

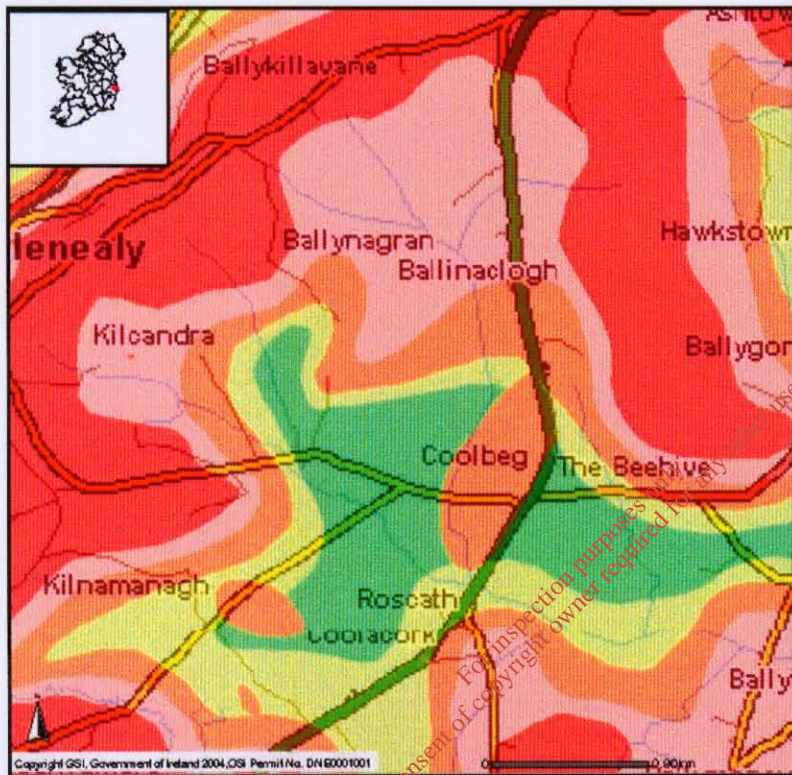
# **APPENDIX 1**

**GSI Information / AGL Report**

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Data	Result
Vulnerability	High
Aquifer Classification	PI – Poorly Productive Bedrock Aquifer that is moderately productive in local zones
Bedrock	Ordovician Metasediments

### Vulnerability



copy to: K. O'Malley ✓  
23/10/03. Charles King ✓

**AGL Consulting  
Geotechnical Engineers**

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Memo to: Declan Kernan  
From: Eric Farrell

22 October 2003

Re: Preliminary geotechnical report on site at Coolbeg, Rathnew, Co. Wicklow

## 1 Introduction

It is understood that consideration is being given to developing a site off the N11 at Coolbeg, Rathnew, Co. Wicklow for an processing of timber offcuts and other associated processes. The site is adjacent to a working gravel pit and is close to the Beehive Public House. T J O'Connor & Associates, consulting engineers to the client, instructed AGL to carry out a trial pit investigation to ascertain the significant geotechnical aspects involved in constructing on the site. The environmental considerations were not part of this investigation.

Nine trial pits were inspected by AGL on 9<sup>th</sup> October 2003 as part of a preliminary geotechnical investigation of the site and disturbed samples were recovered. Laboratory tests are in progress on these samples at the geotechnical laboratory of Trinity College, Dublin.

This is a preliminary report on the findings of this investigation. This report includes preliminary engineering comments in relation to the geotechnical aspects of the project.

## 2 Site and geology

The location of the site in relation to the N11 and to the Beehive Public House is shown on T J O'Connor's drawing SK 1.

The maps of the area show what is called an old marl pit, which is presently ponded, on the southern end of the site. A small stream runs to the west of the site.

The site has been subjected to excavations and placement of fill, possibly associated with the adjacent gravel quarry. As a result of this part of the site has a relatively gently fall and a sandy surface whereas the western and southern end are hummocky and uneven.

### 3 Ground conditions

Full details of the ground encountered are given on the attached Trial Pit logs.

The ground conditions encountered in the excavations comprised Made Ground over silty Sand with layers of sandy Silt/fine Sand and occasionally uniform medium Sand. The precise classification of these soils await the results of particle size distribution analyses which are currently in progress. The site assessment would indicate that the sand would be considered to be of loose density.

These soils would be typical of fluvio-glacial outwash deposits.

Ground water was observed in TPs 1, 2 and 3 at about 86.3 to 87mOD.

### 4 Engineering considerations

#### 4.1 The project

It is understood that the project involves the construction a concrete ground slab and light industrial buildings, together with ancillary access roads.

The principal geotechnical aspects would include the allowable bearing pressures for light industrial buildings, the suitability of the ground for a bearing slab, trench excavations and the suitability of material on the site for use as fill.

##### 4.1.1 Foundations

The ground on the site comprises made ground which has been placed in an uncontrolled manner, and glacial fluvial outwash deposits.

All foundations should be taken below the made ground and founded in the fluvial glacial deposits (silty Sands, Sands and sandy Silts). 'Running sand' conditions are to be expected in excavations below the water table, consequently the formation of footings should be kept above this level.

The recommended allowable bearing pressure for foundations of light industrial buildings founded in the fluvial glacial deposits is 100 kN/m<sup>2</sup>, provided significant cyclic loading or vibrations are not transmitted to the ground. These loose sands would be prone to settlements under variable loading conditions. Consideration could be given to isolating bases which have to carry cyclic or vibratory loads from the ground slab so that these could

settle independently. It may be necessary to regularly shim machinery should significant settlements occur.

A vibratory roller should be used to compact the formation of all foundations.

#### 4.1.2 Ground bearing slab

Ground bearing slabs can be founded on the undisturbed fluvial glacial deposits, provided excessive vibratory loads are not applied. The formation under slab should be rolled with a vibratory roller.

#### 4.1.3 Trench excavations

The sides of all trench excavations will need to be supported. Excavations below the water table could encounter 'running sand' conditions which would make excavation to a depth difficult and could give rise to excessive movements outside the trench.

#### 4.1.4 Suitability of material on site as fill for under floor slabs

It is generally desirable to use granular fill (with less than 15% fines) as fill under structures, including under floor slabs and that these be compacted to 100% Proctor compaction. Whilst there is some material that satisfies this requirement, it is not a significant proportion of the soils available. The Made Ground placed on the western and southern end of the site is very variable in content with many stumps of shrubs and small trees. MCV tests on some cohesive samples from this Made Ground recorded values of around 6 which would indicate that its moisture content is too high for use as structural fill. However, the thickness of fill required to make up the ground may not be excessive and it may be possible to use such soils provided they are left settle for several years. A decision of this would best be made when the thickness of fill required to bring up the site has been finalised. Extensive screening would be required should the use of this Made Ground be considered.

# Trial Pit Log

Depth (m)	Sample Details		Strata Descriptions
	BD (1.3m)		Loose silty SAND
2.82		2.82	End of Trial Pit @ 2.82 mBGL

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Preliminary

(BD = Bulk Disturbed Sample; SD = Small Disturbed (Bag) Sample; BGL = Below Ground Level)  
 (A/SA = Angular/Subangular; R/SR = Rounded/Subrounded)

**Notes:**

- 1. Seepage at 2.6m.
- 2. Water Level at 1.9mBGL after 2.5hrs.
- 3. Sides unstable due to slow running sand.
- 4. Trial Pit excavated by Cat 320.

<p><b>AGL Consulting</b>                  Suite 2, The Avenue                  Beacon Court, Sandyford, D18                  Tel: (01) 295 6532                  Fax: (01) 295 6533</p>	<p><b>Project:</b> Near Beehive  <b>Job No.:</b>  <b>Location:</b> off N11, Co. Wicklow</p>	<p><b>Logged By:</b> ERF  <b>Date:</b> 09/10/03  <b>Scale:</b> As Shown</p>	<p><b>Trial Pit No.</b> TP-1</p>
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### Trial Pit Log

Depth (m)	Sample Details	Strata Descriptions
<div style="font-size: small;">                     0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5                 </div>	BD (1.2m)           BD (2.8m)	Loose silty SAND           <div style="border-top: 1px solid black; padding-top: 5px;">                         3.1                                    End of Trial Pit @ 3.1 mBGL                     </div>

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(BD = Bulk Disturbed Sample; SD = Small Disturbed (Bag) Sample; BGL = Below Ground Level)  
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**Notes:**

1. Soil damp at 1.2m.
2. Sides collapsing.
3. Trial Pit excavated by Cat 320.

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**Job No.:**

**Location:** off N11, Co. Wicklow

**Logged By:** ERF

**Date:** 09/10/03

**Scale:** As Shown

**Trial Pit No.**  
TP-2

## Trial Pit Log

Depth (m)	Sample Details		Strata Descriptions
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">0.5</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">1.0</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">1.5</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">2.0</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">2.5</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">3.0</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">3.5</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">4.0</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">4.5</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">5.0</div> <div style="width: 100%; border-bottom: 1px solid black; margin-bottom: 2px;">5.5</div> </div>	BD (1.0m)	1.0	<p>Silty SAND</p> <hr/> <p style="text-align: right;">End of Trial Pit @ 1.0 mBGL</p>

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(BD = Bulk Disturbed Sample; SD = Small Disturbed (Bag) Sample; BGL = Below Ground Level)  
(ASA = Angular/Subangular; R/SR = Rounded/Subrounded)

**Notes:**

1. No groundwater was encountered.
2. Continually collapsing sides and size of Trial Pit extending.
3. Trial Pit excavated by Cat 320.

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### Trial Pit Log

Depth (m)	Sample Details	Strata Descriptions
<div style="text-align: center;"> </div>		<p>Layered silty SAND and fine sandy SILT.</p>
1.0		1.0
<div style="text-align: center;"> </div>		<p>End of Trial Pit @ 1.0 mBGL</p> <p style="color: red; transform: rotate(-45deg); font-size: small;">For inspection purposes only. Consent of copyright owner required for any other use.</p> <p style="font-size: 2em; font-family: cursive; margin-left: 200px;"><i>Rehman</i></p>

(BD = Bulk Disturbed Sample; SD = Small Disturbed (Bag) Sample; BGL = Below Ground Level)  
(A/SA = Angular/Subangular; R/SR = Rounded/Subrounded)

**Notes:**

1. No groundwater was encountered.
2. Sides unstable.
3. Trial Pit excavated by Cat 320.

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**Logged By:** ERF  
**Date:** 09/10/03  
**Scale:** As Shown

**Trial Pit No.**  
TP-4

### Trial Pit Log

Depth (m)	Sample Details	Strata Descriptions
<div style="text-align: center;"> </div>		<p>MADE GROUND-tress stumps, brown clay, bushes.</p>
	1.5	<p>Firm silty SAND.</p>
	3.0	<p>End of Trial Pit @ 3.0 mBGL</p>

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P. Williams

(BD = Bulk Disturbed Sample; SD = Small Disturbed (Bag) Sample; BGL = Below Ground Level)  
(ASA = Angular/Subangular; R/SR = Rounded/Subrounded)

**Notes:**

1. No groundwater was encountered.
2. Sides unstable.
3. Trial Pit cut into slope-high side shown.
4. Trial Pit excavated by Cat 320.

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## Trial Pit Log

Depth (m)	Sample Details	Strata Descriptions
0.5		Very thin layer of TOPSOIL
1.0		Silty SAND
1.5		
2.0		
2.5		
3.0		
3.5	BD (3.3m)	
4.0		End of Trial Pit @ 3.4 mBGL
4.5		<i>Preliminary</i>
5.0		
5.5		

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(ASA = Angular/Subangular; R/SR = Rounded/Subrounded)

**Notes:**

1. No groundwater was encountered.
2. Sides of Trial Pit unstable.
3. Trial Pit excavated by Cat 320.

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**Location:** off N11, Co. Wickow

**Logged By:** ERF  
**Date:** 09/10/03  
**Scale:** As Shown

**Trial Pit No.**  
TP-6

## Trial Pit Log

Depth (m)	Sample Details	Strata Descriptions
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 5px;">0.5</div> <div style="margin-bottom: 5px;">1.0</div> <div style="margin-bottom: 5px;">1.5</div> <div style="margin-bottom: 5px;">2.0</div> <div style="margin-bottom: 5px;">2.5</div> <div style="margin-bottom: 5px;">3.0</div> <div style="margin-bottom: 5px;">3.5</div> <div style="margin-bottom: 5px;">4.0</div> <div style="margin-bottom: 5px;">4.5</div> <div style="margin-bottom: 5px;">5.0</div> <div style="margin-bottom: 5px;">5.5</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 5px;">3.0</div> </div>	<p>MADE GROUND-brown sandy Clay with zones of roots, large boulders, many bush stumps and branches.</p> <p style="text-align: right; margin-top: 100px;">End of Trial Pit @ 3.0 mBGL</p> <p style="text-align: center; color: red; font-style: italic; opacity: 0.5; font-size: small;">For inspection purposes only. Consent of copyright owner required for any other use.</p> <p style="text-align: right; font-size: 2em; font-family: cursive; margin-top: 20px;"><u>Prehmann</u></p>

(BD = Bulk Disturbed Sample; SD = Small Disturbed (Bag) Sample; BGL = Below Ground Level)  
(ASA = Angular/Subangular; R/SR = Rounded/Subrounded)

**Notes:**

1. No groundwater was encountered.
2. Sides of Trial Pit unstable.
3. Trial Pit excavated by Cat 320.

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**Job No.:**

**Location:** off N11, Co. Wicklow

**Logged By:** ERF

**Date:** 09/10/03

**Scale:** As Shown

**Trial Pit No.**  
TP-7

## Trial Pit Log

Depth (m)	Sample Details	Strata Descriptions
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 5px;">0.5</div> <div style="margin-bottom: 5px;">1.0</div> <div style="margin-bottom: 5px;">1.5</div> <div style="margin-bottom: 5px;">2.0</div> <div style="margin-bottom: 5px;">2.5</div> <div style="margin-bottom: 5px;">3.0</div> <div style="margin-bottom: 5px;">3.5</div> <div style="margin-bottom: 5px;">4.0</div> <div style="margin-bottom: 5px;">4.5</div> <div style="margin-bottom: 5px;">5.0</div> <div style="margin-bottom: 5px;">5.5</div> </div>		<p>MADE GROUND-brown sandy gravelly Clay with roots of shrubs.</p> <p style="text-align: center; margin-top: 100px;">2.6</p>
		<p style="text-align: right;">End of Trial Pit @ 2.6 mBGL</p> <p style="text-align: center; color: red; font-style: italic; font-size: small;">For inspection purposes only. Consent of copyright owner required for any other use.</p> <p style="text-align: right; font-size: 2em; font-family: cursive; margin-top: 20px;"><i>Perkins</i></p>

(BD = Bulk Disturbed Sample; SD = Small Disturbed (Bag) Sample; BGL = Below Ground Level)  
 (A/SA = Angular/Subangular; R/SR = Rounded/Subrounded)

**Notes:**

1. No groundwater was encountered.
2. Sides of Trial Pit unstable.
3. Trial Pit excavated by Cat 320.

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### Trial Pit Log

Depth (m)	Sample Details	Strata Descriptions	
0.5		0.4	MADE GROUND-Gravel
		0.6	Outwash GRAVEL <span style="float: right;">Very stiff light brown CLAY</span>
1.0			Fine/medium SAND
1.5			
2.0			
2.5		2.6	End of Trial Pit @ 2.6 mBGL
3.0			
3.5			
4.0			
4.5			
5.0			
5.5			

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(A/SA = Angular/Subangular; R/SR = Rounded/Subrounded)

**Notes:**

1. No groundwater was encountered.
2. Sides of Trial Pit unstable.
3. Excavated into slope-high side shown.
3. Trial Pit excavated by Cat 320.

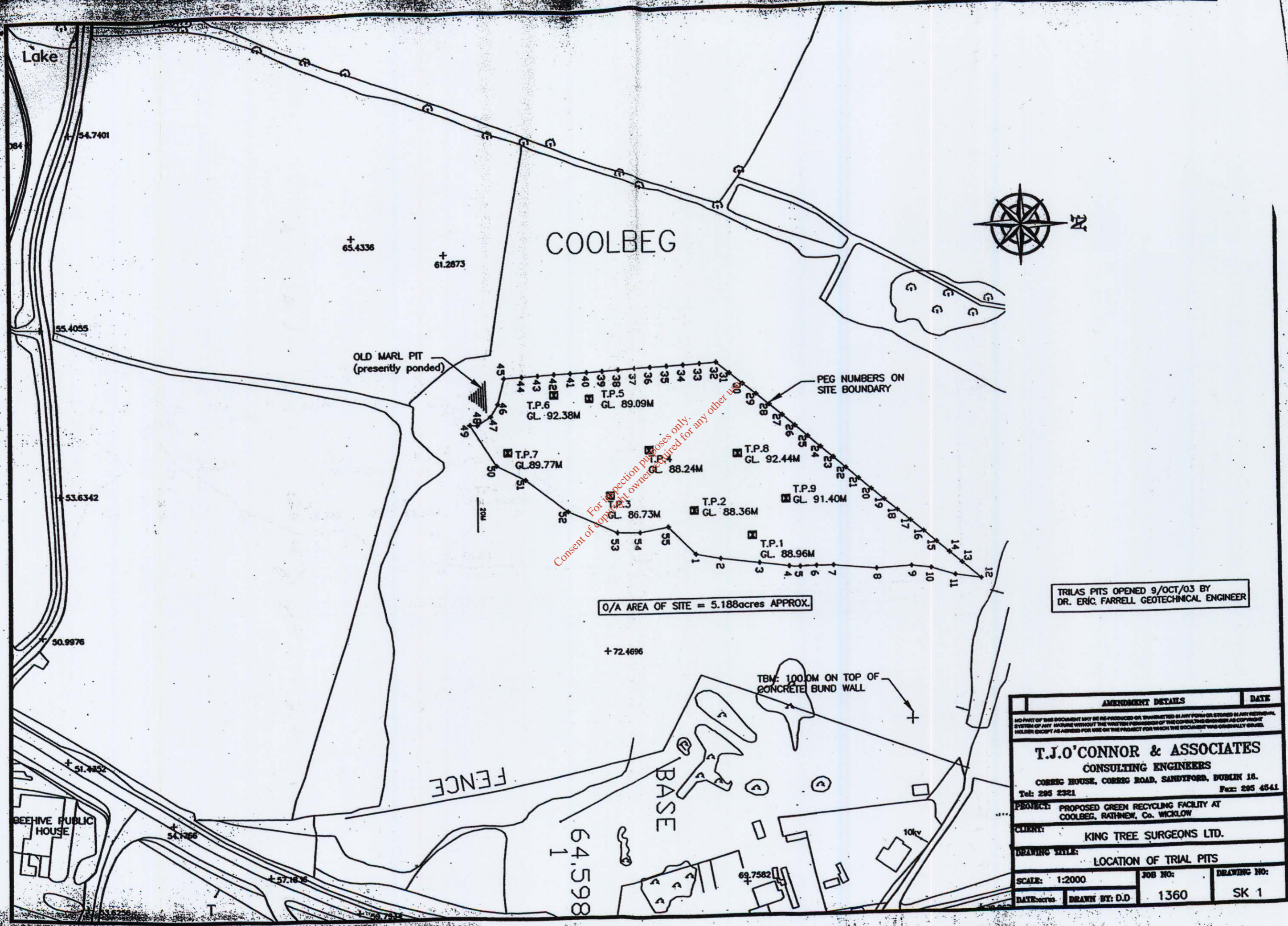
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**Trial Pit No.**  
TP-9



AMENDMENT DETAILS		DATE
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PROJECT: PROPOSED GREEN RECYCLING FACILITY AT COOLBEG, RATHNEW, Co. WICKLOW		
CLIENT: KING TREE SURGEONS LTD.		
DRAWING TITLE: LOCATION OF TRIAL PITS		
SCALE: 1:2000	JOB NO: 1360	DRAWING NO: SK 1
DATE: secus	DRAWN BY: D.D	