

Comhairle Cathrach Chorcaí Cork City Council



CITY HALL
CORK

Tel: 021-4966222/4924000
Fax: 021-4314238

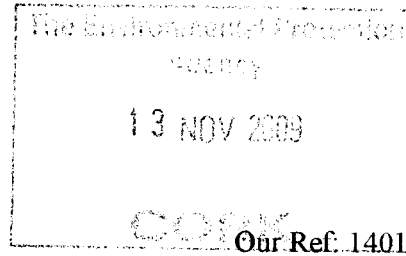
**Kinsale Road Landfill Site
Landfill Office**

**Tel: 021-4705911
Fax: 021-4319930**



Ms. Sonja Smith,
Licensing Unit,
Office of Climate, Licensing & Resource Use,
Environmental Protection Agency,
Regional Inspectorate,
Inniscarra,
County Cork.

11th November 2009



Re: Review of Waste Licence for Kinsale Road Landfill (Licence No W0012-03)

Dear Ms. Smith,

I enclose herewith for your attention, 1 No. original, 3 No. copies and 1 no. CD of report entitled :

"SUBMISSION TO THE ENVIRONMENTAL PROTECTION AGENCY IN RELATION TO THE PROPOSED REVIEW OF THE WASTE LICENCE FOR KINSALE ROAD LANDFILL (LICENCE NO W0012-03)"

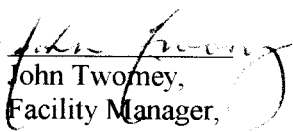
This report was prepared by Fehily Timoney and Co. Consultants on behalf of Cork City Council.

An original and 3 No. copies of the report was previously sent to the Agency, addressed to Ms. Siobhan McDonnell, Inspector, Office of Environmental Enforcement, with a cover letter dated 03rd September 2009 - Our Ref: 1391.

I would be obliged if you would ensure that Mr. Stuart Huskisson, Inspector, Office of Climate, Licensing & Resource Use is made aware of this submission.

I trust this is to the satisfaction of the Agency.

Yours sincerely,


John Twomey,
Facility Manager,
Kinsale Road Landfill Site.



SUBMISSION TO THE ENVIRONMENTAL PROTECTION AGENCY IN RELATION TO THE PROPOSED REVIEW OF THE WASTE LICENCE FOR KINSALE ROAD LANDFILL (LICENCE NO W0012-03)

AUGUST 2009



SUBMISSION TO THE ENVIRONMENTAL PROTECTION AGENCY IN RELATION TO THE PROPOSED REVIEW OF THE WASTE LICENCE FOR KINSALE ROAD LANDFILL (LICENCE NO W0012-03)

User is Responsible for Checking the Revision Status of This Document

Rev. Nr.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:
A	Draft	ME/EBT			17-07-2009
B	Draft Incorporating Client comments	PK/EBT			10-08-2009
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Client: Cork City Council

Keywords: waste licence review, bio methane facility, capping works

Abstract: This submission to the Environmental Protection Agency forms part of the waste licence review application for Kinsale Road Landfill.

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1 INTRODUCTION

A meeting was held on the 20th May with the Environmental Protection Agency (EPA) to discuss the long-term after-use of Kinsale Road Landfill following the cessation of land-filling activities on the 16 July 2009. At this meeting the Agency requested that further detail be submitted on the following:

- Programme for the capping works at the site
- Details of the proposed biogas facility at the site Methods for ensuring integrity of capping system under parking areas adjacent to the new playing pitches
- Methods for ensuring integrity of capping system under parking areas adjacent to the new playing pitches

This submission is in response to the Agency's requests in order that the new waste licence will facilitate the proposals contained herein.

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2 PROGRAMME OF CAPPING WORKS

Condition 4.3.3 of the existing waste licence for the facility (licence ref no. W0012-02) requires that '*phases shall be permanently capped within 12 months of the phases having been filled to the required level...*'

Landfilling activities at the facility will cease on the 16 July 2009 and in accordance with Condition 4.3.3, permanent capping is required to be completed by July 2010. Cork City Council (CCC) however is seeking a derogation of the condition requiring a permanent cap within 12 months.

CCC proposes to permanently cap, on a phased basis, Areas 10a and 10b in the years 2010 and 2011 respectively. Areas 10a and 10b are indicated on Drawing LW09-011-04-001 (in Appendix 1).

The proposed capping schedule for Areas 10a and 10b is given in Appendix 2 indicating Area 10a capped in 2010 and Area 10b capped in 2011. The revised schedule in Appendix 2 accounts for the fact that the summer months is the optimal time for carrying out civil engineering works that involve extensive membrane lining works and earthworks due to more favourable temperature, precipitation, wind and daylight conditions.

The primary objective of installing a permanent capping system is to:

- Provide a physical barrier between the waste and the atmosphere
- Control landfill gas migration
- Minimise leachate generation by reducing infiltration of precipitation into the waste body and maximising surface water run-off

Cork City Council proposes to actively manage landfill gas, leachate and surface water during the temporary intermediate period prior to final capping through the following:

Physical Barrier

Immediately following the cessation of landfilling at the facility, Cork City Council will install an intermediate cap to areas 10a and 10b by the end of July 2009. This intermediate cap shall consist of a minimum 300 mm of sub-soil. For soil conservation purposes as well as the control of potential slippage, the areas will be grass seeded.

The installed profile of the intermediate cap shall promote surface water run-off into the existing swale. This will minimise infiltration into the waste body. The intermediate cap will be maintained prior to final capping.

Landfill Gas Management

Following completion of the installation of the intermediate cap, Cork City Council will complete the installation of the temporary gas extraction system. Drilling of the vertical gas extraction wells (later to be connected to the permanent gas collection system) commenced before at the end of July as outlined in the schedule in Appendix 2. The temporary collection pipework will be connected to the existing gas collection system by the end of August. This collection system will be operated and maintained until the permanent gas collection system is installed.

Leachate Control

Installation of the intermediate cap and its grass seeding will significantly reduce infiltration of precipitation to the waste body. By the active maintenance of the cap, in counteracting the effects of settlement, the reduction in infiltration will be maintained.

The positive leachate collection system operated via the leachate interception trench, has proved effective in the control of leachate whilst these areas were un-capped.

The installation and maintenance of the intermediate cap will reduce infiltration to the waste body resulting in a lower volume of leachate being generated. This lower volume of leachate generation will have a reduced dependence on the interceptor trench for the control of leachate from the site.

2.1.1 Benefits of Extended Duration of Capping

CCC requests the EPA to allow capping to be scheduled as described above for the following reasons:

a) because of the accelerated land-filling from October 2008 until closure in July 2009, to meet the Landfill Directive closure requirement, settlement in the recently filled Area 10b will be greater. A longer period for primary settlement is therefore recommended prior to final capping.

b) allowing primary settlement to occur reduces long-term maintenance difficulties to the landfill gas collection infrastructure. Sagging pipework, as a result of waste settlement, gives rise to blockages in the gas collection network due to plugging by condensate. Settlement also gives rise to depressions in the final cap profile and barrier layer which increases the risk of surface water infiltration and reduced surface water run-off.

c) approximately 90,000 m³ of sub and top-soil will be required as part of the capping for Areas 10a and 10b. It is unlikely in the current economic climate and with the lack of development being undertaken, that sufficient material will become available within one year to carry out the permanent capping works.

d) recent waste licences require filled cells to be capped within 24 months. This extended duration recognises the need for primary settlement to occur prior to the installation of the permanent cap.

There are positive environmental, engineering and operational benefits in extending the final capping installation period.

2.1.2 Conclusion

In full consideration of the above, Fehily Timoney & Company believes that extending the capping duration as indicated on the enclosed schedule will not give rise to a significant increase in the risk to the environment.

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3 PROPOSED BIO-METHANE FACILITY

As part of the overall restoration and after use of Kinsale Road Landfill, CCC is investigating the feasibility of creating an energy park which will encompass a number of initiatives including solar panels, geothermal heating, a wind turbine and a bio-methane plant.

A potential location of the bio-methane facility is south of the proposed waste transfer. Appendix 3 contains three drawings showing possible layouts of this facility.

It would be proposed that the feedstock for the facility would comprise of organic feedstock's consisting mainly of agriculture substrates, silage cuttings, prunings and grass cuttings from Cork City Councils public parks. Typically 12,000 tonnes of this material would be processed per annum.

The principal technology proposed in the treatment of these feedstocks is physical treatment (including maceration) followed by anaerobic digestion (AD). AD produces three by-products biogas, solid digestate and a nutrient rich wastewater.

It is estimated that the proposed facility has the potential to generate some 900,000 m³ per annum of bio methane (equivalent to 900,000 litres per annum of diesel), which could be then inserted into the natural gas pipeline network and/or used in a service station as an alternative and more environmental friendly fuel for Cork City Council vehicles.

The remaining material would be transported and used off site.

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4 INTEGRITY OF CAPPING SYSTEM UNDER PARKING AREAS

The EPA have expressed concern over the integrity of the capping system beneath the proposed parking area adjacent the playing pitch at the site. The impact of car park loading on the capping system is not significant. Typical car park loading is less than 10 kN/m² as a uniformly distributed load. This would equate to a) a one meter depth of waste on a basal cell liner or b) the temporary loading that would be imposed during construction of the capping system.

A typical cross-section of a car park area on a capping system is given in Appendix 4. This detail indicates a membrane liner being protected on top and underneath by either a protective geotextile or a gas/drainage geo-composite. These geofabrics will be specified to meet the final design requirements similar to a basal liner in a landfill cell. Therefore, there is no additional risk to the capping system by the provision of car parking facilities.

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Appendix 1

Drawing LW09-011-04-001

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Appendix 2

Proposed Capping Schedule

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Appendix 3






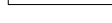
Indicative Layout Drawings of the Proposed Biomethane Facility

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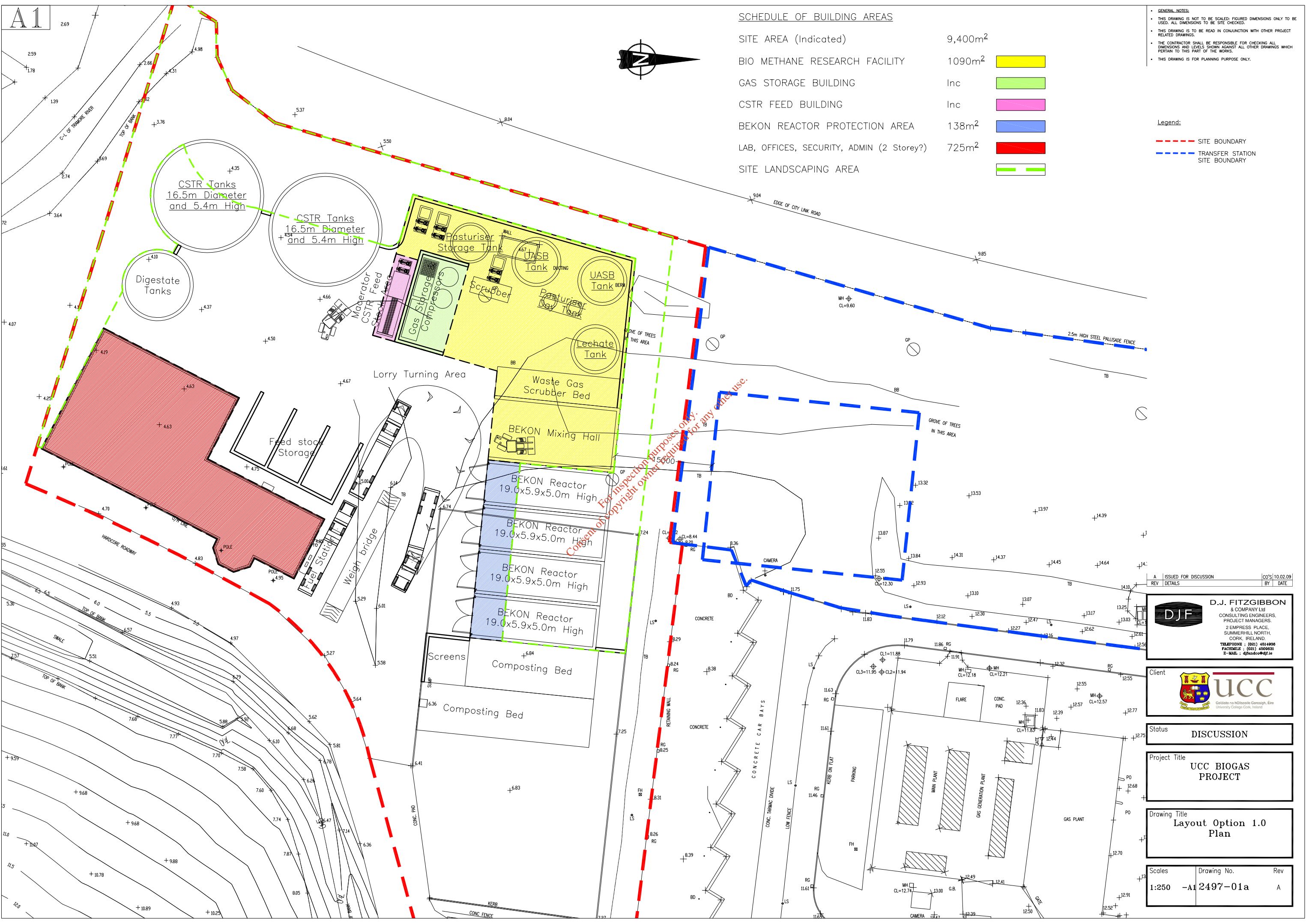
A1

SCHEDULE OF BUILDING AREAS

SITE AREA (Indicated)	9,400m ²	
BIO METHANE RESEARCH FACILITY	1090m ²	
GAS STORAGE BUILDING	Inc	
CSTR FEED BUILDING	Inc	
BEKON REACTOR PROTECTION AREA	138m ²	
LAB, OFFICES, SECURITY, ADMIN (2 Storey?)	725m ²	
SITE LANDSCAPING AREA		

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- Legend:
-  SITE BOUNDARY
 -  TRANSFER STATION SITE BOUNDARY



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REV	ISSUED FOR DISCUSSION	cc's 10.02.09
	DETAILS	BY DATE

DJF D.J. FITZGIBBON & COMPANY LTD
 CONSULTING ENGINEERS, PROJECT MANAGERS,
 2 EMPRESS PLACE, SUMMERHILL NORTH, CORK, IRELAND.
 TELEPHONE : (021) 4544008
 FACSIMILE : (021) 4506831
 E-MAIL : djf@dcj.ie

Client  **UCC**
 University College Cork, Ireland

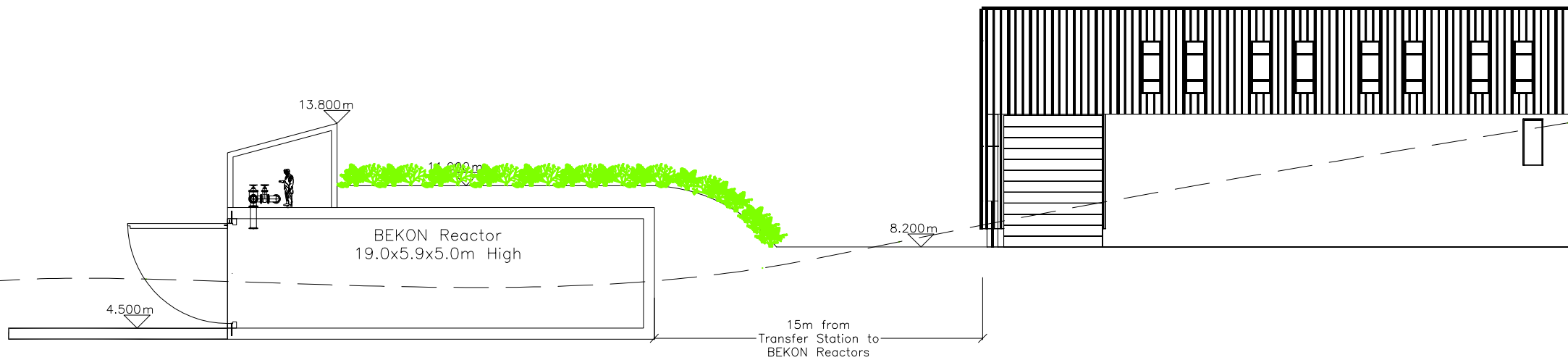
Status **DISCUSSION**

Project Title **UCC BIOGAS PROJECT**

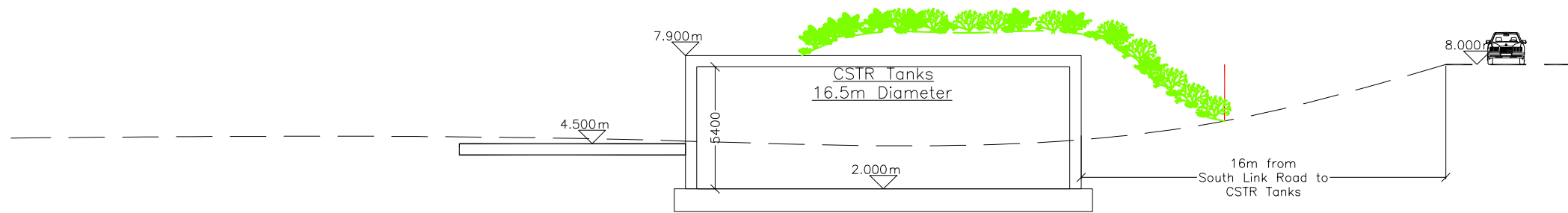
Drawing Title **Layout Option 1.0 Plan**

Scales	Drawing No.	Rev
1:250	-A1 2497-01a	A

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D.J. FITZGIBBON & COMPANY LTD
CONSULTING ENGINEERS,
PROJECT MANAGERS,
2 EMPRESS PLACE,
SUMMERHILL NORTH,
CORK, IRELAND.
TELEPHONE : (021) 454406
FACSIMILE : (021) 450631
E-MAIL : djf@dc@djf.ie

Client



UCC
University College Cork, Ireland

Status **DISCUSSION**

Project Title **UCC BIOGAS PROJECT**

Drawing Title **Layout Option 1.0 Sections**

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D.J.F. D.J. FITZGIBBON & COMPANY LTD
CONSULTING ENGINEERS,
PROJECT MANAGERS,
2 EMPRESS PLACE,
SUMMERHILL NORTH,
CORK, IRELAND.
TELEPHONE : (021) 4544006
FACSIMILE : (021) 4506831
E-MAIL : djf@djf.ie

Client  **UCC**
Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

Status **DISCUSSION**

Project Title **UCC BIOGAS PROJECT**

Drawing Title **Layout Option 1.0
Landscaping Plan**

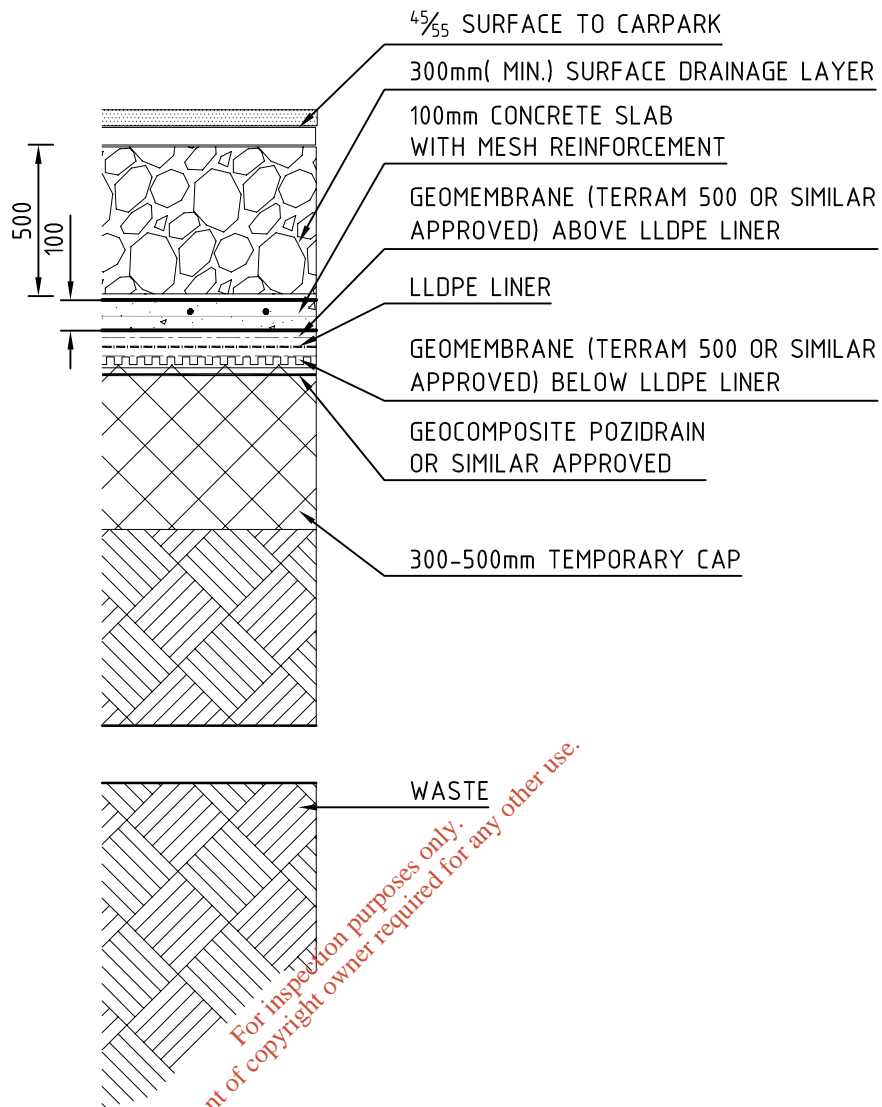
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Appendix 4

Typical Cross Section

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NOTE:-
DEPTH OF SURFACE DRAINAGE LAYER TO SUIT FINAL CARPARK PROFILE ,TYPICALLY 300mm(MIN) DRAINAGE LAYER. ON 100mm CONCRETE LAYER WITH 1N° LAYER OF A393 MESH REINFORCEMENT

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TYPICAL CAR PARK DETAIL
Scale 1:25

PREPERATION OF SUBMISSION TO EPA REGARDING WASTE LICENCE REVIEW

FEHILY TIMONEY & COMPANY

Core House, Pouladuff Rd, Cork, Ireland.
T: +353-21-4964133,
F: +353-21-4964464

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O:\ACAD\2009\LW09\011\04\LW0901104_Fig1			FIGURE 1.		

Mill House, Ashtown Gate,
Navan Rd, Dublin 15, Ireland.
T: +353-1-6583500,
F: +353-1-6583501

W: www.fehilytimoney.ie, E: info@ftco.ie



**FEHILY
TIMONEY
& COMPANY**