

INRG (Solar Parks) 21 Ltd

Solar Farm at Flixborough, DN15 8SG

Surface Water Drainage Strategy – Discharge of Planning Condition 10

Planning Application Reference: PA/2015/0434
Appeal Reference: APP/Y2003/W/16/3142032

23rd January 2017 V1

This report is based on the instructions given by our client. It is not intended for use by a third party, and no responsibility will be given to any third party.

The consultant has followed accepted procedure in providing the services, but given the residual risk associated with any prediction and the variability which can be experienced in flood conditions, the consultant takes no liability for and gives no warranty against actual flooding of any property (client's or third party) or the consequences of flooding in relation to the performance of the services.

Clive Onions Director
BSc CEng FICE FCIWEM
MIStructE MCIHT

Clive Onions Ltd
2 Stowey Cottages
Golds Cross
Pensford
Bristol BS39 4DL

t 01275 332 216
m 07836 268 939
e info@cliveonions.com
www.cliveonions.com

Company registered in
England and Wales number:
7444467
Registered office:
61 Queen Square, Bristol BS1 4JZ

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Report prepared by Samuel Rice – BSc (Hons)

Report approved by Clive Onions - BSc CEng FICE FCIWEM MIStructE MCIHT

Version history

Version	Date	Prepared by	Approved by	Comment
V1	23/01/17	SR	CO	

Issue history

Version	Date	Issued to	Method
V1	23/01/17	Pegasus Group	Email pdf

1. Introduction

INRG (Solar Parks) 21 Ltd submitted a Planning Application Ref PA/2015/0434 for a Solar Farm to generate approx. 6MW of renewable energy. Clive Onions Ltd prepared a Flood Risk Assessment (FRA), dated 30th March 2015 – V4 which accompanied the application.

The Lead Local Flood Authority (LLFA) Consultation Response is copied in Appendix 1, and suggested consideration of a swale along the southern edge, and requested information on maintenance of the watercourse within the site.

A response to these points was sent to the LLFA, and the LLFA accepted the proposals, which is copied in Appendix 2, with the proposed details of the swale.

The Environment Agency Consultation Response is copied in Appendix 3. This requested that sensitive equipment, which was subsequently clarified as transformers, inverters etc, should be set at or above 3.5m AOD.

However, the application was refused for other reasons 18th November 2015 and subsequently went to Appeal.

The Appeal (Ref: APP/Y2003/W/16/3142032) was approved and planning permission granted on 11th October 2016, subject to conditions. Condition 10 relates to surface water drainage and is copied below:

10. Notwithstanding the contents of the submitted flood risk assessment, no development shall take place until a scheme for the disposal of surface water from the scheme has been submitted to and agreed in writing by the local planning authority. The development hereby permitted shall not be brought into first use until the approved drainage scheme has been implemented in full.

This report describes the current proposal and confirms that the points referred to above have been addressed to Discharge Condition 10 and satisfy the Environment Agency's concern.

2. Site Location and Boundary

The site is located as shown in the Flood Risk Assessment, and the boundary remains the same, and the comparison can be made below.

3. Proposed Development

The development comprises solar arrays as described in the FRA.

However, the following key changes have been made;

- The extent of solar arrays is reduced, as can be seen by comparing the plans below
- The transformers/inverters have been located on the higher ground to the northeast of the site, above the 3.5m contour

- The switchgear and associated equipment is in buildings near the site entrance, but the sensitive equipment will be raised above 3.5m AOD.

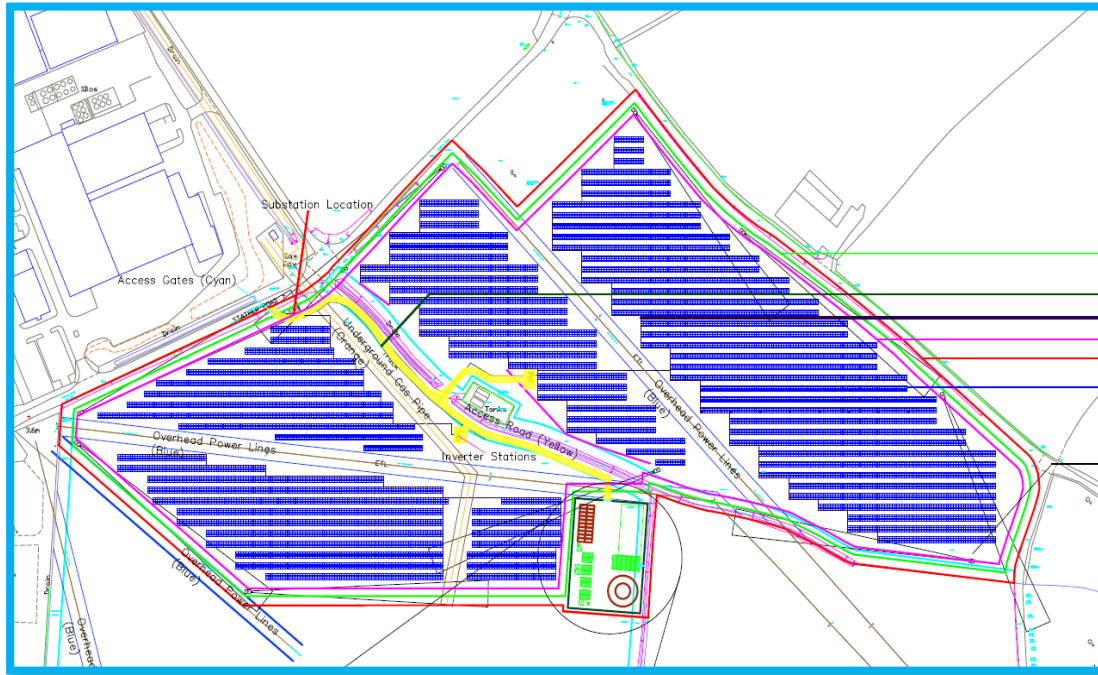


Fig 1 Layout copied from FRA Fig 5 for reference purposes

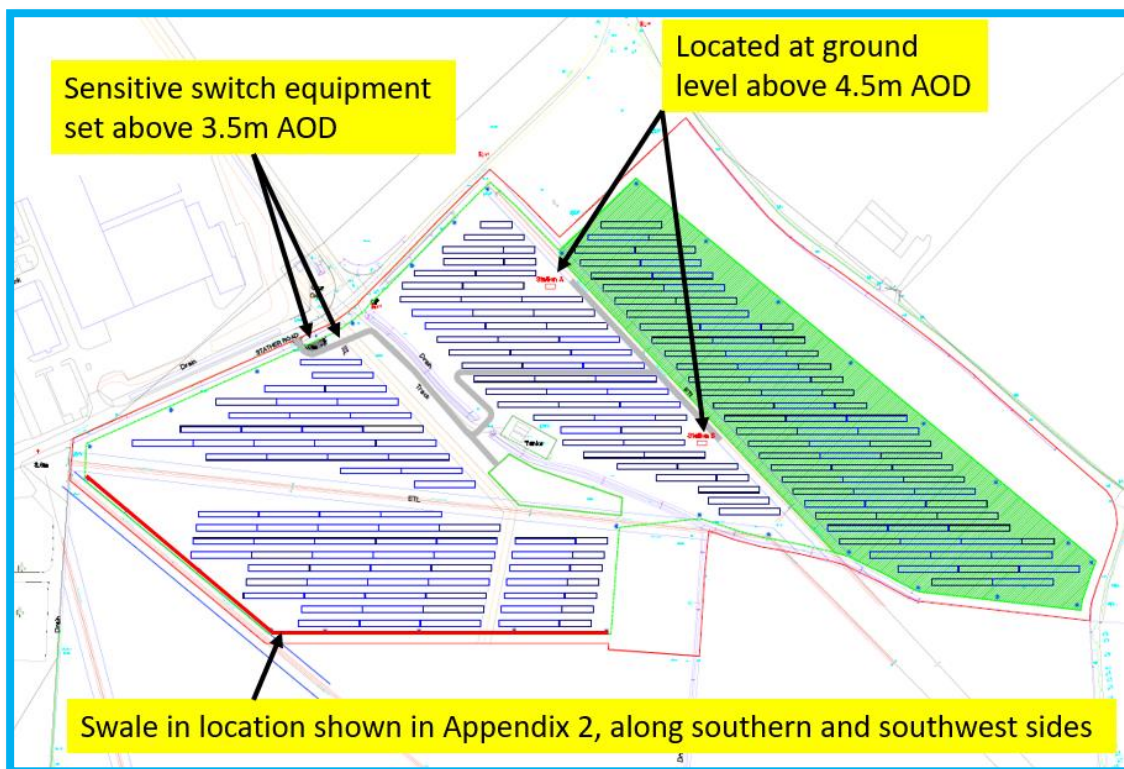


Fig 2 Proposed layout highlighting swale location as accepted, and changes in sensitive equipment location and swale location

A summary of the survey levels, copied from the FRA, is shown below.

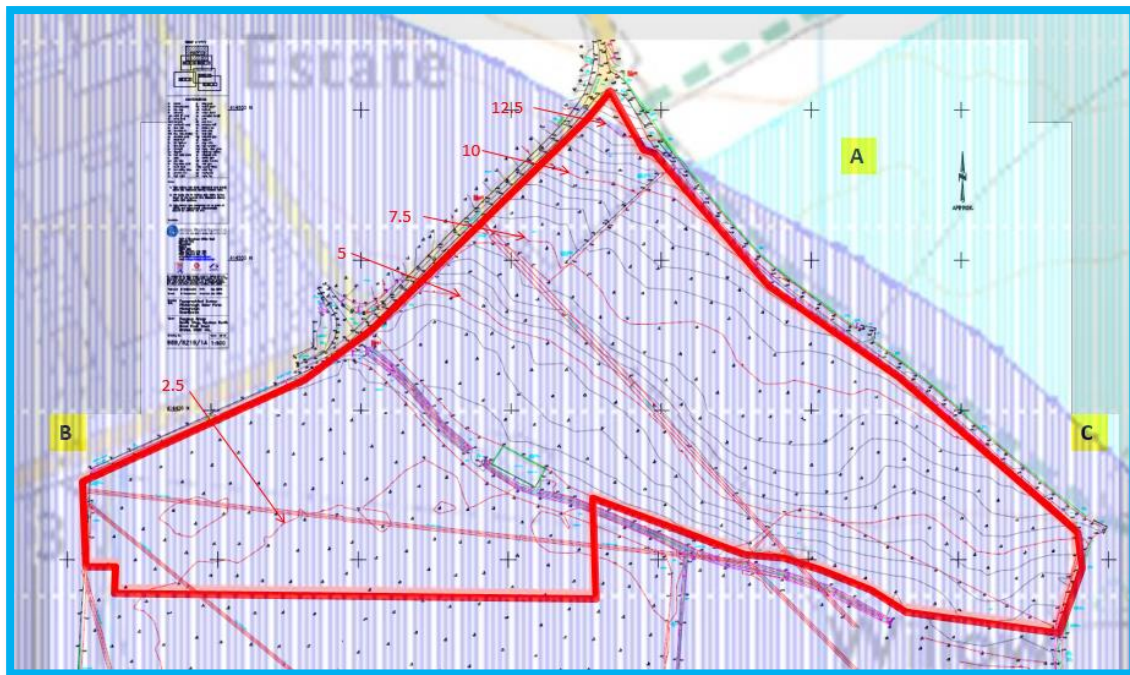


Fig 3 Annotated copy of topographic survey, showing contours and levels. Note the boundary is indicative on this plan.

The proposed swale will be constructed as previously accepted

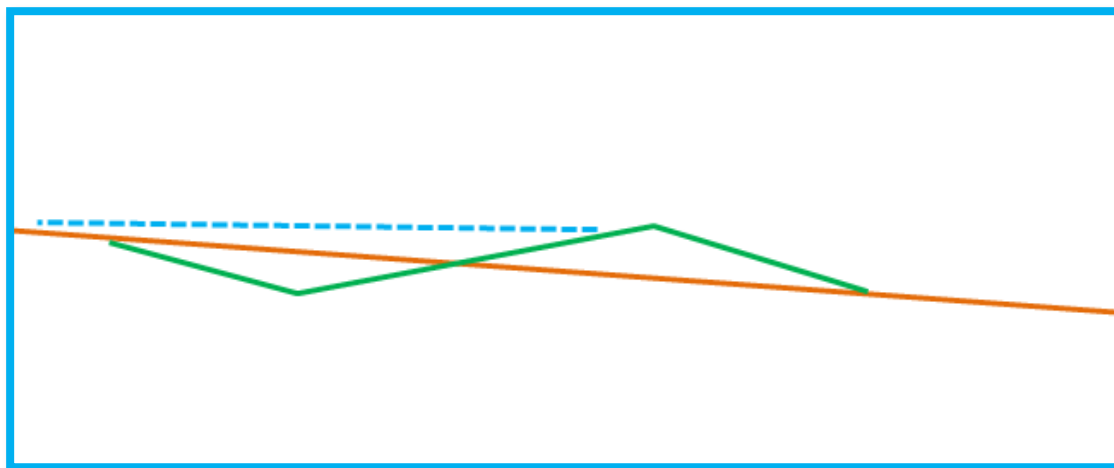


Fig 4 Indicative cross section of 200mm deep furrow, with 200mm high ridge, as accepted previously. Side slopes will be typically 1 in 3, but can vary at pinch points, provided depth and height is maintained.

4. Maintenance of Watercourse and Swale

The watercourse is shown on the topographic survey and the structures have been kept well away for ecological and maintenance access reasons. We note the importance of this channel and Riparian responsibilities to keep the channel clear. The landowner/site operator will maintain this and ensure that it functions as intended through appropriate maintenance. We will notify the Council if any other watercourses are encountered, as requested, before proceeding with further works.

The water course and swale should be inspected at the start of the autumn and in late spring, and at other times if prevailing conditions suggest, and the following steps taken:

- Any blockages from branches, intense bramble growth etc. should be removed so that the swales can be readily inspected to confirm their clear operation.
- Ensure the check dams operate efficiently without erosion, and restored if needed.
- Any raised bed due to animal activity etc. which may hinder water dispersal or reduce volume should be removed to restore capacity and performance.
- Trees and shrubs removed before they can establish.
- Grass and wild flowers should be inspected and strimmed back to about 100mm long from time to time.
- Bare earth areas should be inspected, prepared and seeded to re-establish grass and wildflower growth as appropriate.
- If water remains in the swale or watercourse for prolonged periods inspections shall be made and the bed treated to restore performance of the swale and aid infiltration.

5. Conclusions and Recommendations

A proposed solar farm at Flixborough has been approved, but during the planning consultation process comments were made about the consideration of a swale to reduce the risk of runoff affecting the lower land to the south and west of the site, maintenance of the watercourses within the site and the height of sensitive equipment.

This report should be read in conjunction with the Flood Risk Assessment issued to accompany the planning application.

This report addresses the points referred to above, and relates the LLFA queries to the points already accepted, and copied in the Appendices.

The site construction will incorporate the proposals in this report.

As such this report Discharges Planning Condition 10.

Appendix 1 LLFA Consultation Response

From: LLFAdrainageteam/NorthLincs
Sent by: Sam Cross/HP/NorthLincs
To: Planning/PL/NorthLincs@NorthLincs, Scott Jackson/NorthLincs@NorthLincs
Cc: Gill Powell/AS/NorthLincs@NorthLincs

Date: Wednesday, 27 May, 2015 03:55PM
Subject: Re: email highways consultation - App ref PA/2015/0434

Hi,

The Drainage Team has no objection to the proposed development subject to the imposition of the following planning conditions:

1. Downstream land still has the potential to suffer from a level of flooding due to drainage overflow. The installation of a linear drainage system (SWALE) to capture surface water run-off should be considered. Further advice can be sought by contacting the Drainage Team on 01724 297522. Any advice offered by the Drainage Team should be acted upon.

Reason: *To prevent the increased risk of flooding to themselves and others.*

2. Our records and your flood risk assessment indicate that the proposed development site has running through it, a watercourse. Following inspection, the watercourse may need to be cleared, replaced, protected or diverted by the landowner at their expense in accordance with their riparian responsibilities. Any other drainage feature found during excavations must be immediately reported to the Drainage Team on 01724 297522, prior to any further construction works being carried out.

Please refer to link re: Riparian responsibilities. <https://www.gov.uk/government/publications/riverside-ownership-rights-and-responsibilities>


Reason: *To ensure free flow of surface water is maintained through the development.*

Regards,

LLFA Drainage Team
North Lincolnshire Council
Community Services
Places Directorate
8-9 Billet Lane
Scunthorpe
DN15 9YH
Tel: 01724 297522

Appendix 2 LLFA acceptance of response, with response

Mon 01/06/2015 14:52

 Sam Cross <Sam.Cross@northlincs.gov.uk> on behalf of LLFAdrainageteam <LLFAdrainageteam@northlincs.gov.uk>
 Fw: Flixborough - PA/2015/0434 - solar farm planning consultation - drainage

To Planning; Scott Jackson
 Cc Clive Onions
 You replied to this message on 01/06/2015 15:07.

Message Consultation response1.pdf 20150434_43e67469-9728-44a3-8832-6914a4f3f7ad.pdf

Hi Scott,

Please see below email and attachments.

This reply satisfies our original conditions providing it is built and maintained in accordance with the below email and attached document 'Consultationresponse1.pdf'

Regards,

LLFA Drainage Team
 North Lincolnshire Council
 Community Services
 Places Directorate
 8-9 Billet Lane
 Scunthorpe
 DN15 9YH
 Tel: 01724 297522

-----Forwarded by Sam Cross/HP/NorthLincs on 06/01/2015 02:39PM -----
 To: "LLFAdrainageteam (LLFAdrainageteam@northlincs.gov.uk)" <LLFAdrainageteam@northlincs.gov.uk>
 From: Clive Onions <clive@cliveonions.com>
 Date: 06/01/2015 12:22PM
 Cc: "Gareth Roberts (Gareth.Roberts@pegasuspg.co.uk)" <Gareth.Roberts@pegasuspg.co.uk>, "IAN GANNON (ian@inrg.eu)" <ian@inrg.eu>, "David Dean (david@inrgsolar.com)" <david@inrgsolar.com>, "fergus.sykes@pegasuspg.co.uk" <fergus.sykes@pegasuspg.co.uk>, "Colin Virtue <Colin.Virtue@pegasuspg.co.uk>" <Colin.Virtue@pegasuspg.co.uk>
 Subject: Flixborough - PA/2015/0434 - solar farm planning consultation - drainage

(See attached file: Consultation response1.pdf)

(See attached file: 20150434_43e67469-9728-44a3-8832-6914a4f3f7ad.pdf)

Dear Mr Cross,

I have received with thanks your comments in relation to the Flixborough solar farm application, referenced above and copied above for ease of reference.

We have considered the two points, as discussed with you on the phone, and respond as follows;

- 1 A swale will be provided along the south and southwest boundary, as shown in the attached image. The form of swale has been recommended by the Environment Agency for other solar farms; it will be 200mm deep, with the 200mm mound formed with the excavated material, and then all seeded with grass. The site at Flixborough is very

flat, so this will provide a large storage area for potential runoff. It will be located between the boundary fence and arrays.

The compound shown in the southeast is temporary, and on completion of the solar farm will be returned to grass.

- 2 The watercourse is shown on the topographic survey and the structures have been kept well away for ecological and maintenance access reasons. We note the importance of this channel and Riparian responsibilities to keep the channel clear. The landowner will maintain this and ensure that it functions as intended through appropriate maintenance. We will notify the Council if any other watercourses are encountered, as requested, before proceeding with further works.

We understand from the telephone conversation that this response satisfies your requirements and you will inform the Planning Officer accordingly.

I would appreciate it if you could acknowledge this email and that you are content, for our records,

Many thanks,

Clive

clive onions
consulting civil engineer

Clive Onions BSc, CEng, FICE, FCIWEM, MStructE, MCIHT

2 Stowey Cottages

Golds Cross

Pensford

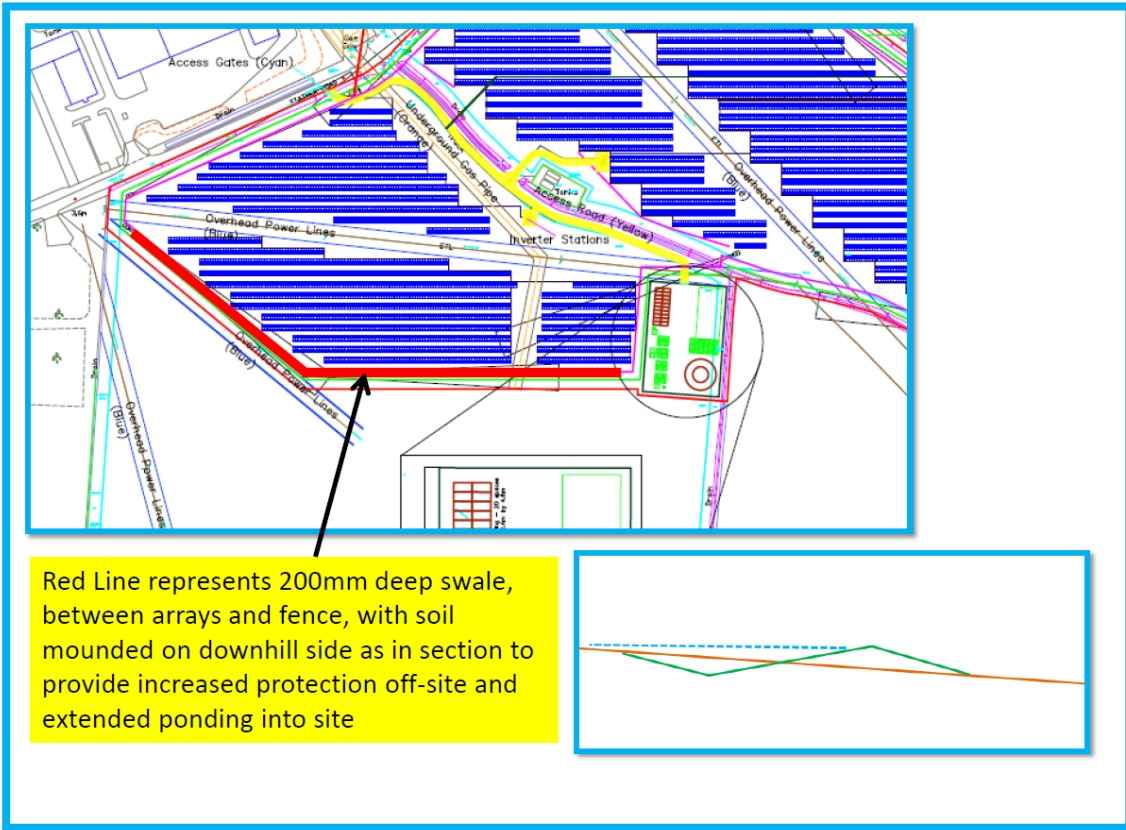
Bristol BS39 4DL

t 01275 332 216

m 07836 268 939

e clive@cliveonions.com

w www.cliveonions.com



Plan (attachment) referred to as Consultation Response 1.pdf

Appendix 3 Environment Agency letter dated 22nd May 2015

Planning Department
North Lincolnshire Council
Civic Centre
Ashby Road
Scunthorpe
DN16 1AB

Our ref: AN/2015/121633/01-L01
Your ref: PA/2015/0434
Date: 22 May 2015

FAO Scott Jackson

Dear Mr Jackson

**Planning permission for installation of ground mounted solar arrays with transformer stations; internal access track; biodiversity improvements; landscaping; security fencing; security measures; access gate; temporary construction compound and ancillary infrastructure
Land adjacent to Flixborough Industrial Estate, Stather Road, Flixborough**

Thank you for referring the above application, on 1 May 2015.

Environment Agency position

The proposed development will only meet the National Planning Policy Framework (NPPF) policy to make new development resilient to flood risk if the following planning condition is included.

Condition

The development hereby permitted shall not be commenced until such time as a scheme to demonstrate that all sensitive equipment is set at or above 3.5mAOD has been submitted to, and approved in writing by, the local planning authority.

The scheme shall be fully implemented and subsequently maintained, in accordance with the timing / phasing arrangements embodied within the scheme, or within any other period as may subsequently be agreed, in writing, by the local planning authority.

Reason

To reduce the impact of flooding to the proposed development.

As you are aware the discharge of planning conditions rests with your Authority. It is, therefore, essential that you are satisfied that the proposed draft condition meets the requirements of paragraph 4 of the National Planning Practice Guidance (Use of Planning Conditions, section 2). Please notify us immediately if you are unable to apply our suggested condition, as we may need to tailor our advice accordingly.

In accordance with the Planning Practice Guidance (Determining a planning application, paragraph 019), please notify us by email within 2 weeks of a decision being made or

Waterside House, Waterside North, Lincoln, LN2 5HA
Customer services line: 03708 506 506
Email: planninglincoln@environment-agency.gov.uk
www.gov.uk/environment-agency

Calls to 03 numbers cost no more than national rate calls to 01 or 02 numbers and count towards any inclusive minutes in the same way. This applies to calls from any type of line including mobile.

Cont/d..

application withdrawn. Please provide us with a URL of the decision notice, or an electronic copy of the decision notice or outcome.

Should you require any additional information, or wish to discuss these matters further, please do not hesitate to contact me on the number below.

Yours sincerely

Nicola Farr
Sustainable Places - Planning Adviser

Direct dial 01522 785865
Direct fax 01522 785040
Direct e-mail nicola.farr@environment-agency.gov.uk