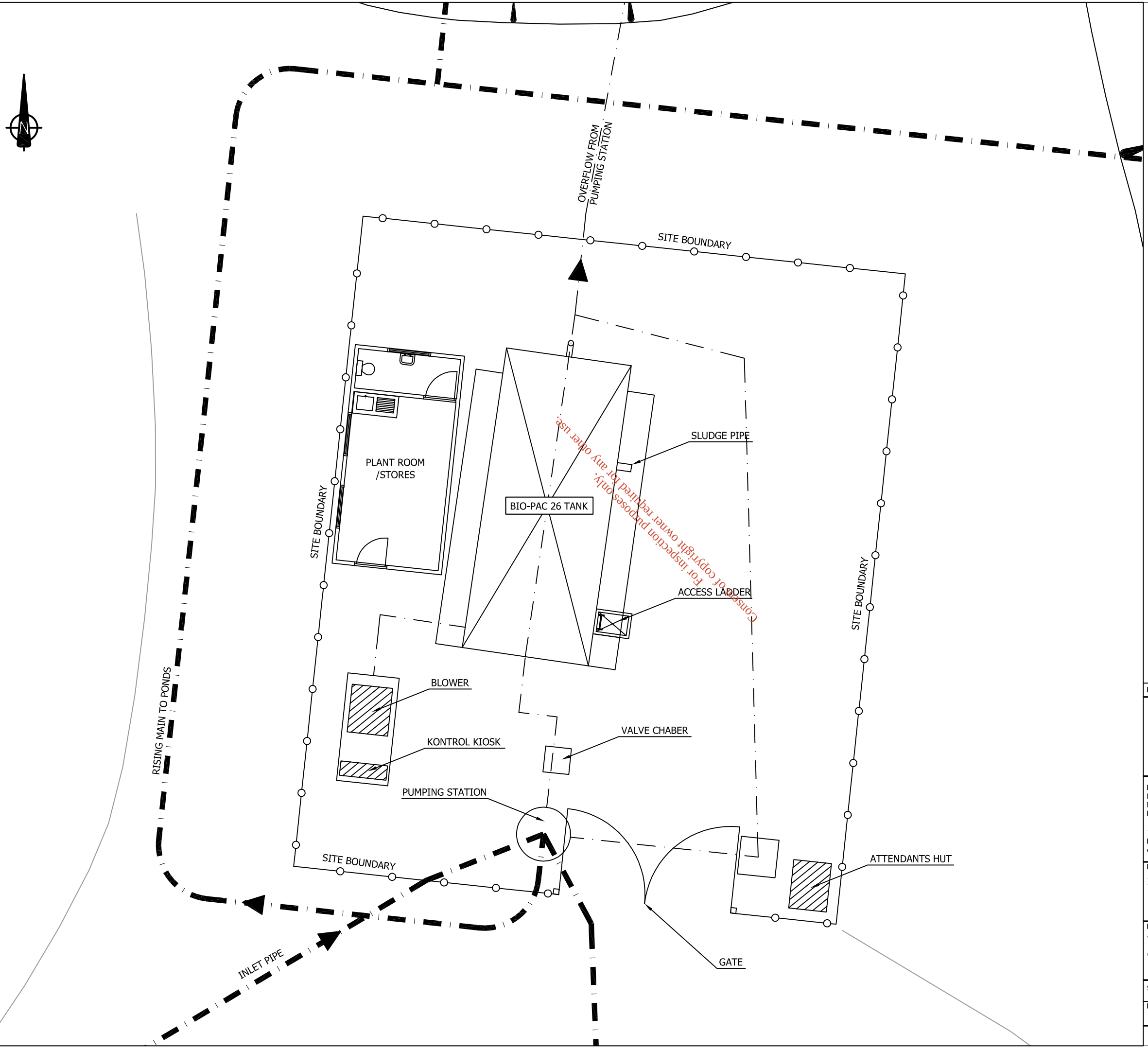

REV	DESCRIPTION	BY	CHK	APP	DATE

Monaghan County Council
Comhairle Contae Mhuineacháin

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e-mail: info@phmcc.com

Project:
INNISKEEN
DISCHARGE LICENCE APPLICATION

Drawing Title:
WASTEWATER TREATMENT PLANT
GENERAL ARRANGEMENT

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
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Project No.	Office	Type	Drawing No.	Revision
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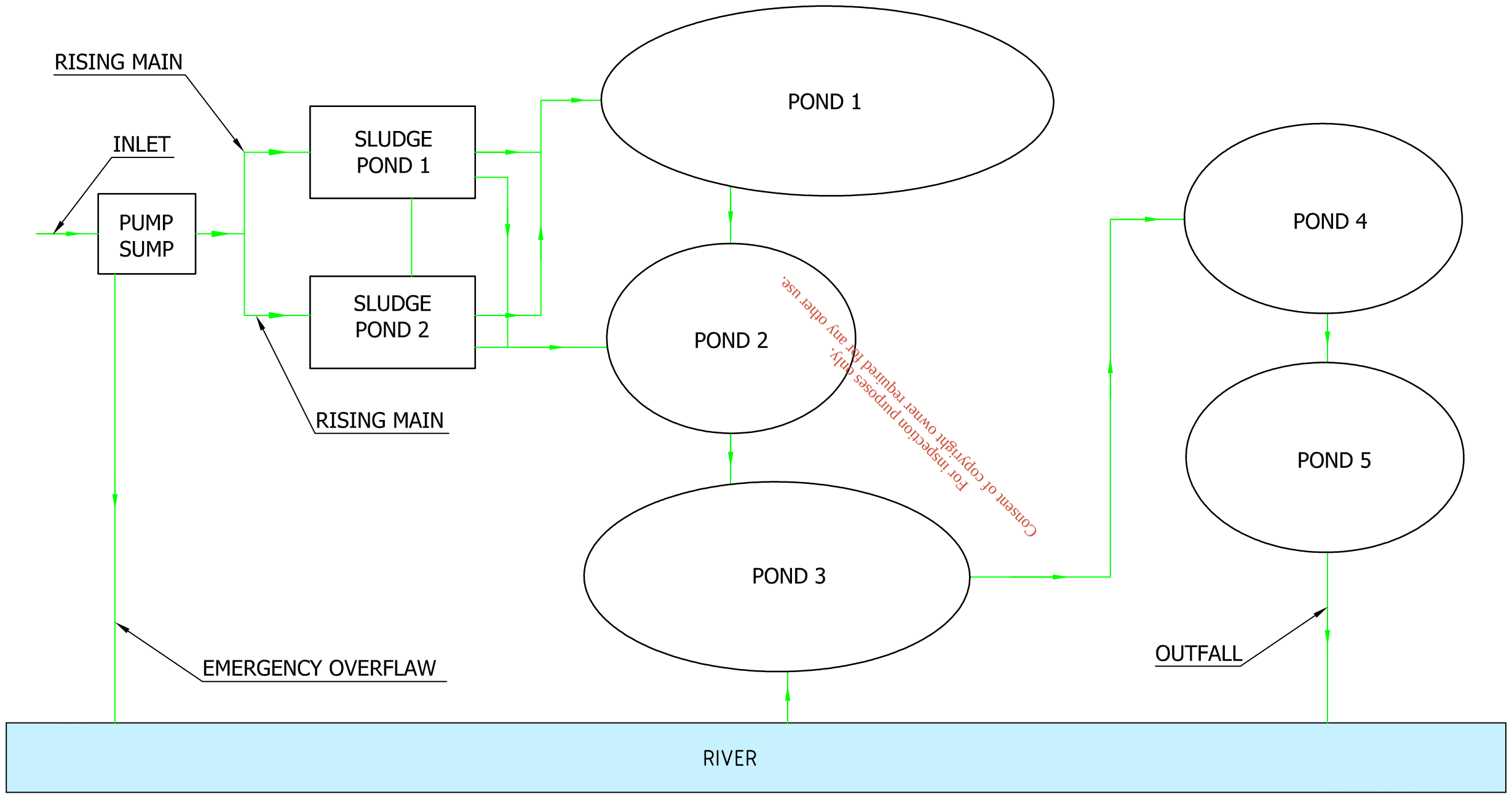

REV	DESCRIPTION	BY	CHK	APP	DATE

Monaghan County Council
Comhairle Contae Mhuineacháin

PH McCARTHY HOUSE
NUTGROVE OFFICE PARK
NUTGROVE AVENUE,
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TEL: +353 (0) 1291 4800
FAX: +353 (0) 1298 9521
e-mail: info@phmcc.com

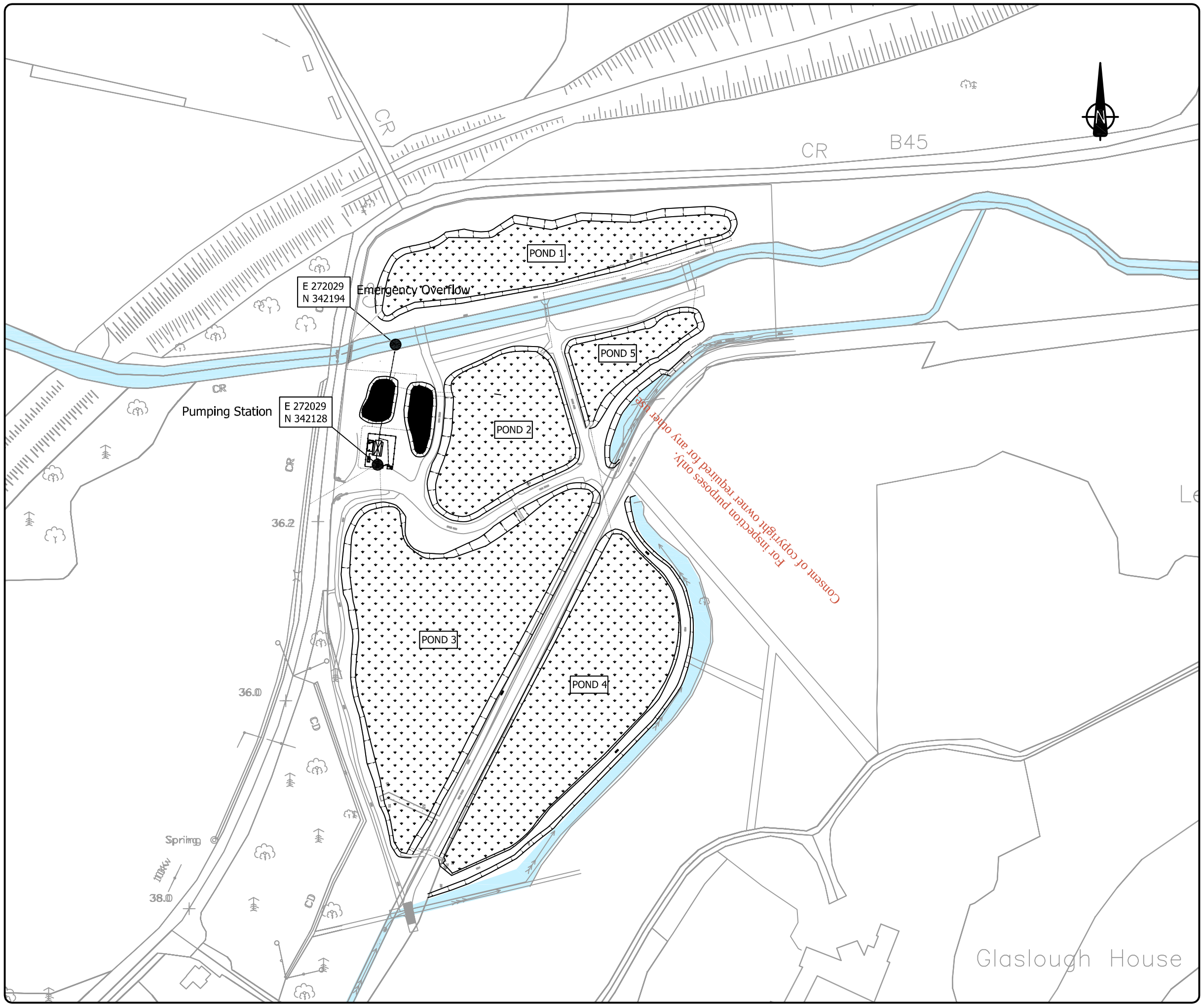
Project:
GLASLOUGH
DISCHARGE LICENCE APPLICATION

Drawing Title:
WASTEWATER TREATMENT PLANT
SCHEMATIC LAYOUT

Scale @ A3	Drawn Date	Checked Date	Approved Date
NTS	DW 31/03/09	CS 31/03/09	TK 31/03/09

Project No.	Office	Type	Drawing No.	Revision
C007400	-	-	DRAWING 8	-

DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS



REV	DESCRIPTION	BY	CHK	APP	DATE
	27/03/09				

Monaghan County Council
Comhairle Contae Mhuineacháin

PH McCARTHY HOUSE
NUTGROVE OFFICE PARK
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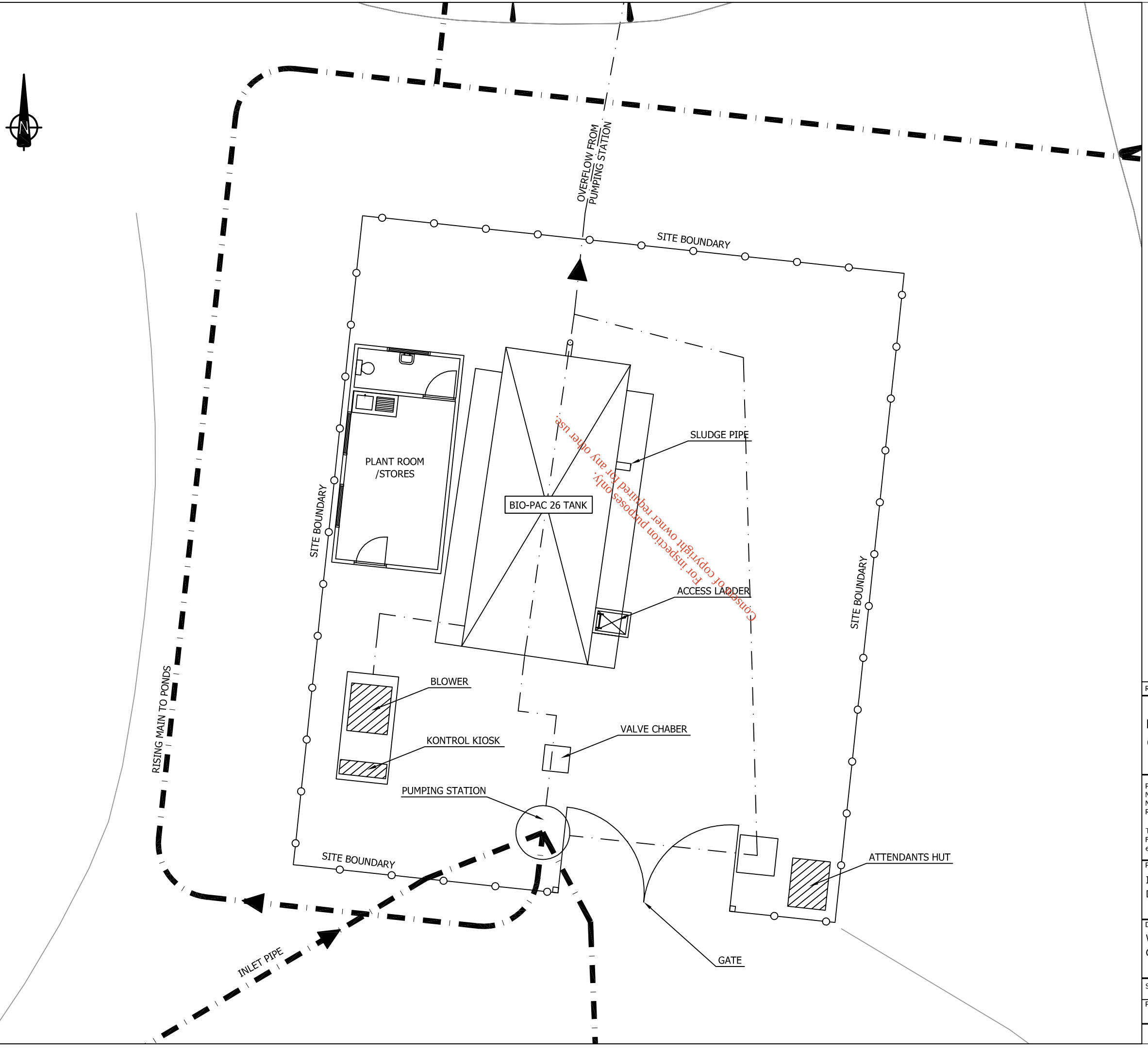
Project:
GLASLOUGH
DISCHARGE LICENCE APPLICATION

Drawing Title:
PUMPING STATION &EMERGENCY OVERFLOW LOCATION

Scale @ A3	Drawn Date	Checked Date	Approved Date
1:2000	DW 31/03/09	CS 31/03/09	TK 31/03/09

Project No.	Office	Type	Drawing No.	Revision
C007400	-	-	DRAWING 6	-

DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS



REV	DESCRIPTION	BY	CHK	APP	DATE

Monaghan County Council
Comhairle Contae Mhuineacháin

PH McCARTHY HOUSE
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e-mail: info@phmcc.com

Project:
INNISKEEN
DISCHARGE LICENCE APPLICATION

Drawing Title:
WASTEWATER TREATMENT PLANT
GENERAL ARRANGEMENT

Scale @ A3	Drawn Date	Checked Date	Approved Date
1:500	DW 27/03/09	CS 27/03/09	TK 27/03/09

Project No.	Office	Type	Drawing No.	Revision
C007400	-	-	DRAWING 7	

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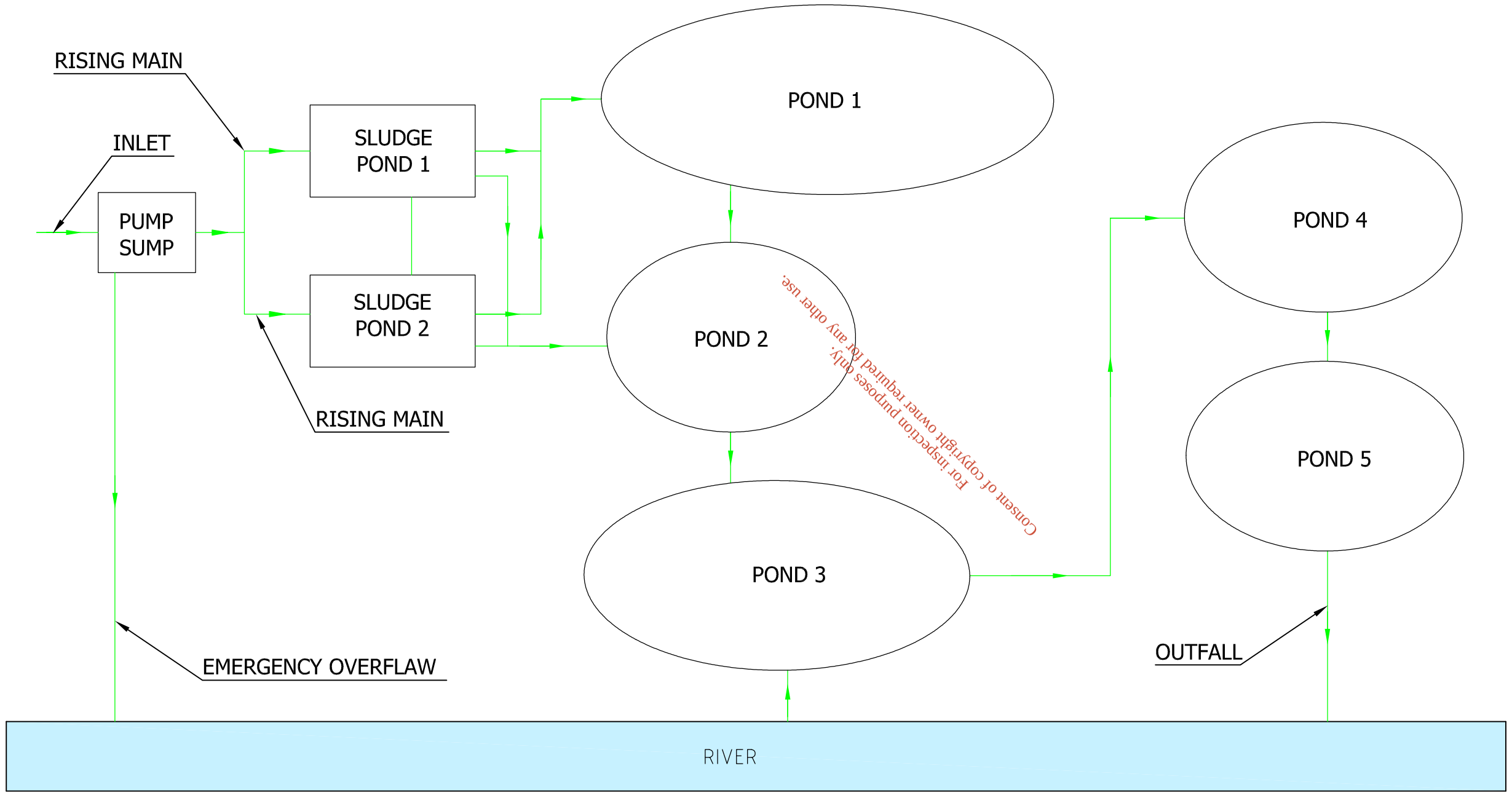

REV	DESCRIPTION	BY	CHK	APP	DATE

Monaghan County Council
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Project:
GLASLOUGH
DISCHARGE LICENCE APPLICATION

Drawing Title:
WASTEWATER TREATMENT PLANT
SCHEMATIC LAYOUT

Scale @ A3	Drawn Date	Checked Date	Approved Date
NTS	DW 31/03/09	CS 31/03/09	TK 31/03/09

Project No.	Office	Type	Drawing No.	Revision
C007400	-	-	DRAWING 8	-

GLASLOUGH SEWERAGE SCHEME

05-8008

PILOT SEWERAGE TREATMENT WORKS INCORPORATING INTEGRATED CONSTRUCTED WETLAND (ICW).

PROCESS DISCRIPTION DOCUMENT

Monaghan County Council

JUNE 2005

THE USE OF INTEGRATED CONSTRUCTED WETLANDS (ICWs) IN RURAL DOMESTIC WASTEWATER MANAGEMENT

Summary: "Integrated Constructed Wetlands" (ICWs) are a specific design approach to water resource management. The concept, design, application and performance are described. The approach incorporates water quality management with "landscape fit" and biodiversity along with social and economic considerations that help facilitate the required larger land areas used in ICW design compared with those generally used in other surface flow constructed wetlands. As a surface flow constructed wetland system, the cleansing capacity of the ICW is largely dependent upon the ratio of water inflow to wetland area. Precipitation-derived influent fluxes to the wetland are the primary influence in determining the required wetland area and consequently their cleansing capacity. The composition of the influent is of lower significance, with ammonium concentration having a threshold impact on the survival of the emergent plant species.

INTRODUCTION

"Integrated Constructed Wetlands" (ICWs) are a specific design approach to the use of constructed wetlands in the treatment of wastewater and to water resource management generally. As such they are ecologically engineered systems rather than being environmentally engineered solutions to improve water quality (Mitsch and Jørgensen, 1989). The ICW concept arose from the convergence of a number of factors. The principal of these was the need for improved environmental infrastructure in adjacent rural communities (Annestown and Dunhill, Co. Waterford, Ireland). These communities realised the potential for economic and social development through the restoration of their aquatic habitats. The initiative grew with Local Government, State and EU support.

The following is a presentation of the ICW concept, its design, application and performance in the catchment.

THE ICW CONCEPT

Emergent vegetated wetlands are recognised as having significant capacity for the physical, chemical and biological cleansing of polluted water. Integrated Constructed Wetlands are a specific design approach in the use of surface flow emergent vegetated constructed wetlands. They are distinguished from other surface flow emergent vegetated constructed wetland approaches, as they are designed to provide a range of ecological services. They try to provide the widest possible range of ecological conditions as found in natural wetlands including those of soil, water, plant and animal ecology. In addition, the ICW concept strives to achieve "landscape fit" and "habitat restoration/creation" into its holistic designs. These added values develop important synergies that facilitate a high degree of cleansing, sustainability and robustness. The required larger land areas used in the ICW design compared with those generally used in other constructed wetlands is offset by the site gaining new values through landscape fit and biodiversity.

BASIC REQUIREMENTS AND CONSIDERATIONS

The ICW concept strives to be holistic, as it combines capture and treatment of polluted and eutrophic water, sets the required wetland infrastructure aesthetically into the landscape, optimises its ecological function, and satisfies planning and regulatory requirements. The concept, by taking an ecosystem-based approach, focuses on all inputs and outputs to the wetland ecosystem. This ensures sustainability and robustness. These considerations help avoid exposure to malfunction through human error by being as self-managing as possible. The requirement of satisfying planning and regulatory authorities is achieved by demonstrating that the performance of an ICW is as least as good as other recognised /regulated water treatment systems through providing effective monitoring infrastructure.

DESIGN

While wetland configuration/landscape fit and emergent plant species/biodiversity are important components of the ICW design (Harrington and Ryder 2002) emphasis in this presentation is on hydraulic management.
The ICW design requires that all potential water drainage to the wetland be considered. The wetland is in effect, a bunded system. It requires that all flows are effectively collected and directed to the wetland. This may include roof water from buildings, intercepted precipitation from the farmyards (including land sloping to the yard unless deflected), dirty water from dairy washings, yard-cleaning water, silage effluent and water from open slurry pits and dungsteads. The design also requires the effective containment of all contaminated water and that the wetland should not be a source risk of either point or diffuse pollution through inadequate design and construction. Design protocols and guidelines which are in preparation will include appropriate site assessment that takes into account:

- Consideration of whether some sites may be appropriate or not
- Soil type/geology/topography/coefficients of site uniformity
- Site values for nature conservation and archaeology/built-heritage
- Characteristics of influent (particularly ammonium concentrations)
- An appropriate monitoring strategy, including consideration of adjacent wells, watercourses and ground water.

The Site chosen at Glaslough is particularly suited to an ICW being piloted there.

- The existing sewer pipes flow there at present and on site temporary treatment is currently in use on this site, as shown on the enclosed LSS survey drawing 9823/1.
- The site is adjacent the Mountain Water river with significant flows at all times of year for dilution of effluent.
- The site is well away from zoned village land and will not produce cordon sanitaria to future development.
- The nature of the existing soils to the south, are water-clogged clays, which are impermeable and would lend them to preventing horizontal seepage. Vertical seepage is to be encouraged but unlikely to be very significant on this site. To the north, the soils are much drier and free draining and a 10m buffer zone will be left between river edge and that of ponds. The elevation of ponds will be maintained at approximate current ground levels, which has never known to be subject to flooding.
- The site is adequately distanced from ancient or archaeological monuments.

- A monitoring lake will be included for sampling effluent prior to discharge to river.

Due to the low invert level of the incoming sewer pipe to the works, 2.8m deep, it will be necessary to install a pump station at the inlet. However, a pump station already exists to the temporary plant and this can be utilised to pump directly to an under-ground Primary Settlement Tank (PST). The PST is included to arrest synthetic waste from the flow (de-sludged bi-monthly), before entering another underground package pump station. A second pump station is required to deliver the sewage being pumped across the river to Pond No. 1. A hydraulic head will exist between each pond, Nos.1 to 8, so that flow is continuous between each pond in sequence, before discharging to the river.

DETERMINATION OF WETLAND AREA AND INFLUENCE OF PRECIPITATION

The cleansing efficiencies of surface flow wetland systems are based on appropriate hydraulic residence times (HRTs). This depends on having sufficient functional wetland area. The segmentation of the wetland into a number of cells and the avoidance of preferential flows through these cells by managing water depth ensure optimal functioning.

Glaslough village is currently 350pe with proposals for many more houses currently through the planning process. In principal, for domestic sewerage an allowance of 20m2/person should be allowed for the area of ICW required. To allow for future expansion of the village a further 1150pe should be designed in, giving a total of 1500pe. **Therefore the ponds should have a minimum area of 30,000m2 or 3 ha.**

The ICW concept takes into account both extreme precipitation events and the variable composition of influents in calculating wetland area.

GENERAL PERFORMANCE

The performance of all ICWs will comply with all regulatory requirements as they are proposed. Phosphorus (MRP) concentration of discharge water, ammonium and nitrate concentrations, faecal coli forms will be managed parameters.

CONCLUSIONS

The effectiveness of ICWs is largely dependent upon having an appropriate water surface area to cleanse influents. Whilst the concentration of contaminants in the influent has less influence on the area required, concentration, especially of ammonium, is important for the survival of emergent plants that provide the hydraulic resistance and reactive surfaces. The variation in ICW performance with regard to phosphorus, recognised as the most area-dependent constituent (Kadlec and Knight 1996), are shown to be strongly related to the effective area of the wetland. In the pursuit of achieving low phosphorus concentrations (< 0.2mg/l), a ratio of 20 m2 of wetland per person has been used in Glaslough.

The Integrated Constructed Wetland design is a unique approach to the use of constructed wetlands to water quality management. It utilises the ecosystem studies approach (Bormann and Likens 1981) to understand its physical, chemical and biological supporting processes. It

draws on the science of wetland ecology and on landscape aesthetics to build new values for the sites involved. They have the capacity to effectively treat a wide range of types of contaminated water in a sustainable way and to enhance site values as well as turning "problem" farm and rural derived wastewater into significant economic, social and environmental resources.

REFERENCES

Bormann F H and G E Likens (1981). Pattern and Process in a Forested Ecosystem. Springer-Verlag New York 253p.

EPA (2002) Interim Report: The biological survey of river quality 2001. Environmental Protection Agency Johnston Castle Ireland.

Harrington R and C Ryder (2002) The use of Integrated Constructed Wetlands (ICWs) in the Management of Farmyard Runoff and Waste Water. National Hydrology Seminar 2002: Water Resource and Management Sustainable Supply and Demand. Irish Nat. Committees of IHP and ICID. The Institution of Engineers of Ireland 55-63.

Kadlec R and R Knight (1996). Treatment Wetlands. Lewis Publishers. Boca Raton.

Mitsch W J and S E Jørgensen (1989). *In* Ecological Engineering: An introduction to ecotechnology. Mitsch W J and S E Jørgensen(Eds). J Wiley and Sons Inc, New York..

O'Sullivan C T (1998) Constructed Wetland Treatment Facilities for Small and Medium Size Communities. Unpublished M.Sc. Dissertation. Dep. Civil Engineering, Trinity College Dublin.

Siccama T G, F H Bormann and G E Likens (1970). The Hubbard Brook Ecosystem Study: Productivity, nutrients and phytosociology of the herbaceous layer. Ecol. Monogr. 40:389-420.

Attachment C.2

Discharge Point/Storm Over Flow Code	Name	Easting	Northing	Type	Receiving Waters	Receiving Water System Type
SW1(P)	Glaslough WWTW	272194	342230	Open Pipe Discharge	Mountain Water River	Pipe to Open Channel

Attachment D.1

Table D.1(i)(a): EMISSIONS TO SURFACE/GROUND WATERS (Primary Discharge Point)

Discharge Point Code: SW-1

Local Authority Ref No:		
Source of Emission:	Glaslough Waste Water Treatment Works	
Location:	Glaslough, Co. Monaghan	
Grid Ref (12 digits, 6E, 6N)	272194 / 342230	
Name of Receiving waters:	Mountain Water River	
Water Body:	River Water Body	
River Basin District	Neagh Bann IRBD	
Designation of Receiving Waters:	Not Applicable	
Flow Rate in Receiving Waters:	1.34	$m^3.sec^{-1}$ Dry Weather Flow
	0.02	$m^3.sec^{-1}$ 95% Weather Flow
Additional Comments (e.g. commentary on zero flow or other information deemed of value)		

Emission Details:

(i) Volume emitted			
Normal/day	100 m^3	Maximum/day	100 m^3
Maximum rate/hour	4.17 m^3	Period of emission (avg)	60 min/hr 24 hr/day 365 day/yr
Dry Weather Flow	0.001 m^3/sec		

Table D.1(i)(b): EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Primary Discharge Point)

Discharge Point Code: SW-1

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
pH	pH	24 hr flow proportional	= 7.76	
Temperature	°C	24 hr flow proportional	= 19.4	
Electrical Conductivity (@ 25°C)	µS/cm	24 hr flow proportional	= 502	
Suspended Solids	mg/l	24 hr flow proportional	= 8	0.8
Ammonia (as N)	mg/l	24 hr flow proportional	= 2.21	0.221
Biochemical Oxygen Demand	mg/l	24 hr flow proportional	= 4	0.4
Chemical Oxygen Demand	mg/l	24 hr flow proportional	= 62	0.62
Total Nitrogen (as N)	mg/l	24 hr flow proportional	= 5	0.5
Nitrite (as N)	mg/l	24 hr flow proportional	< 0.003	0.0003
Nitrate (as N)	mg/l	24 hr flow proportional	= 0.4	0.04
Total Phosphorous (as P)	mg/l	24 hr flow proportional	= 0.124	0.0124
OrthoPhosphate (as P)	mg/l	24 hr flow proportional	= 0.11	0.011
Sulphate (SO_4)	mg/l	24 hr flow proportional	= 6.99	0.699
Phenols (Sum)	µg/l	24 hr flow proportional	< 0.1	0

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Table D.1(i)(c): DANGEROUS SUBSTANCE EMISSIONS TO SURFACE/GROUND WATERS - Characteristics of The Emission (Primary Discharge Point)

Discharge Point Code: SW-1

Substance	As discharged			
	Unit of Measurement	Sampling Method	Max Daily Avg.	kg/day
Atrazine	µg/l	24 hr flow proportional	< 0.01	0
Dichloromethane	µg/l	24 hr flow proportional	< 1	0
Simazine	µg/l	24 hr flow proportional	< 0.01	0
Toluene	µg/l	24 hr flow proportional	< 1	0
Tributyltin	µg/l	24 hr flow proportional	< 0.02	0
Xylenes	µg/l	24 hr flow proportional	< 1	0
Arsenic	µg/l	24 hr flow proportional	< 0.96	0
Chromium	µg/l	24 hr flow proportional	< 0.93	0
Copper	µg/l	24 hr flow proportional	= 4.2	0.00042
Cyanide	µg/l	24 hr flow proportional	< 5	0
Flouride	µg/l	24 hr flow proportional	= 0.18	0.018
Lead	µg/l	24 hr flow proportional	= 0.5	0.00005
Nickel	µg/l	24 hr flow proportional	< 0.47	0
Zinc	µg/l	24 hr flow proportional	< 4.6	0
Boron	µg/l	24 hr flow proportional	< 4.2	0
Cadmium	µg/l	24 hr flow proportional	< 0.09	0
Mercury	µg/l	24 hr flow proportional	< 0.2	0
Selenium	µg/l	24 hr flow proportional	< 0.74	0
Barium	µg/l	24 hr flow proportional	= 93.8	0.00938

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Sampling Point	Date Sampled	H2O Temp (°C)	pH	Conductivity µS/cm	Total Nitrogen mg/l N	Ammonium mg/l NH_3-N	Nitrates mg/l NO_3^--N	Total Phosphate mg/l P	Molybdate Reactive Phosphate mg/l P	COD mg/l	Suspended solids mg/l	BOD mg/l	Sulphates (mg/l)	Phenols (Sum)	Nitrites (mg/l)
INFLUENT	22.07.08		7.28	855	47.00	39.75	9.00	10.08	4.2	1310	3620	1515			
INFLUENT	14.08.08		7.45	549	22.00	16.25	4.00	4.16	1.3	415	1220	1600			
INFLUENT	22.09.08				45.00	35.00	6.00	7.52	3.3	1150	170	400			
INFLUENT	15.10.08		7.08	833	47.00	37.25	4.20	8.24	4.08	1255	350	650			
INFLUENT	18.11.08		7.69	570	28.00	27.00	2.20	5.25	2.09	2720	190	600			
INFLUENT	29.01.09		7.55	749	37.00	32.25	4.00	4.45	2.4	475	250	420			
INFLUENT	10.02.09	4.2	7.00	987	30.92	27.52	0.11	4.36	3.79	348	157	250	50.87	<0.1	0.017

Table D.1 (iv) Influent Monitoring Data

Attachment D.2

PT_CD	PT_TYPE	LA_NAME	RWB_TYPE	RWB_NAME	DESIGNATION	EASTING	NORTHING	VERIFIED
SW1(P)	Primary	Monaghan County Council	River	Mountain Water	Not Designated	272194	342230	N

Attachment E.1

TABLE E.1(i): WASTE WATER FREQUENCY AND QUANTITY OF DISCHARGE – Primary and Secondary Discharge Points

Identification Code for Discharge point	Frequency of discharge (days/annum)	Quantity of Waste Water Discharged (m^3/annum)
SW-1	365	36500

Attachment E.2

Irish National Accreditation Board

Wilton Park House, Wilton Place, Dublin 2, Ireland. Tel +353 1 6073003 Fax +353 1 6073109 E-mail inab@inab.ie Web www.inab.ie

ACCREDITATION CERTIFICATE

Euro Environmental Services

Unit 35, Boyne Business Park, Drogheda, Co Louth

Testing Laboratory

Registration Number

119T

is accredited by the Irish National Accreditation Board (INAB) to undertake testing as detailed in the Schedule bearing the Registration Number detailed above, in compliance with the International Standard

ISO/IEC 17025:2005 2nd Edition

"General Requirements for the Competence of Testing and Calibration Laboratories"

(This Certificate must only be read in conjunction with the Annexed Schedule of Accreditation)

Date of award of Accreditation: 16:08:2002
Date of last renewal of Accreditation: 14:09:2007
Expiry Date of this certificate of Accreditation: 14:09:2012

This Accreditation shall remain in force until further notice subject to continuing compliance with INAB accreditation criteria, ISO/IEC 17025 and any further requirements specified by the Irish National Accreditation Board.

Manager: Tom Dempsey
Mr Tom Dempsey

Chairperson: Máire C Walsh
Dr Máire Walsh

Issued on 14 September 2007

Organisations are subject to annual surveillance and are re-assessed every five years. The renewal date on this Certificate confirms the latest date of renewal of accreditation. To confirm the validity of this Certificate please contact the Irish National Accreditation Board.

The INAB is a signatory of the European co-operation for Accreditation (EA) Testing Multilateral Agreement (MLA) and the International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangement.

Irish National Accreditation Board

Wilton Park House
Wilton Place
Dublin 2

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ISO 17025 INAB ACCREDITED TESTING
DETAILED IN SCOPE REG NO. 119T

Permanent Laboratory:
Category A

Schedule of Accreditation

EURO environmental services

Chemical Testing Laboratory

Initial Accreditation Date: 09-10-2000

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Facilities:	Public Testing Facility

Irish National Accreditation Board

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ISO 17025 INAB ACCREDITED TESTING
DETAILED IN SCOPE REG NO. 119T

Permanent Laboratory:
Category A

THE IRISH NATIONAL ACCREDITATION BOARD (INAB) is the Irish organisation for the accreditation of organisations including laboratories.

Laboratory accreditation is available to testing and calibration facilities operated by manufacturing organisations, government departments, educational institutions and commercial testing/calibration services. Indeed, any organisation undertaking testing, measurement or calibration in any area of technology can seek accreditation for the work it is undertaking.

Each accredited laboratory has been assessed by skilled specialist assessors and found to meet criteria which are in compliance with ISO/IEC 17025 or ISO/IEC 15189 (medical laboratories). Frequent audits, together with periodic inter-laboratory test programmes, ensure that these standards of operation are maintained.

GLOSSARY OF TERMS

Facilities:

Public calibration/testing service: Commercial operations which actively seek work from others.

Conditionally available for public calibration/testing: Established for another primary purpose but, more commonly than not, is available for outside work.

Normally not available for public calibration/testing: Unavailable for public calibration/testing more often than not.

Testing and Calibration Categories:

Category A: Permanent laboratory calibration and testing where the laboratory is erected on a fixed location for a period expected to be greater than three years.

Category B: Site calibration and testing that is performed by staff sent out on site by a permanent laboratory that is accredited by the Irish National Accreditation Board.

Category C: Site calibration and testing that is performed in a site/mobile laboratory or by staff sent out by such a laboratory, the operation of which is the responsibility of a permanent laboratory accredited by the Irish National Accreditation Board.

Category D: Site calibration and testing that is performed on site by individuals and organisations that do not have a permanent calibration/testing laboratory. Testing may be performed using
(a) portable test equipment
(b) a site laboratory
(c) a mobile laboratory or
(d) equipment from a mobile or site laboratory

Standard Specification or Test Procedure Used:

The standard specification or test procedure that is accredited is the issue that is current on the date of the most recent visit, unless otherwise stated.

Laboratory users wishing to obtain assurance that calibration or test results are reliable and carried out to the Irish National Accreditation Board criteria should insist on receiving an accredited calibration certificate or test report.
Users should contact the laboratory directly to ensure that this scope of accreditation is current. INAB will on request verify the status and scope.

EURO environmental services

Chemical Testing Laboratory

ISO 17025 IANAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 119T

Permanent Laboratory: Category A

SCOPE OF ACCREDITATION

INAB Classification number **Materials/products tested**	**Type of test/properties measured** **Range of measurement**	**Standard specifications** **Equipment/techniques used**
766 Waters .01 Waters for potable and domestic purposes	PH(4-13) pH units	Documented in-house methods based on Standard Methods for the examination of Water and Wastewater, 20th Edition Method 4500-H^+B – SOP 110
05 Trade Wastes *Industrial Waters*	Conductivity (5µs – 100,000 µscm^{-1})	Standard Methods for the examination of Water and wastewater, 20th Edition Method 2510B – SOP 112
	BOD (2-6mg/L)	Standard Methods for the examination of Water and wastewater, 20th Edition Method 5210B – SOP 113
	COD (5-60,000 mg/L)	Standard Methods for the examination of water and wastewater, 20th Edition Method 5220D – SOP 107
766 Waters .01 Waters for potable and domestic purposes .04 Sewage .05 Trade Wastes *Industrial Waters* .99 Other Waters *Surface Waters* *Groundwaters*	Chloride (20 –10,000mg/L) Ammonia (0.2 – 1000 mg/L as N) Total Oxidised Nitrogen (TON) (1 – 8 mg/L as N)	Standard Methods for the examination of water and wastewater, 20th Edition Method 4500 – C-E – SOP 100 Standard Methods for the examination of water and wastewater, 20th Edition Method 4500 NH_3F – SOP 114 Standard Methods for the examination of water and wastewater, 20th Edition Method 4500 $N0_3H$ – SOP 151

EURO environmental services

Chemical Testing Laboratory

ISO 17025 IANAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 119T

Permanent Laboratory: Category A

SCOPE OF ACCREDITATION

INAB Classification number **Materials/products tested**	**Type of test/properties measured** **Range of measurement**	**Standard specifications** **Equipment/techniques used**
766 Waters .01 Waters for potable and domestic purposes .04 Sewage .05 Trade Wastes *Industrial Waters* .99 Other Waters *Surface Waters* *Groundwaters*	Orthophosphate (0.1 – 1000 mg/L as P)	Documented in-house methods based on Standard Methods for the examination of water and wastewater, 20th Edition. Method 4500 – P E – SOP 117
	Sulphate (10 – 30 mg/L as SO_4)	Standard Methods for the examination of water and wastewater, 20th Edition. Method 4500-S O_4^2E– SOP 119
	Total Phosphate (0.1 – 0.5 mg/L as P) (0.5 – 4 mg/L as P)	Standard methods for the examination of water and wastewater, 20th Edition. Method 4500-P B – SOP 166
	Na, Ca, K and Mg ICP-MS run (0.5 – 100 ppm)	Standard methods for the examination of water and wastewater, 20th Edition. Method 3120 B – SOP 184
	BTEX (Benzene, Toluene, Ethylbenzene and Xylenes): Benzene (5 – 100µg/L) Ethylbenzene (5 – 100µg/L) Toluene (5 – 100µg/L) o-xylene (5 – 100µg/L) m,p-xylene (10 – 200µg/L)	Based on USEPA methods, 524.2 SOP 179
	THMs (Trihalomethanes): Chlororform Bromochloromethane Dibromocloromethane Bromoform (5 - 200µg/L)	Based on USEPA methods, 524.2 SOP 186

EURO environmental services

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Permanent Laboratory:
Category A

SCOPE OF ACCREDITATION

INAB Classification number **Materials/products tested**	**Type of test/properties measured** **Range of measurement**	**Standard specifications** **Equipment/techniques used**
766 Waters		
.01 Waters for potable and domestic purposes .05 Trade Wastes *Industrial Waters* .99 Other Waters *Surface Waters* *Groundwaters*	Hardness (Total) (100 – 400 mg/L $CaCO_3$)	Standard Methods for the Examination of Water and Wastewater, 20th Edition Method 2340 C SOP 111
	Alkalinity (Total) (50 – 10,000 mg/L $CaCO_3$)	Standard Methods for the Examination of Water and Wastewater, 20th Edition Method 2320 B SOP 102
.04 Sewage .05 Trade Wastes *Industrial Waters* .99 Other Waters *Surface Waters* *Groundwaters*	Colour (Apparent) (10 – 500ptCo Units)	Standard Methods for the Examination Of Water and Wastewater, 20th Edition Method 2120 B SOP 108
	Turbidity (0.01 – 1100 NTU)	Standard Methods for the Examination Of Water and Wastewater, 20th Edition Method 2130 A SOP 109

Attachment E.3

PT_CD	PT_TYPE	MON_TYPE	EASTING	NORTHING	VERIFIED
SW1(P)s	Primary	S	272192	342211	N
aSW1(P)u	Primary	M	272046	342194	N
aSW1(P)d	Primary	M	272357	342273	N

Attachment E.4

Sampling Point	Date Sampled	H2O Temp (°C)	pH	D.O. (mg/L)	Conductivity µS/cm	Total Nitrogen mg/l N	Ammonium mg/l NH_3-N	Nitrates mg/l NO_3^--N	Total Phosphate mg/l P	Molybdate Reactive Phosphate mg/l P	COD mg/l	Suspended solids mg/l	BOD mg/l	Sulphates (mg/l)	Phenols (Sum)	Nitrites (mg/l)
OUTLET	22.07.08	19.4	7.62	11.49	502	5.00	0.20	0.20	0.00	0.03	62	8	1.61	nd	nd	nd
OUTLET	14.08.08	15.9	7.37	7.73	393	1.80	0.29	0.40	0.06	0.11	39	4	3	nd	nd	nd
OUTLET	22.09.08	11.5	7.26	8.91	363	0.40	0.14	0.40	0.05	0.01	36	4	4	nd	nd	nd
OUTLET	15.10.08	9.7	7.76	8.46	355	1.70	0.15	0.20	0.10	0.00	10	2	1	nd	nd	nd
OUTLET	18.11.08	7.9	7.22	7.39	375	2.40	0.15	0.20	0.05	0.02	23	2	2	nd	nd	nd
OUTLET	29.01.09	5.5	7.19	6.53	434	1.40	2.21	0.10	0.12	0.08	15	4	2	nd	nd	nd
OUTLET	10.02.09	2.6	7.00	nd	458	2.24	2.10	0.09	0.12	0.09	18	3	<2	6.99	<0.1	<0.003
UPSTEAM	22.07.08	16.5	8.08	13.79	515	0.90	0.27	1.00	0.11	0.07	65	2	1.59	nd	nd	nd
UPSTEAM	14.08.08	13.8	7.57	11.78	288	2.30	0.89	1.30	0.09	0.12	66	18	3	nd	nd	nd
UPSTEAM	22.09.08	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
UPSTEAM	15.10.08	9.3	7.99	10.55	547	1.80	0.26	0.80	0.12	0.05	30	4	1	nd	nd	nd
UPSTEAM	18.11.08	8.6	7.87	12.36	384	1.80	0.38	0.80	0.09	0.05	33	4	1	nd	nd	nd
UPSTEAM	29.01.09	7.5	7.91	8.62	495	1.10	0.31	0.80	0.07	0.05	25	10	1	nd	nd	nd
UPSTEAM	10.02.09	2.9	7.90	nd	609	1.75	0.11	1.18	0.05	0.032	16	5	<2	28.02	<0.1	0.006
DOWNSTREAM	22.07.08	16.3	7.99	14.49	519	1.00	0.30	1.10	0.14	0.12	60	8	0.85	nd	nd	nd
DOWNSTREAM	14.08.08	13.8	7.59	11.51	282	1.40	0.86	1.30	0.10	0.09	54	16	3	nd	nd	nd
DOWNSTREAM	22.09.08	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
DOWNSTREAM	15.10.08	9.6	7.85	9.75	587	3.00	0.26	0.90	0.07	0.04	28	8	3	nd	nd	nd
DOWNSTREAM	18.11.08	8.7	7.77	10.28	429	1.60	0.42	0.90	0.13	0.05	34	12	1	nd	nd	nd
DOWNSTREAM	29.01.09	7.5	7.86	8.33	495	3.10	0.29	1.00	0.06	0.04	28	14	1	nd	nd	nd
DOWNSTREAM	10.02.09	2.6	7.90	nd	585	0.06	0.11	1.22	0.06	0.039	14	4	<2	28.75	<0.1	0.007

Attachment F.1

TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1d
Grid Ref (12 digits, 6E, 6N)	272357 / 342273

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	22/07/08	14/08/08	15/10/08	18/11/08			
pH	= 7.99	= 7.59	= 7.85	= 7.77	Grab	0.01	Method 4500 H+/Electrometry
Temperature	= 16.3	= 13.8	= 9.6	= 8.7	Grab	0	0
Electrical Conductivity (@ 25°C)	= 519	= 282	= 587	= 429	Grab	0.5	Method 2510 B/Electrometry
Suspended Solids	= 8	= 16	= 8	= 12	Grab	3	Method 2540 D/Filtration/Dry in 104C
Ammonia (as N)	= 0.3	= 0.86	= 0.26	= 0.42	Grab	0.06	Method 4500NH3 F/Colorimetry
Biochemical Oxygen Demand	= 0.85	= 3	= 3	= 1	Grab	2	Method 5210 B/Electrometry
Chemical Oxygen Demand	= 60	= 54	= 28	= 34	Grab	5	Method 5220 D/Spectrophotometry
Dissolved Oxygen	= 14.49	= 11.51	= 9.75	= 10.28	Grab	0	DO Meter
Hardness (as $CaCO_3$)					Grab	0	0
Total Nitrogen (as N)	= 1	= 1.4	= 3	= 1.6	Grab	1	Calculation
Nitrite (as N)					Grab	0.003	Method 4500 NO2 B/Colorimetry
Nitrate (as N)	= 1.1	= 1.3	= 0.9	= 0.9	Grab	0.09	Method 4500 NO3 H/Colorimetry
Total Phosphorous (as P)	= 0.14	= 0.1	= 0.07	= 0.13	Grab	0.042	Method 4500 P E/Colorimetry
OrthoPhosphate (as P)	= 0.12	= 0.09	= 0.04	= 0.05	Grab	0.004	Method 4500 P E/Colorimetry
Sulphate (SO_4)					Grab	1.39	Method 4500 SO42 E/Colorimetry
Phenols (Sum)					Grab	0.1	EPA Method 525 GCMS

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	29/01/09	10/02/09					
pH	= 7.86	= 7.9			Grab	0.01	Method 4500 H+/Electrometry
Temperature	= 7.5	= 2.6			Grab	0	0
Electrical Conductivity (@ 25°C)	= 495	= 585			Grab	0.5	Method 2510 B/Electrometry
Suspended Solids	= 14	= 4			Grab	3	Method 2540 D/Filtration/Dry in 104C
Ammonia (as N)	= 0.29	= 0.11			Grab	0.06	Method 4500NH3 F/Colorimetry
Biochemical Oxygen Demand	= 1	< 2			Grab	2	Method 5210 B/Electrometry
Chemical Oxygen Demand	= 28	= 14			Grab	5	Method 5220 D/Spectrophotometry
Dissolved Oxygen	= 8.33				Grab	0	DO Meter
Hardness (as $CaCO_3$)		= 0			Grab	0	0
Total Nitrogen (as N)	= 3.1	= 2.35			Grab	1	Calculation
Nitrite (as N)		= 0.007			Grab	0.003	Method 4500 NO2 B/Colorimetry
Nitrate (as N)	= 1	= 1.22			Grab	0.09	Method 4500 NO3 H/Colorimetry
Total Phosphorous (as P)	= 0.06	= 0.06			Grab	0.042	Method 4500 P E/Colorimetry
OrthoPhosphate (as P)	= 0.04	= 0.39			Grab	0.004	Method 4500 P E/Colorimetry
Sulphate (SO_4)		= 28.75			Grab	1.39	Method 4500 SO42 E/Colorimetry
Phenols (Sum)		< 0.1			Grab	0.1	EPA Method 525 GCMS

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	

TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1d
Grid Ref (12 digits, 6E, 6N)	272357 / 342273

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	10/02/09						
Atrazine	< 0.01				Grab	0.01	USEPA Method 610 HPLC
Dichloromethane	< 1				Grab	1	USEPA Method 524 HPLC
Simazine	< 0.01				Grab	0.01	USEPA Method 610 HPLC
Toluene	< 1				Grab	1	USEPA Method 524.2 HPLC
Tributyltin	< 0.02				Grab	0.02	Subcontracted Test GCMS
Xylenes	< 1				Grab	1	USEPA Method 524.2 HPLC
Arsenic	< 0.96				Grab	0.96	Method 3125B ICPMS
Chromium	< 0.93				Grab	0.93	Method 3125B ICPMS
Copper	= 2.9				Grab	0.2	Method 3125B ICPMS
Cyanide	< 5				Grab	5	Hach Water Analysis Handbook 2nd Edition
Flouride	= 0.18				Grab	0.03	Method 4500 F-E Colorimetry
Lead	= 0.4				Grab	0.38	Method 3125B ICPMS
Nickel	< 0.47				Grab	0.47	Method 3125B ICPMS
Zinc	< 4.6				Grab	4.6	Method 3125B ICPMS
Boron	< 4.2				Grab	4.2	Method 3125B ICPMS
Cadmium	< 0.09				Grab	0.09	Method 3125B ICPMS
Mercury	< 0.2				Grab	0.2	Method 3125B ICPMS
Selenium	< 0.74				Grab	0.74	Method 3125B ICPMS
Barium	= 76.6				Grab	0.74	Method 3125B ICPMS

Additional Comments:	

TABLE F.1(i)(a): SURFACE/GROUND WATER MONITORING

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1u
Grid Ref (12 digits, 6E, 6N)	272046 / 342194

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	22/07/08	14/08/08	15/10/08	18/11/08			
pH	= 8.08	= 7.57	= 7.99	= 7.87	Grab	0.01	Method 4500-H+/Electrometry
Temperature	= 16.5	= 13.8	= 9.3	= 8.6	Grab	0	0
Electrical Conductivity (@ 25°C)	= 515	= 288	= 547	= 384	Grab	0.5	Method 2510 B/Electrometry
Suspended Solids	= 2	= 18	= 4	= 4	Grab	3	Method 2540 D/Filtration/Dry in 104C
Ammonia (as N)	= 0.27	= 0.89	= 0.26	= 0.38	Grab	0.06	Method 4500NH3 F/Colorimetry
Biochemical Oxygen Demand	= 1.57	= 3	= 1	= 1	Grab	2	Method 5210 B/Electrometry
Chemical Oxygen Demand	= 65	= 66	= 30	= 35	Grab	5	Method 5210 B/Spectrophotometry
Dissolved Oxygen	= 13.75	= 11.78	= 10.55	= 12.36	Grab	0	DO Meter
Hardness (as $CaCO_3$)					Grab	0	0
Total Nitrogen (as N)	= 0.9	= 2.3	= 1.8	= 1.8	Grab	1	Calculation
Nitrite (as N)					Grab	0.003	Method 4500 NO2 B/Colorimetry
Nitrate (as N)	= 1	= 1.3	= 0.8	= 0.8	Grab	0.09	Method 4500 NO3 H/Colorimetry
Total Phosphorous (as P)	= 0.11	= 0.09	= 0.12	= 0.09	Grab	0.042	Method 4500 P E/Colorimetry
OrthoPhosphate (as P)	= 0.07	= 0.12	= 0.05	= 0.05	Grab	0.004	Method 4500 P E/Colorimetry
Sulphate (SO_4)					Grab	1.39	Method 4500 SO42 E/Colorimetry
Phenols (Sum)					Grab	0.1	EPA Method 525 GCMS

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	

Parameter	Results (mg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	29/01/09	10/02/09					
pH	= 7.91	= 7.9			Grab	0.01	Method 4500-H+/Electrometry
Temperature	= 7.5	= 2.9			Grab	0	0
Electrical Conductivity (@ 25°C)	= 495	= 609			Grab	0.5	Method 2510 B/Electrometry
Suspended Solids	= 10	= 5			Grab	3	Method 2540 D/Filtration/Dry in 104C
Ammonia (as N)	= 0.31	= 0.11			Grab	0.06	Method 4500NH3 F/Colorimetry
Biochemical Oxygen Demand	= 1	< 2			Grab	2	Method 5210 B/Electrometry
Chemical Oxygen Demand	= 25	= 16			Grab	5	Method 5210 B/Spectrophotometry
Dissolved Oxygen	= 8.62				Grab	0	DO Meter
Hardness (as $CaCO_3$)		= 0			Grab	0	0
Total Nitrogen (as N)	= 1.1	= 1.75			Grab	1	Calculation
Nitrite (as N)		= 0.006			Grab	0.003	Method 4500 NO2 B/Colorimetry
Nitrate (as N)	= 0.5	= 1.18			Grab	0.09	Method 4500 NO3 H/Colorimetry
Total Phosphorous (as P)	= 0.07	= 0.05			Grab	0.042	Method 4500 P E/Colorimetry
OrthoPhosphate (as P)	= 0.05	= 0.032			Grab	0.004	Method 4500 P E/Colorimetry
Sulphate (SO_4)		= 28.02			Grab	1.39	Method 4500 SO42 E/Colorimetry
Phenols (Sum)		< 0.1			Grab	0.1	EPA Method 525 GCMS

For Orthophosphate: this monitoring should be undertaken on a sample filtered on 0.45µm filter paper
For Phenols: USEPA Method 604, AWWA Standard Method 6240, or equivalent.

Additional Comments:	

TABLE F.1(i)(b): SURFACE/GROUND WATER MONITORING (Dangerous Substances)

Primary Discharge Point

Discharge Point Code:	SW-1
MONITORING POINT CODE:	aSW-1u
Grid Ref (12 digits, 6E, 6N)	272046 / 342194

Parameter	Results (µg/l)				Sampling method	Limit of Quantitation	Analysis method / technique
	10/02/09						
Atrazine	< 0.01				Grab	0.01	USEPA Method 610 HPLC
Dichloromethane	< 1				Grab	1	USEPA Method 524 GCMS
Simazine	< 0.01				Grab	0.01	USEPA Method 610 HPLC
Toluene	< 1				Grab	1	SEPA Method 524.2 GCMS
Tributyltin	< 0.02				Grab	0.02	Subcontracted Test GCMS
Xylenes	< 1				Grab	1	USEPA Method 524.2 GCMS
Arsenic	< 0.96				Grab	0.96	Method 3125B ICPMS
Chromium	< 0.93				Grab	0.93	Method 3125B ICPMS
Copper	= 2.9				Grab	0.2	Method 3125B ICPMS
Cyanide	< 5				Grab	5	Hach Water Analysis Handbook 2nd Edition
Flouride	= 0.21				Grab	0.03	Method 4500 F E Colorimetry
Lead	< 0.38				Grab	0.38	Method 3125B ICPMS
Nickel	< 0.6				Grab	0.47	Method 3125B ICPMS
Zinc	< 4.6				Grab	4.6	Method 3125B ICPMS
Boron	< 4.2				Grab	4.2	Method 3125B ICPMS
Cadmium	< 0.09				Grab	0.09	Method 3125B ICPMS
Mercury	< 0.2				Grab	0.2	Method 3125B ICPMS
Selenium	< 0.74				Grab	0.74	Method 3125B ICPMS
Barium	= 80.6				Grab	0.74	Method 3125B ICPMS

Additional Comments:	

Attachment G.2

water matters

"Help us plan!"

neagh bann international river basin district

Summary Leaflet

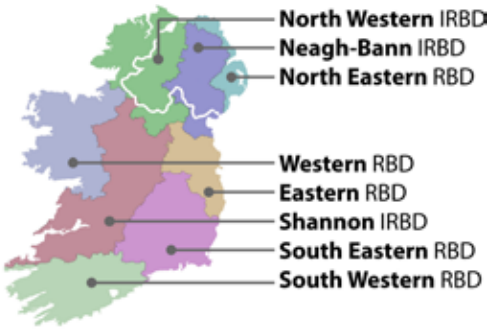
Draft River Basin Management Plan for the Neagh Bann International River Basin District

December 2008

The Draft River Basin District Management Plan

The European Union Water Framework Directive was adopted in 2000. It requires governments to manage all of their waters: rivers, canals, lakes, reservoirs, groundwaters, wetlands, estuaries and coastal waters. Member States must ensure that their waters achieve at least good status by 2015 and that their status doesn't deteriorate.

The Directive requires the preparation of a management plan for all of the waters in an area called a River Basin District. Some 400 river basins on the island of Ireland have been grouped and assigned to a total of eight River Basin Districts; one of these lies wholly in Northern Ireland, four lie wholly in Ireland and three are International River Basin Districts, one of which is the Neagh Bann District.



Since 2000, the local authorities and the Northern Ireland Environment Agency have been working on the implementation of the Water Framework Directive. We have met all of the deadlines and our performance has been amongst the best in the European Union.

We have actively sought people's views at every stage of the implementation process. Management plans are considered by the District's Advisory Council (Ireland) and by the Catchment and National Stakeholder Groups (Northern Ireland). We produced a series of consultation documents and we discussed significant water management issues with interest groups, public authorities and local authorities at a series of public consultation events in 2007 and 2008.

The next stage is the production of a River Basin District Management Plan. It will cover the six-year period from 2009 until 2015; any remaining issues or new problems will be tackled in two further six-year plans, 2015–2021 and 2021–2027.

We have produced a draft of the plan and we are beginning a process of consultation to elicit views on the draft. In Ireland the final version of this plan must be adopted by all local authorities in the district, whilst in Northern Ireland the plan must be approved by the Environment Minister. The plan will come into effect at the end of 2009.

How the plan was developed

We followed a nine-step process in developing the plan. Our approach was structured: find out the issues, decide what action to take and make a plan.

What are our key water issues?	We investigated which water issues are causing problems, what actions we could take to solve them and where we should focus these actions.
What is the status of our waters?	Comprehensive monitoring established the condition of our waters; identifying where they are satisfactory and where they must be improved.
What do we plan to achieve?	We identified sustainable objectives for our waters.
What measures must we take?	The Water Framework Directive stipulates mandatory measures. We identified actions under these measures, setting out existing and new plans and programmes to ensure full and effective implementation.
What will these mandatory measures achieve?	We assessed how effective these mandatory measures will be in meeting our objectives and have identified cases where extra effort may be needed to improve our waters.
What further measures can we take?	We identified supplementary measures for the cases where the mandatory measures alone would not be sufficient to achieve our objectives.
What will supplementary measures achieve?	We assessed whether the combination of measures would achieve our objectives and how long it would take.
What are our objectives in the Neagh Bann District?	We outline the objectives we plan to achieve and specify where extended timescales or lower objectives are necessary.
What is our action plan for the Neagh Bann District?	The outcome of this planning process is a tailored action plan for the Neagh Bann District. We have proposed a detailed suite of measures setting out what, where and when actions are needed and who will do them.

Neagh Bann District: current status

The status of our surface waters and groundwaters is summarised in these two tables. These tables include the whole international district's waters: those in Northern Ireland, those in Ireland and the shared waters (those water bodies which lie along the border).

Surface water status in the Neagh Bann District

Surface Water Category	High	Good	Moderate	Poor	Bad	Yet to be Determined
Rivers and canals (number) % of total	(0) 0	(76) 23.1	(149) 45.3	(71) 21.6	(15) 4.6	(18) 5.5
Lakes and reservoirs (km²) % of total	(0) 0	(0.17) 0.04	(3.48) 0.87	(6.63) 1.66	(388.7) 97.42	(0) 0
Estuaries (km²) % of total	(0) 0	(0) 0	(41.72) 100			(0) 0
Coastal (km²) % of total	(0) 0	(184.56) 55.7	(108.39) 32.7			(38.45) 11.6

Groundwater status in the Neagh Bann District

Groundwater	Good	Poor
Chemical Status (km²) % of total	(6,683) 88.8	(843) 11.2
Quantitative Status (km²) % of total	(6,759) 89.8	(767) 10.2
Combined Status (km²) % of total	(6,683) 88.8	(843) 11.2

Protected Areas

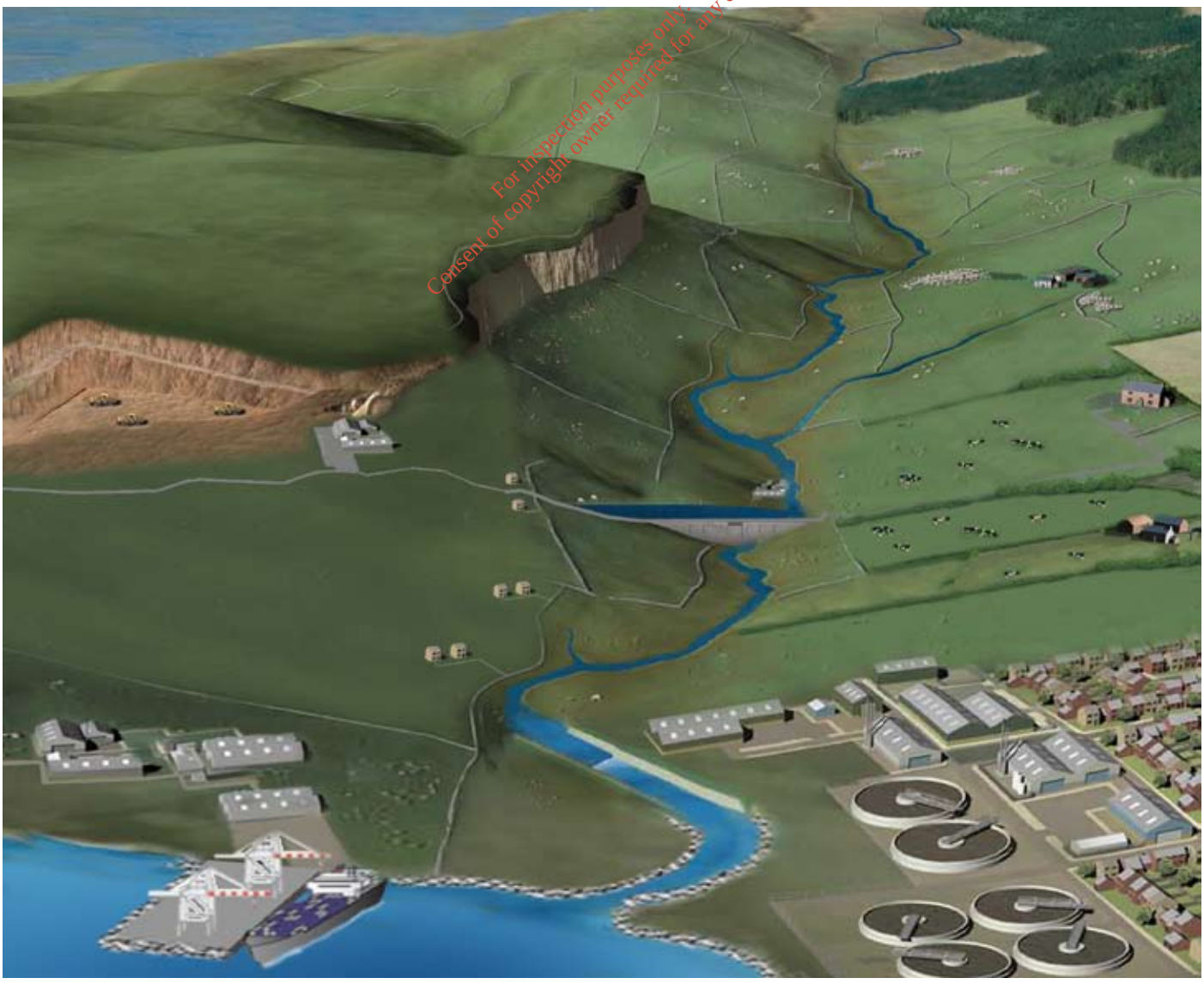
Protected areas must achieve good or high status to support their designations, with specific targets for protection of priority species or habitats. There are 94 protected areas amongst the shared waters of the Neagh Bann International River Basin District. In the whole District there are 650 protected areas. These include drinking water sources such as Monalty Lough and Spelga Dam; the shellfish waters include Carlingford Lough; the bathing waters include Portstewart and Castlerock beaches. Nutrient-sensitive areas include Lough Muckno, the River Blackwater and Lough Neagh, Special Areas of Conservation include the Bann Estuary and Slieve Gullion and Special Protection Areas include Carlingford Lough and Lough Neagh/Lough Beg.

Pressures

The main pressures on our waters come from:

- wastewater and industrial discharges
- landfills, quarries, mines and contaminated land
- agriculture
- wastewater from unsewered properties
- forestry
- usage and discharge of dangerous substances
- physical modifications
- abstractions
- local and future issues. In the Neagh Bann District, they include climate change, aquaculture and invasive alien species, as well as the need to protect high quality areas and to manage shared waters issues properly.

We can achieve the greatest gain by concentrating our efforts on those issues that pose the greatest threat to our water environment. Two key sectors stand out, agriculture and the water industry. Both Northern Ireland Environment Agency and the Environmental Protection Agency have identified the need to take action in response to these sectors in the River Basin Management Plan. *"Discharges from municipal wastewater treatment works and from agricultural activities are the principal suspected causes of less than satisfactory water in the State. Industrial discharges and discharges from several other activities have also been identified as contributing to a lesser extent".* (Environmental Protection Agency, 2008)



Measures and objectives

The measures to improve our waters fall into three categories:

- the implementation of 11 key directives, specified under the Water Framework Directive and already transposed into domestic legislation
- the implementation of other stipulated measures required by the Water Framework Directive
- the use of additional or supplementary measures.

Basic measures

The first two categories are referred to as **basic measures**. They are:

The 11 key EU Directives	Other stipulated measures
Bathing waters	Cost recovery for water use
Birds	Promotion of efficient and sustainable water use
Habitats	Protection of drinking water sources
Drinking waters	Control of abstraction and impoundment
Major accidents	Control of point source discharges
Environmental impact assessment	Control of diffuse source discharges
Sewage sludge	Authorisation of discharges to groundwaters
Urban wastewater treatment	Control of priority substances
Plant protection products	Controls on physical modifications to surface waters
Nitrates	Controls on other activities impacting on water status
Integrated pollution prevention control	Prevention or reduction of the impact of accidental pollution incidents

Supplementary measures

A range of possible supplementary measures has been identified by a series of technical studies. Some are already being taken: they include farm based environmental protection schemes and implementation of a suite of forestry good practice guidelines. Other possible measures are codes of practice, voluntary agreements, demand reduction and rehabilitation programmes and legal, administrative and economic instruments.

Supplementary measures range from **reducing** the pressure at source through **remediation** by technical or engineering solutions to **relocation** of the pressure. They have to be technically feasible; the combination of supplementary measures must be the most cost-effective and the cost of these combinations of measures must not be significantly greater than the benefits gained. The impacts of the supplementary measures on the wider environment have to be considered, through Strategic Environmental Assessment, to ensure that they are sustainable.

Our objectives for each category of waters

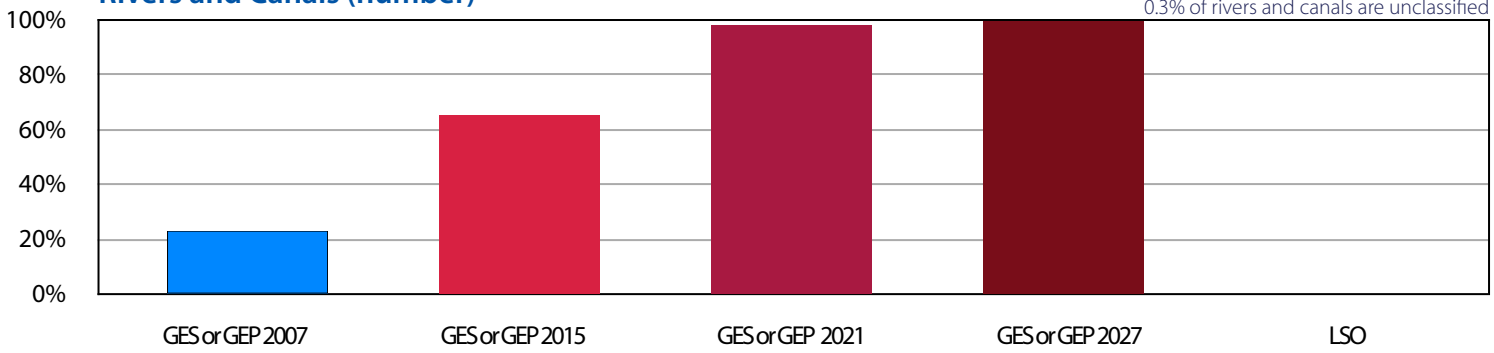
These charts show the improvements we expect in each category of waters over three cycles of the river basin district planning process.

GES or **GEP** means **good ecological status** or **good ecological potential**, in other words compliant with the Water Framework Directive. The standard of good ecological potential is applied to artificial and heavily modified waters (such as canals and reservoirs) where the benefits to humans need to be retained.

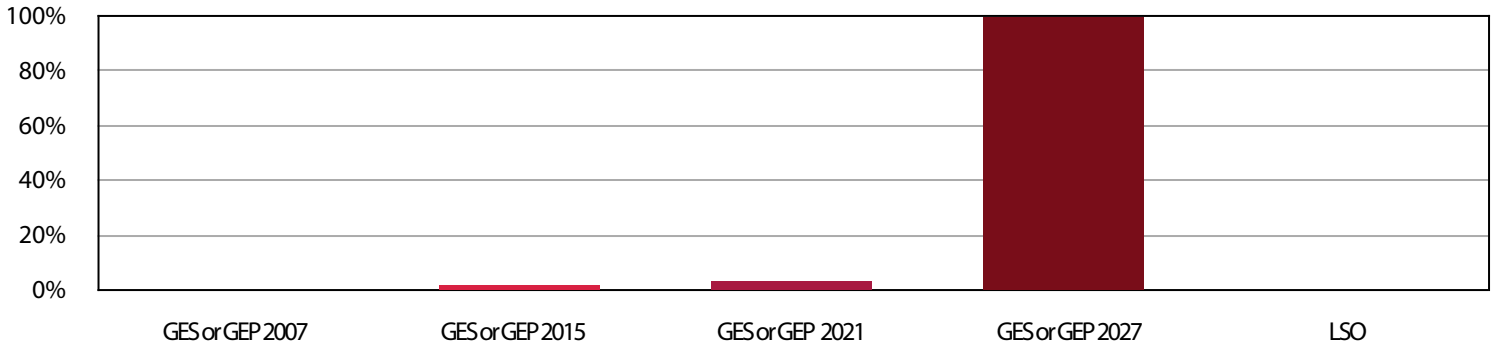
LSO means **less stringent objective**, which means that the waters won't achieve good status or good potential before 2027.

Rivers and Canals (number)

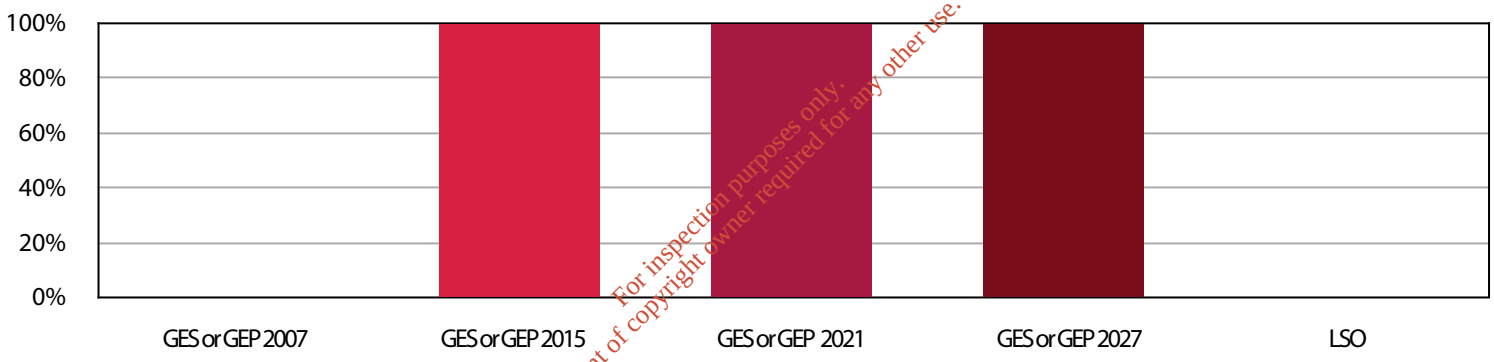
0.3% of rivers and canals are unclassified



Lakes and Reservoirs (km²)

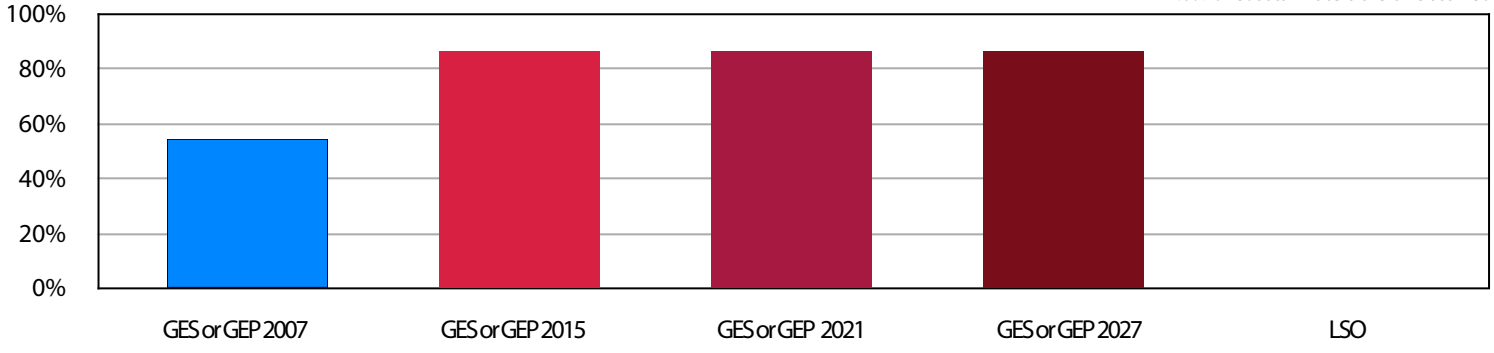


Estuaries (km²)

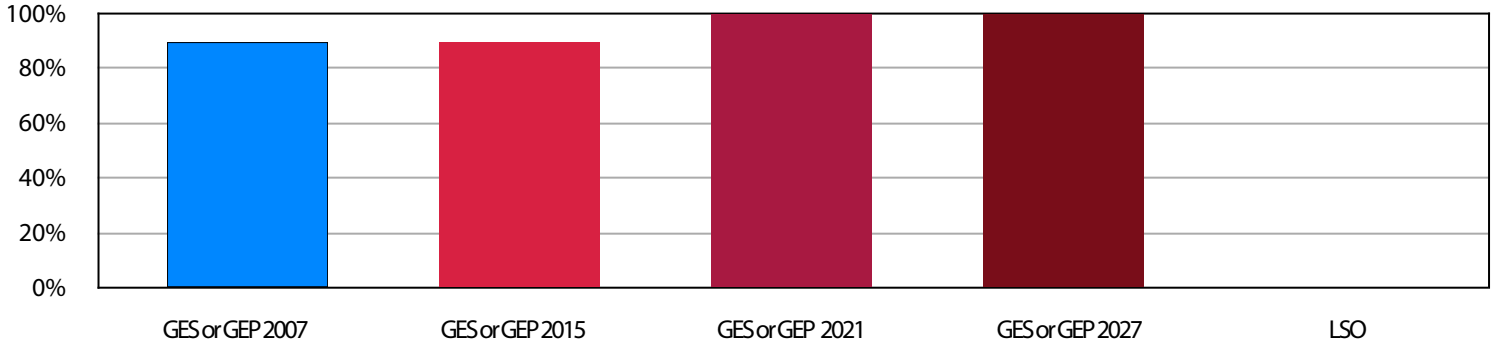


Coastal Waters (km²)

11.6% of coastal waters are unclassified



Groundwaters (km²)



What happens next

The full text of the draft plan is available on www.wfdireland.ie. along with background documents including technical studies into our key water issues, our register of protected areas, and documents detailing monitoring programmes and status development, economics, objectives, programmes of measures and links to plans and programmes. There is also a list of the District's relevant authorities and stakeholders, as well as documents on climate change and Strategic Environmental Assessment. Our interactive webmap viewing tool can also be accessed at www.wfdireland.ie.

Comments, views and suggestions may be sent by 22 June 2009 to:

Martin Murray
Monaghan County Council
Environment Section
County Offices
The Glen
Monaghan
Co Monaghan
mpmurray@monaghancoco.ie

Early responses would be appreciated to allow more time to clarify and resolve issues that may arise.

We will comply with data protection requirements and will use information that you provide to compile a digest of responses. Please let us know if you wish your response to remain anonymous: if you do, we will include your comments in the digest without saying who made them. If you want to add new comments or information you can contact our website at any stage (www.nbirbd.com).

Implementation

The Neagh Bann International River Basin District is cross-border; partly in Ireland and partly in Northern Ireland. This leaflet refers to the draft River Basin Management Plans for the District which were issued by the county councils of Monaghan, Cavan, Louth, and Meath and by the Northern Ireland Environment Agency. Preparation of the draft plans has been closely coordinated between the two jurisdictions and these coordinated arrangements are outlined in the document entitled ***Working Together*** (www.wfdireland.ie).

The task of implementing the management plans will fall mainly to the statutory authorities. In the case of the Neagh Bann District, it is envisaged that a unit will be set up by Monaghan County Council to coordinate the work of Ireland's statutory authorities and to coordinate work with the Northern Ireland Environment Agency. In Ireland, implementation of the plans will be coordinated by the Department of the Environment, Heritage and Local Government, working together with the local authorities, the Environmental Protection Agency and other relevant public authorities. In Northern Ireland, work will be coordinated by the Department of the Environment and Northern Ireland Environment Agency, through the Interdepartmental Working Group, which includes the four main government departments responsible for implementing the plan.

Local Government (Water Pollution) Act 1977 (Water Quality Standards for Phosphorus) Regulations, 1998

MONAGHAN COUNTY COUNCIL

4th Implementation Report

July 2006

Local Government (Water Pollution) Act 1977 (Water Quality Standards for Phosphorus) Regulations, 1998.

4th Implementation Report

Monaghan Co Council.

Introduction:

The Phosphorus Regulations (1998) require the Monaghan Co Council to protect satisfactory waters and to improve unsatisfactory waters. Water quality interim targets have been set for 2007.However Monaghan Co Council has applied for an extension to 2013. (In the 2004 EPA audit, an EPA officer advised against reliance on the 2013 deadline as the more stringent Water Framework Directive deadline of 2015 for both good chemical and biological status will also need to be complied with.)
The Phosphorus Regulations require Monaghan Co Council to submit a biennial implementation report to the Environment Protection Agency. The 4th Implementation Report is due for submission to the Agency on 31/7/2006.

Section 1. Water Quality in Co Monaghan

River Monitoring

Baseline Data

The baseline data for the County, established from the EPA's Biological Monitoring Programme (Q Ratings) since 1995 indicates that **30%** of river stations monitored were of satisfactory quality (Q rating ≥4) while **70%** of stations monitored were unsatisfactory (Q rating ≤ 3-4). Table 1.1 refers.

Current Status Rivers

This 4th Implementation Report relates to the reporting period Jan 2004 to Dec 2005. Reference to physio-chemical data in this document relates to water quality monitoring carried out by Monaghan Co Council in the period Jan 2004 to Dec 2005.
Reference to river current Q ratings, relate to the Q rating assigned by the EPA. The 06 Hydrometric area was monitored in 2003 while the 03 and 36 Hydrometric areas were monitored in 2004. Table 1.1.refers
Current data indicates

- 33% (22 out of 66) of river stations monitored are classified as unpolluted (Q ratings > 4 - 2003/04 data). This figure is low by national standards.
- 24% (16No.) of river monitoring stations show an improvement in Q rating from baseline data

- 27% (18No.) of stations monitored show a decline in Q rating.
- 71% (55 out of 77) of stations with Q data and/or Median P values achieve standards set out in Section 3(2) of the Phosphorus Regulations. Section 3(2) allows compliance with the Phosphorus Regulation targets by achieving either the standards set for Q rating or MRP (Molybdate Reactive Phosphate) value.

Water Quality Trends: Rivers

Q Ratings

Since the 95-97 baseline period no significant improvement in overall biological water quality in the County is apparent. Although 24% of sites monitored in the 2003 and 2004 do show an improvement from baseline data, a further 27% of sites monitored show a decline in quality. Since the mid 90's there are no longer any pristine sites (Q 5) recorded in Co Monaghan. However the improvements in the Erne catchment noted in 2004 are promising.

Physio-chemical Data:

Water quality data does provide some information on water quality trends in the county. A decline in river phosphate levels has been noted in some rural areas. However, many other river stations do not show a similar decline as yet.

Noticeable water quality improvements have followed the upgrading of urban wastewater treatment plants and upgrading/removal of industrial treatment plant discharges. The Blackwater River below Monaghan Town and the Proules River below Carrickmacross have improved from baseline quality. However water quality in these river stretches – designated as "sensitive waters" under the Urban Waste Water Regulations, remains unsatisfactory (as defined by the EPA). Continued urban development is placing additional pressures on infrastructure and water quality downstream of urban areas. Discharges of untreated or partially treated urban waste waters via storm overflows or overloaded collection systems can have significant effects on water quality and these problems have been referred to Water Services for examination and appropriate remediation.

Since Jan. 2004 the frequency of river monitoring has been increased to 12 samples per annum every 2 years. Median P values are now available for almost all EPA Q rated sites. Results for Median P levels are shown in Table 1.1.

Lake Monitoring

Monaghan Co Council's lake monitoring programmes for 2004 and 2005 have been completed and results reported to the EPA. A total of 50 lakes have been monitored at sampling frequency of one lake sample per annum for the smaller lakes and two to four lake samples for the larger lakes. Lake sampling is resource intensive and Monaghan's sampling frequency has remained low. However the new Water Framework Directive Monitoring Programme, due to commence in Dec 2006 requires a review of sampling frequency – final details have yet to be decided.

Currently lake sampling is carried out in the summer months with the assistance of Civil Defence staff (2 persons) and equipment (boat and pickup truck) and a summer student. The current sample collection takes 10 to 12 days approximately. Water samples are analysed by the EPA Laboratory in Monaghan Town.

Due to low frequency of lake sampling only the Chlorophyll level can be used for classification purposes and compliance checking. If the Total Phosphorus (TP) parameter were to be included a minimum of 10 samples per annum would be required.

Lake Water Supply Sources
Work is currently ongoing to integrate the protection of the 23 lakes used as water supply sources into development planning and control. Maps of surface water sources are included in the current Draft Co Development Plan for Co Monaghan.

Current Status - Lakes

Lake Trophic Status (2004/2005)
The lake trophic status shown in Table 1.2 is derived from the maximum Chlorophyll level measured in the period 2004 to 2005. Current data indicates 46% of lakes comply with requirements of the Phosphorus Regulations based on chlorophyll levels only. Table 1:2 refers

Note:
Lake chlorophyll levels can fluctuate significantly throughout the year. Chlorophyll levels do not always indicate the same degree of eutrophication as do the available Total Phosphorus levels. Total Phosphorus levels in some lakes in Co Monaghan are extremely high.

Water Quality Trends: Lakes
The 2004/2005 lake data indicates an increased number of lakes in the satisfactory category (i.e oligotrophic and mesotrophic). However the high number of lakes (over 80%) with elevated Total Phosphorus levels is a cause for concern.
Tables A and B below show a comparison of current lake trophic status with baseline status and Lake Total Phosphorus (TP) levels for the 2001 to 2005 period..

Table A: Comparison of Lake Data 1995-2003

Annual Max Chlorophyll level ppb	Trophic Status	Baseline data 95-2001 (no. of lakes)	Current Trophic (2004/2005) Classification (no. of lakes)
<8	Oligotrophic		6
≥8 <25	Mesotrophic	11	9
≥25<75	Eutrophic	19	24
≥75	Hypertrophic	16	11

Table B: Lake Total Phosphorus Levels –Average Value of 2001 to 2005 data

Total Phosphorus Average Conc (ppb) 2001-2005 (MCC data)	No. of Lakes in each category
<30	8
30-59	16
60-99	17
>100	10

Water Framework Directive lakes:
Lakes proposed for additional monitoring under the Proposed WFD Monitoring Programme and their current trophic status includes:

Lake	Currrent Status
Avaghon lake	Mesotrophic (– but algal blooms noted in recent years)
Drumlona	Eutrophic
Emy	Mesotrophic
Egish	Eutrophic.
Inner	Hypertrophic
Naglack	Hypertrophic
Monalty	Hypertrophic
Muckno	Hypertrophic
White	Eutrophic
Dromore	Status unknown

Groundwater Quality
The Phosphorus Regulations 1998 deal with surface waters and although ground water quality may impact on surface waters sufficient data is not available in relation to this aspect. The situation regarding groundwater quality will be addressed as the Water Framework Directive is rolled out. A Groundwater Protection Scheme for Co Monaghan has been produced by the GSI. Work is currently ongoing to integrate the Groundwater Protection Scheme into planning decision making and maps of groundwater sources and resources are included in the current Draft Co Development Plan.

Section 2. Implementation of Measures

Monaghan Co Council's Measures Report in 1999 identified a need for additional resources to implement proposals to protect and improve water quality. Although additional staff were recruited following completion of negotiations under BLG (Better Local Government) in 2001, the Phosphorus Team has since lost 2 experienced Environmental Officers. One Environmental Officer (temp) is now in training.

Use of Consultants

In 2005 additional resources were allocated to employ consultants *(RPS Consultant Engineers*) to carry out farm surveys and to highlight farms that will require follow up action by the Council staff. However, without experienced field staff in-house catchment survey work and the necessary follow up of problem premises is currently suspended with a review of the situation due in October 2006.

Monaghan Co Council continue to use the services of Conservation Services to carry out detailed Biological Surveys of rivers. This work highlights "hot spots" and a number of such "hot spots" are awaiting follow-up surveys.

In the 2004-2005 period the Phosphorus Team has been involved in a number of specific work areas as follows:

- Catchment surveys - initially work has been concentrated moderately polluted river stretches and unsatisfactory lakes**.** Work has progressed well but extensive areas of the County are as yet not surveyed**.** See Map in Appendix 1 outlining Progress.
- Database management and updating GIS programme
- Review and updating of water quality monitoring programmes and the introduction of additional Biological Monitoring using a private consultant.
- A survey and report of Urban Wastewater Treatment plants and collection systems.
- Continued enforcement of Water Pollution Acts and Waste Management Act.
- Awareness raising to achieve sectoral involvement in protection and improvement of water quality.

The Phosphorus Team also tries to work closely with Planning control staff, other Environment Section staff and Water Services Section although more integration in this area is deemed necessary.

Future Developments in the area of Water Management

During 2004 a number of Projects relating to water quality issues in Co Monaghan have been initiated. These include:

- North South SHARE Project on River Basin Management Planning.
- Blackwater Regional Partnership TRACE Project on the Definition and Mitigation of Excessive Multi-source Nutrient Loss to Water, lead by University of Ulster and Queens University, Belfast.
- Churchill Oram Source Protection Pilot Scheme led by the National Federation of Group Water Schemes and the Freshwater Studies Unit at DKIT.
- Blackwater Vital Signs Schools project .

- Monaghan Co Council has participated in the Erne Blackwater Surface Waters Working Group.
- The County Development Board has included the Improvement of Water Quality in Co Monaghan as an Action in the CDB Strategy for Co Monaghan.

Monaghan Co Council will provide available water quality data for the Project leaders and is involved as Steering Group members and/or in an advisory role.
The benefits of such projects are expected to be increased knowledge of water quality issues, improved water quality management, improved public and sectoral participation. and increased awareness.

Section 3. Progress to Date

There is evidence that the biological quality of rivers continues to decline in Co Monaghan. Of particular concern is the recent loss of pristine and high quality sites in upland areas. It is expected that resource intensive catchment survey work, additional monitoring, enforcement and in some cases changes in land use or other measures will be required to bring about water quality improvements. It is expected that the turn-around period between intensive catchment survey work, enterprise improvements and water quality improvements could be a minimum of 2-3 years depending on catchment characteristics.

Improvements in Hydrometric Area 36 (Erne Catchment)
Promising results were evident in the 2004 EPA Biological Monitoring of Hydrometric Area 36 (Erne Catchment).

Although Monaghan Co Council have completed catchment survey work in sub-catchments of the Erne River (Bunnoe and Maghery Rivers have been surveyed in 2002 and 2003) improvements are also noted in other sub-catchments. It is suspected that the intensive surveillance and enforcement work carried out by the Northern Regional Fisheries Board (NRFB) for several years has contributed significantly to improvements in water quality in this area. Discussions with the Eastern and Northern Regional Fisheries Boards have revealed that additional resources have been dedicated to surveillance and enforcement work in the NRFB area for a number of years.

Progress has been made in pursuing measures set out to tackle water pollution in Co Monaghan. Improvement in the chemical data at some river stations is evident, upgrading of industrial treatment plants continues and investment in Water Services is ongoing. Progress in various work areas is detailed below and in Table 3,4, and 5 attached in Appendix 2. However additional resources are considered necessary to successfully identify and follow up on pollution sources in the county.

Catchment Surveys

Catchment surveys commenced in May 2002 with a focus on small rural catchments where water quality was classified as moderately polluted. All agricultural, industrial and commercial premises were surveyed in each catchment. Communal septic tanks and village areas were also surveyed. The aim of catchment surveys was to identify and eliminate point sources of pollution and identify potential diffuse sources of pollution for further attention.
Over the period Jan 2004 to Dec 2005, a total of 352 premises (mainly agricultural) were surveyed. 110 advisory letters were issued, 21 Section 12 Notices were issued. A total of 450 reinspections of silage making facilities (including facilities surveyed pre 2004) and 158 reinspections of medium and high-risk wintering facilities were reinspected in the summer and winter periods respectively.

Current Status of Catchment Survey Work Table (refer to Map of progress Appendix 1)
Table C

Catchment /River	Survey By	Comments
Emy Lough catchment	2003, MCC Staff	Limited follow up of due
Mountain Water Tributary	2004/05 -TRACE Project	Pollution mitigation measures due to be installed in 2006
Scotstown River	2004, MCC Staff	Follow up inspections due
Blackwater (upper reaches)	2004, MCC Staff	Follow up inspections due
Maghery, Kilcoran and Magherarney Lakes	2002 MCC	Limited follow up due
Lough Oony	2003 MCC	Follow up on 1 farm due
Conawary River	2005/06 MCC	Follow up inspections due
Ballagh lake	2006 MCC	Follow up inspections due
Clontibret Stream	2003/04 MCC	Follow up inspections due
Bunnoe River and Annamakerrig Lake	2003 MCC	Limited follow up due
Drum lake	2003 MCC	Limited follow up due
Avaghon lake Stream, Mullanary and Corkeeran Lakes	2002 MCC	Limited follow up due
Namachree Lake	2002 MCC	Follow up on 1 septic tank due
Milltown lake Catchment	2005/06 Dundalk Inst. Of Tech.	Extensive monitoring completed – Farm and septic tank survey due 2006
Rossdreenagh River	2006 RPS on behalf of MCC	All follow up outstanding. (MCC to carry out follow up
Inner Lough	2003 NRFB	

Database Management and Mapping

Consultants completed a GIS Mapping Project and Sludge Management Plan for Co Monaghan in Spring of 2002. The GIS Project provides a comprehensive mapping tool for catchment survey work. As the catchment surveys progress it is intended that data on all enterprises are entered on an access database and mapped using GPS.

Due to the extent of agricultural activities in the County and their potential impact on the environment, work commenced in 1999 on collection of relevant agricultural data. A comprehensive database on intensive agricultural enterprises, soil phosphorus returns, and a poultry manure waste tracking system has been established.

Monitoring Programmes

Lake Monitoring Programme
As detailed in Section 2 page 3.

River Monitoring
From Jan 2004 monthly river water samples have been collected and each river monitored for one 12 month period every two years. This work is contracted out to the EPA Regional Lab, Monaghan Town. The river sampling programme has been extended to include all river stations Q rated since 1995.

Additional Monitoring
Additional Monitoring Programmes carried out to identify "Hot Spots" and provide additional information of water quality in selected catchments and their tributaries are shown on Table D below.

Table D

River	Type of Monitoring	Comments
R Blackwater (03/B/01), and Tributaries including 03/S/02, 03/S01,	Physio-chemical, flow and biological monitoring in 2002-2003 period	Partial catchment survey work carried out in 2004– survey follow up due.
Mountain Water (03 M01) and Tributaries	Physio-chemical and biological monitoring – 2003-2004 period	Some problem areas identified – catchment awaiting survey
Emy Lough Stream	Physio-chemical and biological monitoring in 2004	Mini catchment survey completed 2003.
Finn River (36/F/01) and Tributaries	Physio-chemical monitoring 2004	Not yet scheduled for catchment Survey
Avaghon Lake Stream (36 A07)	Post survey Biological Monitoring	Catchment surveyed 2002, Lake outflow identified as significant
Maghery River (36/M/03)	Post survey Biological Monitoring	Both catchment survey in 2002 and Biological Monitoring 2005 failed to pinpoint source of low Q values in the upper reaches.
Knappagh (36/K/01)	Biological Monitoring (partial survey)	Suspected source ceased, River Q improved.
Conawary Lower (03/C/01) and tributaries	Physiochemical Monitoring	Catchment Survey 2005/06. Follow up due.
Proules (06/P/01)	Biological Monitoring (partial Survey)	Mini catchment Survey- urban sources of pollution identified

General Activities under the Water Pollution and Waste Management Act:

General activities of the Environment Section in the reporting period 2004 to 2005 Monaghan Co Council include the following enforcement work under the Water Pollution and Waste Management Acts.
11 cases referred for prosecution under of the WPA and WMA
28 Section 12 notices have been issued
17 Section 55 Notices have been issued.
The Council's Environment Section continues to investigate environmental complaints. Approximately 800 environmental complaints were received in From Jan 2004 to Dec 2005, many of which related to illegal dumping and litter. 58 water pollution complaints were investigated in same period.

Industrial Discharges
Significant improvements have been carried out by Industry in Co Monaghan. There are currently 22 "active" Licences issued under Section 4 of the Water Pollution Act. The are currently Section 4 Licence applications under consideration Almost all active Licences have been inspected at least once in the 2004 to 2005 period and monitoring of discharges is ongoing.
No prosecution cases for breaches of Section 4 of the WPA were taken in this period.

Landfill
Monaghan Co Council's Landfill being operated under a Licence from the EPA.

Awareness Raising During 2004 and 2005

The Phosphorus Teams Awareness Raising Programme has included the following activities:
Information / Public Meetings, During the reporting period a total of 5 meetings with the following groups were organized, IFA, Northern and Eastern Regional Fisheries Boards, and an Industry Group. Council staff gave presentations at 3 meetings organized by the IFA Co Executive and IFA Waste Management Committee. Presentations were given at 4 REPS meetings at the request of a REPS Planner. The Co Development Board Environment and Agriculture Working Group, the Erne Blackwater Surface Water working Group and TRACE Steering Group Meetings have also increased networking and information sharing between Council, stakeholders and research bodies.
Catchment Information Leaflets
Individual information leaflets with local water quality information have been produced for each catchment surveyed. Leaflets are distributed to each premises surveyed. See Appendix 2.
Information Leaflets on *Managing Phosphorus in Farming* (2 No) and *Prevent Silage Pollution* have been produced and pre 2004 were circulated via the Dairy CoOps. We continue to send out these leaflets where a need /problem is identified. A leaflet on *Septic Tank and Wastewater Treatment System Guidelines* has been produced and is distributed

to households with problem or suspect septic tanks. From June 2006 it is proposed to circulate the "Septic Tank/Treatment System "leaflet with planning approval notices.
Press Articles and Adverts/ Radio A total of 25 articles and adverts relating to water quality appeared on local press. Adverts related to Good Farming Practice, slurry spreading and silage making. Articles on general water quality were placed in 2 Council Environment Bulletins.
Advisory Letters. Approximately 80 farmers were sent advisory letters in relation to Soil Testing for Phosphorus. Over 110 advisory letters have been issued following catchment surveys.
One to one Site meetings Staff have carried out over 400 site visits in relation to catchment surveys and water pollution complaints during the2004 and 2005 period.

Liaison with the Planning Section

Environment section staff continues to liaise with the Planning Section regarding environmental assessment and control of new developments. A very substantial (two and a half fold) increase in the number of planning files examined by the environment section was recorded in the 2004-2005 period. In the period 2004 to 2005 the environment section have examined and reported on 761 planning files that include 205 agricultural, 201 housing schemes, 364 industrial/commercial developments and 9 public schemes. Contributions have been submitted to the proposed Development Plan to improve aspects of sustainable development.

Period	Agricultural	Comm./Industrial	Housing Dev/ other	Other	Totals
2003-2003	113	93	52		258
2004-2005	205	346	201	9	761

Liaison with Water Services:

A member of the Phosphorus Team surveyed 21 local authority operated waste water treatment plants in early 2005. A report is currently in preparation and will be presented to management and discussed with Water Services in late 2006.

Problems Encountered

The continued decline in water quality is still evident.
Development pressures are a cause for concern. A very substantial increase in development activity is evident. Criteria for sustainable development would be useful.
Monitoring of new developments to ensure compliance with planning conditions attached to protect waters is considered necessary but as yet not undertaken.

Staff Retention – the Phosphorus Team lost 2 fully trained members of staff one in May 2004 and the second in May 2006. Some slow down in catchment survey work is evident as a result. In addition to replacement of staff members with trained officers it is essential that further resources will be required to achieve the targets set in the Phosphorus Regulations and to build capacity within the council to implement the required programme of measures that will accompany the River Basin Management Plans under the Water Framework Directive.
Lack of integration of environmental protection policies into the activities of various sectors (particularly in the recent past).
Cross border pollution incidents can be more difficult to resolve.
It would be beneficial to develop a reliable risk assessment tool for diffuse source pollution.
Computer facilities/tools for the interrogation of environmental data and trend analysis are also considered necessary.
The local authority role of "poacher" and "gamekeeper" can give rise to concerns by the public of the effectiveness of local authority's pollution control role.

Successes to date

The review of CAP and the changes in farm payments from production based payments to single payments scheme is likely to benefit water quality in the medium to long term.
Information meetings resulted in offers of cooperation and are considered very beneficial.
Good relationships with industry and improvements in industrial wastewater treatment in recent years.
Cooperation with the IFA is resulting in regular contacts with farming groups. Staff are encountering a positive response to site inspections on farms.
The EPA biological monitoring for one of the three catchments surveyed by council staff in the 2002/2003 period indicated significant improvements in water quality in 2004. The other two catchments remain as yet moderately polluted – requiring further investigation.
Improvements in the Biological Quality of the Erne Catchment are promising (page 8 refers)
Participation in projects described on page 6 should result in better knowledge of activities contributing to water pollution, effective mitigation measures and improved participation.

Summary

Co Monaghan faces a particular set of problems in relation to water quality, which to some extent are unique to this county. It is a drumlin county, with heavy soils in many areas resulting in high runoff risk. The extent of intensive agricultural activities in Co Monaghan poses problems for the recovery /disposal of agricultural waste in an environmentally sustainable manner. In addition many of the county's rivers have low assimilative capacity.

Rapidly expanding industrial and commercial activities, rural housing and expansion of urban areas need to be controlled and monitored. Monaghan Co Council need a fully resourced and dedicated Team to progress measures set out in the Measures and Implementation Reports
There will be ongoing review of measures to maximize effectiveness of measures to improve water quality in the county.

TABLE 1.1: RIVER WATER QUALITY STANDARDS TO BE ACHIEVED BY 2007																
Monaghan		Implementation Report Year		2006												
River Name	River Code	Biological Monitoring Station	Station Location Name	Grid Reference	Grid Ref. Cont	Baseline Q-value	Is Baseline Quality Satisfactory? Yes/No	Current Q-Value (2003-2005)	Current MRP Value ug/l P (04-05)	Standard to be Achieved by 2007 Q Value	Standard to be Achieved by 2007 MRP Value	Has Either Standard Been Achieved?	Does an Article 3(9) Extension Apply?	If Yes, What is the revised compliance date	Where Quality is Unsatisfactory What is the Principal Source of Pollution	If there is an identifiable source, please enter details
				Easting	Northing											
MOUNTAIN WATER	03M01	0650	Br N of Glaslough	272000	342200	3	n	**3**	**50**	3-4	50	y	Yes	UWW and agric/diffuse rural discharges		