

# **TARGET**

*Archaeological Geophysics*

*Geophysical Prospection For Archaeological Assessment*

*Consultancy*

*Project Design*

*Scanning & Reconnaissance*

*Recorded Survey*

*Gradiometry*

*Resistivity*

*Ground Penetrating Radar*

*Electromagnetics*

*Motorway Route Selection*

*Pipeline Corridors*

*Area Surveys*

*Research*

**Geophysical Survey Report:**

**Luas Line B2  
Cherrywood To Bray / Fassaroe  
South Co. Dublin & Co. Wicklow**

**Licence Ref. 08R0308**

**TAG Project No. 08/043**

Client:



**Archaeological Consultancy  
Services Ltd**

On Behalf Of



**The Railway Procurement Agency**



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<b>Client</b>	ACS Ltd. On Behalf Of The Railway Procurement Agency
<b>Planning Ref</b>	Pre-Planning
<b>Townlands</b>	Shankhill, Old Connaught, Ballyman & Fassaroe
<b>Nat Grid Ref(s) (Central Coordinates)</b>	325211 220194; 325142 218946; 325216 219552; 324932 218964; 324521 218834; 324334 218471; 324020 218028; 323366 217786; 326013 219281.
<b>License Number</b>	08R0308
<b>Project Start Date</b>	25 November 2008
<b>Report Date</b>	11 December 2008

### Summary Of Results

Gradiometer scanning and detailed survey highlighted the remains of a possible building, a cluster of ditch and pit type anomalies and zones of increased response in Areas 4B & 4C. Concentrations of linear response with occasional isolated positives have also been highlighted as being worthy of further examination in Areas 9B & 9C. No additional areas of significant archaeological potential have been highlighted from survey in Areas 2 – 10.

The results from detailed survey within the remaining survey locations generally demonstrate the geological and soil morphological characteristics typical for this region, with more recent landscaping and agricultural activity indicated by disused boundaries and remains of former cultivation. The potential that significant responses have been masked by ferrous disturbance from modern sources should not be dismissed.

**\* This summary of survey results must be read in conjunction with the main report.**

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## 1. Introduction

Geophysical survey was conducted within 9 greenfield areas situated along the route of the proposed Luas Line B2 Cherrywood To Bray / Fassaroe scheme, in Shankill, Old Connaught, Ballyman and Fassaroe townlands, in South Co. Dublin and Co. Wicklow. The survey was commissioned by ACS Ltd. on behalf of the Railway Procurement Agency, and forms part of the archaeological assessment being undertaken for the scheme.

The proposed scheme extends southwards for a distance of 9 km from Bride's Glen at Cherrywood Business Park, and follows a section of the old Harcourt Street railway, then traverses and runs parallel with the M11 motorway. The route intersects with a further seven existing public roads and the Dargle River, before its termination at Quinnsborough Road in Bray, and at Berryfield Lane, in Fassaroe.

The aims of survey were to define the location, form and extent of buried remains where present along the route of the proposed scheme. The results will be used to inform the assessment being undertaken on behalf of the client.

## 2. Site Description

Figures 1 - 8

The geophysical investigation extended over a total 18 hectares of mixed pasture and arable land, within 9 predefined survey areas situated to the east and west of the M11 Motorway. A total 10 survey areas were originally intended for this investigation (Areas 1 – 10). Area 1, situated in an area now under private construction to the east of Cherrywood Business Park, was excluded from this survey.

Summary locations for survey Areas 2 – 10, are provided below in Table 1.

<i>Area</i>	<i>NGR</i>	<i>Townland</i>	<i>Description</i>
2	325211 220194	Shankill	E of M11 & W of Woodbrook Downs
3	325142 219946	Old Connaught	W of M11, E of Ferndale Ct. & Allies River Rd.
4	325216 219552	Old Connaught	W of M11, N of Old Connaught Ave.
5	324932 218964	Old Connaught	NW of M11 & sports ground, SE of Old Connaught Ave.
6	324521 218834	Ballyman	NW of Thornhill & St. Gerard's Sch.

7	324334 218471	Ballyman	W & SW of Thornhill Rd.
8	324020 218028	Fassaroe	W of M11 & SE of Fassaroe sub-station.
9	323366 217786	Fassaroe	W of M11 & S of Fassaroe sub-station.
10	326013 219281	Bray	E of Dublin Rd & Roseville Ct.

*Table 1. Survey Areas 2 – 10 Summary Locations*

In accordance with the total scan and 40% detail sample specified by the client a total of 18HA of gradiometer scanning and 7.2HA of detailed gradiometry were undertaken for this project through Areas 2 - 10.

### **2.1 Soils, Geology & Topography**

The route of the proposed scheme extends through flat to undulating lowland bordered to the north-west, east and south by the Dublin Mountains and Wicklow Hills. Soils of the locality are mainly dry and mineral in form, predominantly grey brown podzolics, with brown earths, gleys and basin peat occurring locally. Bedrock consists of a mixture of limestone, morainic gravels, sands, shale and till of Irish Sea origin (Associations 30 & 38: National Soil Survey Of Ireland, 1980).

### **2.2. Archaeological Background**

The scheme will have no direct impact on any recorded monuments. However, 8 recorded monuments are situated within a 200m radius of the proposed scheme. These include mill and mill race DU026-08601/02, and dwelling site DU026-114 to the south-west of Area 1; cemetery cairn DU026-067 (Toole's Moate), to the south and east of Areas 2 & 3; church and graveyard DU026-06601/02, north of Area 5; ring ditch DU026-065, west of Area 7; the historic town of Bray (WI004-001), south-east of Area 10; DU026-124 / WI004-005, a section of the 12<sup>th</sup> Century Pale ditch, to the north-east of Area 10; and Martello Tower WI004-002 to the south-east of Area 10.

The details for all these monuments, are listed below in Table 2.

<i>RMP No.</i>	<i>Sh / Pl / Tr</i>	<i>NGR</i>	<i>Townland</i>	<i>Classification</i>
DU026-065	3568	32421 21883	Ballyman	Ring Ditch
DU026-06601/02	3568	32491 21923	Old Connaught Ave	Church & Graveyard
DU026-067	3518 / 3568	32534 22000	Old Connaught	Cemetery Cairn
DU026-08601/02	3517 / 3518	32413 22257	Shankill	Mill Site & Mill Race
DU026-114	3518	32418 22266	Shankill	Dwelling Site
DU026-124 / WI004-005	3568	32657 21942	Bray Golf Links	Linear Earthwork (Poss.)
WI004-001	004-/13/2	32634 21887	Bray	Historic Town
WI004-002	Unavailable	32689 21904	Bray	Martello Tower

*Table 2. Recorded Monuments Within 200m Of Proposed Scheme.*

### **3. Methodology**

A total 18ha of gradiometer scanning was carried out along the route of the proposed scheme in Areas 2 – 10, with a further 7.2ha of detailed gradiometer survey undertaken on the basis of the results from scanning, as Areas 2, 3, 4A – 4D, 5 – 7, 8A – 8C, 9A – 9D & 10.

Survey grids were set out and tied-in to the ordnance survey using differential GPS, tapes, ranging rods and an optical square. Tie-in points remain in situ to facilitate grid relocation where necessary.

Instrument specifications and survey methodology are discussed in the *Summary Technical Information* document attached to this report.

#### **3.1 Data Display**

The locations of survey Areas 1 – 10 along the route of the proposed scheme are presented in Figure 1 at a scale of 1/25,000, with the positions of recorded monuments within a 200m radius also indicated. Detailed location maps for Areas 1 –

10, the results from scanning, and the positions of recorded survey Areas 2, 3, 4A – 4D, 5 – 7, 8A – 8C, 9A – 9D & 10 are also presented in Figures 2 - 8 at a scale of 1:4000.

The results from detailed survey in Areas 2 – 10 are displayed as greyscale images in Figures 9 - 19 at a scale of 1/1500, with interpretations provided for each area in Figures 20 - 30 at the same scale.

### **3.2 Ground Conditions & General Considerations**

Survey Areas 2 - 10 extended over generally suitable pasture and arable land, within which no access problems occurred, and no major obstructions which might impact on the progress of fieldwork were encountered.

Isolated ferrous responses occur throughout the detailed survey data from Areas 2, 3, 4A – 4D, 5 – 7, 8A – 8C, & 9A – 9D. These are usually caused by the presence of modern debris within the topsoil, and are not referred to in the text unless considered relevant.

Concentrations of ferrous response are also present in Areas 3, 4A – 4D, 8A, 8B, 9A & 10. For the most part these represent interference from modern sources such as telegraph poles (Areas 3, 4B, 4C, & 8B), buried services (Areas 4A, 4B & 10), surface debris (Area 4D) and more recent landscaping (Area 10). Interference from neighbouring boundaries at the edges of survey Areas 4B, 4C, 9A, 9C & 9D is also apparent in the recorded data. Where such intense levels of interference occur they are likely to mask the locations of buried archaeological remains, if present. Broad ferrous anomalies in detailed survey Area 8A and areas of increased response in Area 8B coincide with the line of a former boundary depicted on the 1912 6" edition of the ordnance survey (Co. Wicklow Sheet 3).

## **4. Gradiometer Scanning**

Figures 2 - 8

### **4.1 General**

A total 18ha of gradiometer scanning was undertaken in Areas 2 – 10 along the route of the proposed scheme. The scan employed two gradiometers operating in tandem. Instruments were monitored for significant fluctuations in response whilst traversing each section of the proposed development along 10m traverses. Where significant responses occurred, they were examined in closer detail, their locations referenced



to the national grid by DGPS, and the anomalies subsequently investigated by detailed gradiometry.

Scan Area	Dir. From Centre	Summary Of Observations / Comments	Detailed Area(s)
3	North-west	Strong magnetic variations – possible modern ferrous	3
4	North-west & south-east of area centre	Concentrations of strong magnetic response – expected archaeology	4B & 4C
6	South-west	Low-level variations	6
7	North-east	Expected natural	7
9	North, east & south-west of area centre	Low-level variations – possible natural or former cultivation	9B – 9D

*Table 3. Results From Scanning*

## **4.2 Results**

Scanning through Areas 2 - 9 noted a general low-level of background response (+/- 1nT), above which slight undulations in response were observed. These undulations were deemed mostly to result from remains of former cultivation, disused boundaries and natural variations caused by the underlying soils and geology.

Summary descriptions of significant anomalies highlighted from scanning through Areas 2 – 10 are provided in Table 3 below.

Responses noted during scanning which required further clarification by detailed survey were observed in Areas 3, 4, 6, 7 & 9. Detailed survey blocks were also extended through Areas 2 – 10 in accordance with the 40% detailed sample requested by the client.

On the basis of the results from scanning a total 17 areas of detailed gradiometry were undertaken for this project (Areas Areas 2, 3, 4A – 4D, 5 – 7, 8A – 8C, 9A – 9D & 10).

## **5. Detailed Gradiometry Results**

Figures 9 - 30

### **5.1 Area 2**

The data from detailed survey in Area 2 indicate high levels of natural variation throughout much of the survey block. A series of closely spaced parallel linear

anomalies aligned north-west to south-east represent remains of former cultivation. Several small-scale positive anomalies, weak trends and one poorly defined linear are also apparent. These display no clear form or patterning to warrant an archaeological interpretation, and are expected to derive mostly from interference caused by natural variations and former cultivation.

### **5.2 Area 3**

Extensive magnetic disturbance and ferrous interference occurs throughout Area 3. This is likely to have masked the responses of buried archaeological remains, if present in this location. Several small-scale anomalies and weak trends are apparent in the data. These display no clear archaeological characteristics and are deemed to represent natural variations, possible former cultivation and modern ferrous.

### **5.3 Areas 4A – 4D**

Broad areas of ferrous disturbance occurring through parts of Areas 4A – 4D are likely to have masked the location of significant archaeological responses where present in the immediate vicinity. The course of two possible former boundaries are indicated in the southern section of Area 4A and the northern section of Area 4B by strong magnetic linear responses aligned north-east to south-west and north-west to south-east respectively. Remnants of the latter boundary are indicated on the project mapping and on the 1/5000 ordnance survey composite series (OS Sheet 3568).

Two concentrations of archaeological response have been recorded within the western portion of Area 4B. These include regions of magnetic disturbance with broad and strong magnetic positive anomalies to the north, and a concentration of ditch and pit type features overlying an area of increased response roughly 15m to the south. The former are aligned roughly east to west and may represent remains of building foundations. Several outlying trends and positive anomalies have been recorded at the perimeter of these anomaly groupings, and these are also deemed to be of potential interest.

Two further responses of note have been recorded in the northern and south-eastern portions of Area 4C. These include a zone of increased response to the north, which is roughly 15m in diameter and could represent remains of truncated archaeological features, possibly a fulacht fiadh, and a sub-circular positive anomaly measuring

roughly 10m in diameter to the south-east. A modern origin for the latter should not be dismissed in view of the ferrous component at its interior.

The remaining anomalies recorded from detailed survey in Areas 4A – 4D display no clear patterning or characteristics to which an archaeological interpretation can be assigned. The majority are deemed to represent interference from modern ferrous, natural sources and possible former cultivation. Evidence for the latter is indicated in the north-western portion of Area 4C by a series of closely spaced parallel linear responses aligned roughly north to south.

Traces of natural variation similar to Area 2 are visible at the southern and south-eastern edges of Areas 4B & 4C respectively.

#### **5.4 Areas 5 & 6**

As with Area 2, the results from detailed survey in Area 5 show high levels of natural variation extending across the middle of the survey block. No definitive archaeological type responses have been recorded. The majority of anomalies, mostly weak trends and ill-defined positives, appear on a north-east to south-west alignment. These responses may equate with more recent cultivation.

Broad areas of natural variation have also been recorded in Area 6. Numerous weak trends and several isolated positives are also visible in the data. These show no specific patterning or grouping to an archaeological interpretation. The majority of these anomalies are thought to derive from natural and / or modern sources of interference.

#### **5.5 Area 7**

No definitive archaeological response types have been recorded from detailed survey in Area 7. The location of one possible former boundary is indicated by a concentration of weak positive / negative trends in the northern portion of the survey block. The remaining anomalies recorded from Area 7 are deemed to represent natural variations, possible modern ferrous, and recent cultivation.

### **5.6 Areas 8A – 8C**

The remains of one former boundary are indicated by a series of broad ferrous anomalies and zones of increased response extending north-east to south-west through Areas 8A & 8B. Traces of natural variation also occur through Areas 8B & 8C.

No significant archaeological type responses have been recorded. The majority of responses from this section of detailed survey are indicative of natural variations, former cultivation and modern ferrous debris.

### **5.7 Areas 9A – 9D**

Broad areas of natural variation extend through parts of Areas 9A – 9D. The majority of weak trends recorded here are also thought to derive from natural sources, although those located centrally in Areas 9B & 9C suggest that significant features may be present below the 1.5nT threshold. There are also a high number of isolated positives through Areas 9B & 9C which may also warrant further examination. However, many of these anomalies are at the limits of instrument detection and therefore interpretation remains uncertain.

### **5.8 Area 10**

The results from survey in Area 10 correspond to the observations made during scanning through this section of the proposed route. The data demonstrate extensive magnetic interference caused by adjacent surfaces, and modern services. The topography of this section of survey also suggests recent landscaping throughout.

## 6. Conclusions

Gradiometer survey in Areas 2 – 10 has located the remains of a possible building and a concentration of further linear / discrete responses in Area 4B. These anomalies appear to coincide with two slight topographic elevations noted during the initial scan of Area 4. Further areas of potentially significant response have been highlighted in Areas 4C, 9B & 9C. These display no clear archaeological characteristics, the majority of responses being generally low range, but arranged in such a manner to warrant further investigation.

Elsewhere, the results from detailed gradiometry confirm the low-levels of response noted during scanning through Areas 2 – 10. The majority of responses recorded from detailed survey in these areas can be assigned a natural, agricultural and / or modern source.

Significant levels of magnetic interference from modern sources have been encountered during this geophysical survey, notably in Areas 3, 4A – 4D & 10. Variations from natural sources and former cultivation have also contributed additional 'noise' to survey data. The potential that this interference has masked features of interest, if present in these locations, should not be dismissed.

## 7. Bibliography

National Soil Survey of Ireland (1980), *General Soil Map 2<sup>nd</sup> Edition (1:575,000. An Foras Taluntais)*.

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    Dan Shiel BSc

## Appendix: Digital Archive Information

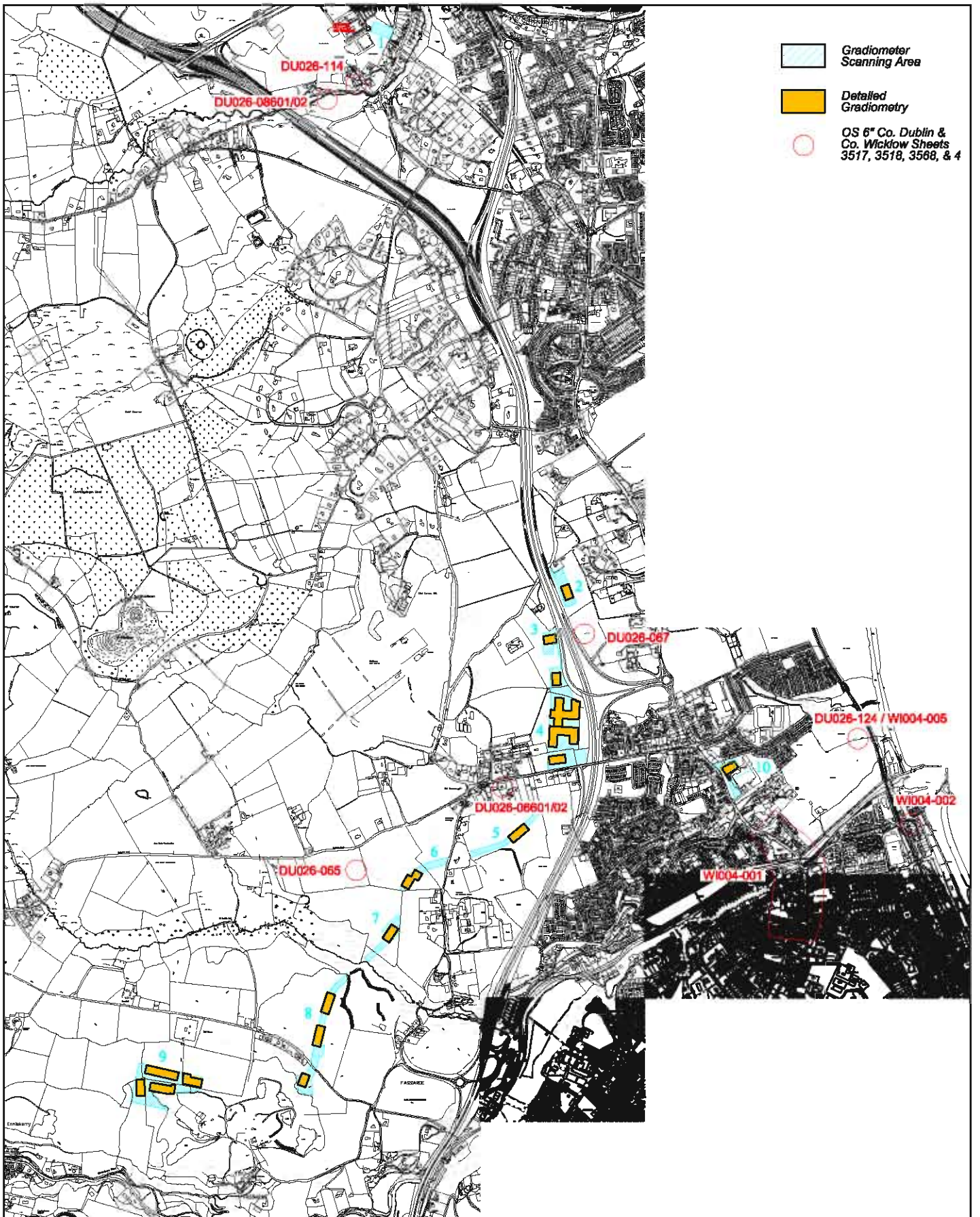
A complete digital archive for this project is provided on CD with this report. The archive includes the report text with digital versions of all drawings and displays relating to this work.

All report figures are included in AutoCad format (.DWG, Version 2004), and can be re-referenced to the raw and processed data included as part of this archive. Greyscale and XY Trace displays forming part of this archive are provided at  $-1/1.5\text{nT}$  and  $15\text{nT/cm}$  respectively unless otherwise stated. A complete PDF version of this report is also included.

The following table details the various file types provided.

<b>Description</b>	<b>File Type</b>
Survey Location	.DWG
Greyscale (Interpolated Data)	.DWG
Interpretation	.DWG
Greyscale (Raw Data)	.BMP
XY Trace (Raw Data)	.TIF
Area Interpretation	.DWG
Report Text	.DOC
Entire report as PDF	.PDF

Further information on the digital archive and display attributes for this survey is made available in the *Technical Information Section* attached to this report.



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KM

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SOUTH CO. DUBLIN & CO. WICKLOW

CLIENT:  
A.C.S. LTD. ON BEHALF OF  
THE RAILWAY PROCUREMENT AGENCY

LICENCE:  
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JOB NUMBER:  
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TITLE:  
GRADIOMETER SCANNING AREAS 1 - 10  
DETAILED SURVEY AREAS 2 - 10

FIGURE:  
FIG. 1

DATE:  
11/12/08

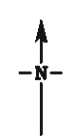
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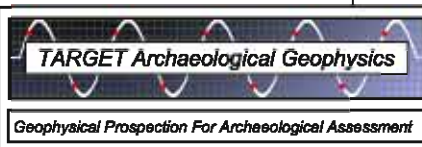
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**PROJECT:**  
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**TITLE:**  
 SURVEY AREA 1 LOCATION

**FIGURE:**  
 FIG. 2

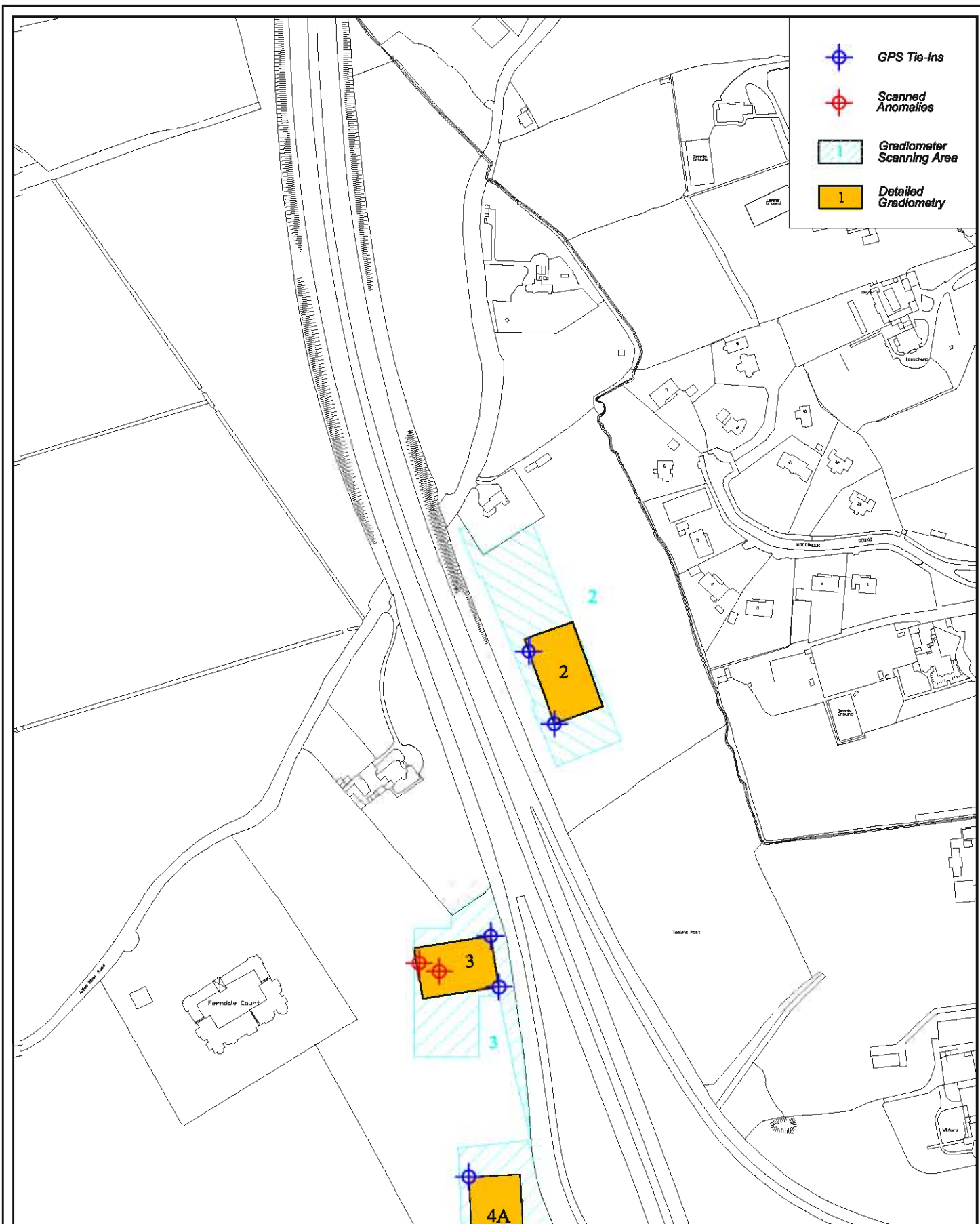
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 11/12/08





**SCALE:**  
 1/4000

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 GPS Tie-Ins  
 Scanned Anomalies  
 Gradiometer Scanning Area  
 Detailed Gradiometry

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PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW

TITLE: GRADIOMETER SCANNING & DETAILED GRADIOMETRY AREAS 2 & 3

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FIGURE: FIG. 3

DATE: 11/12/08

SCALE: 1/4000

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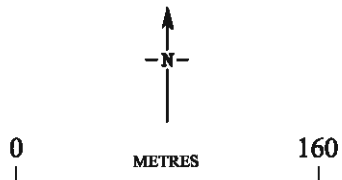


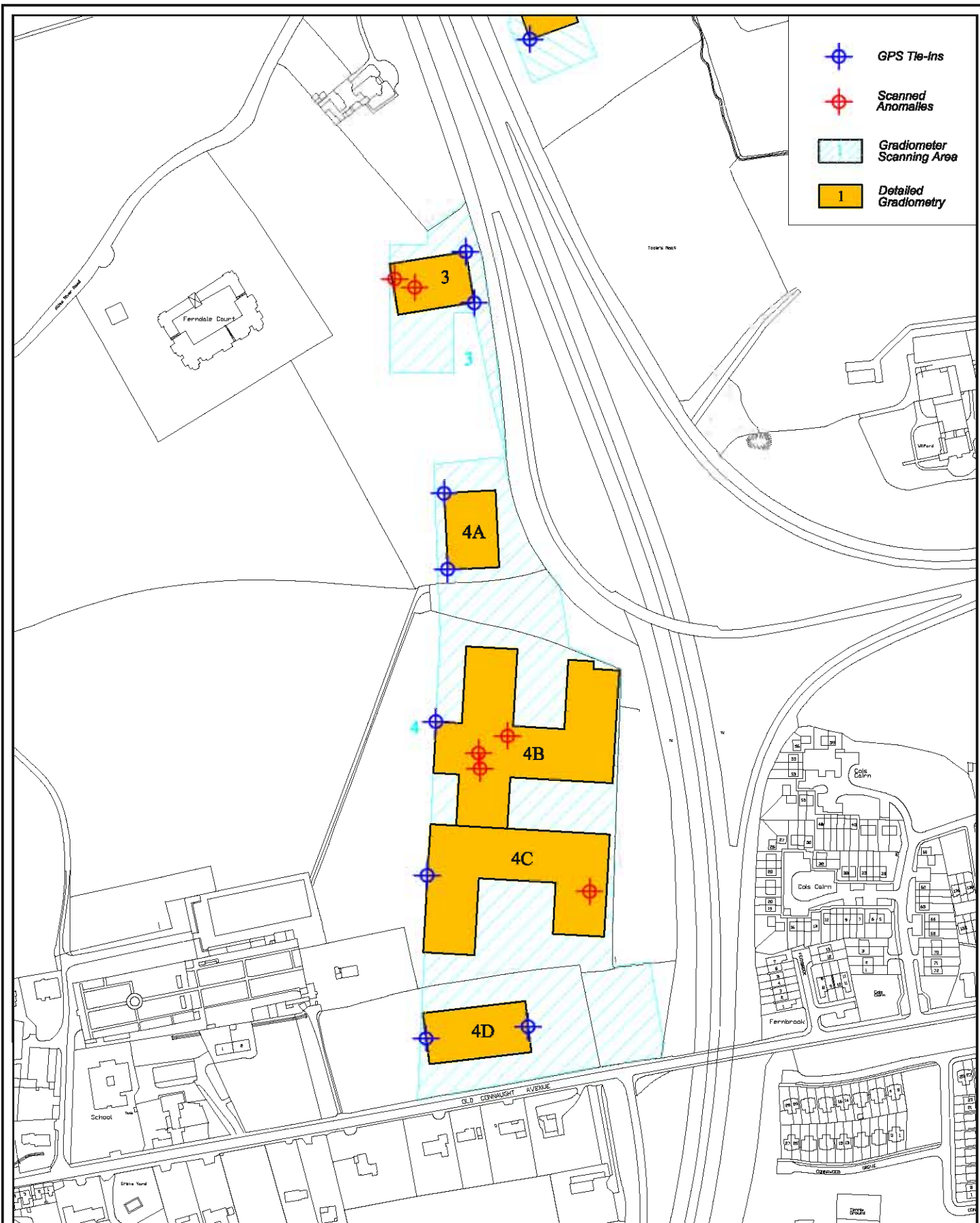
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JOB NUMBER: 08/043





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PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW

TITLE: GRADIOMETER SCANNING AREAS 3 & 4  
DETAILED GRADIOMETRY AREAS 3 - 4D

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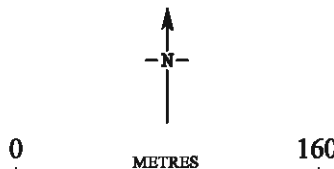
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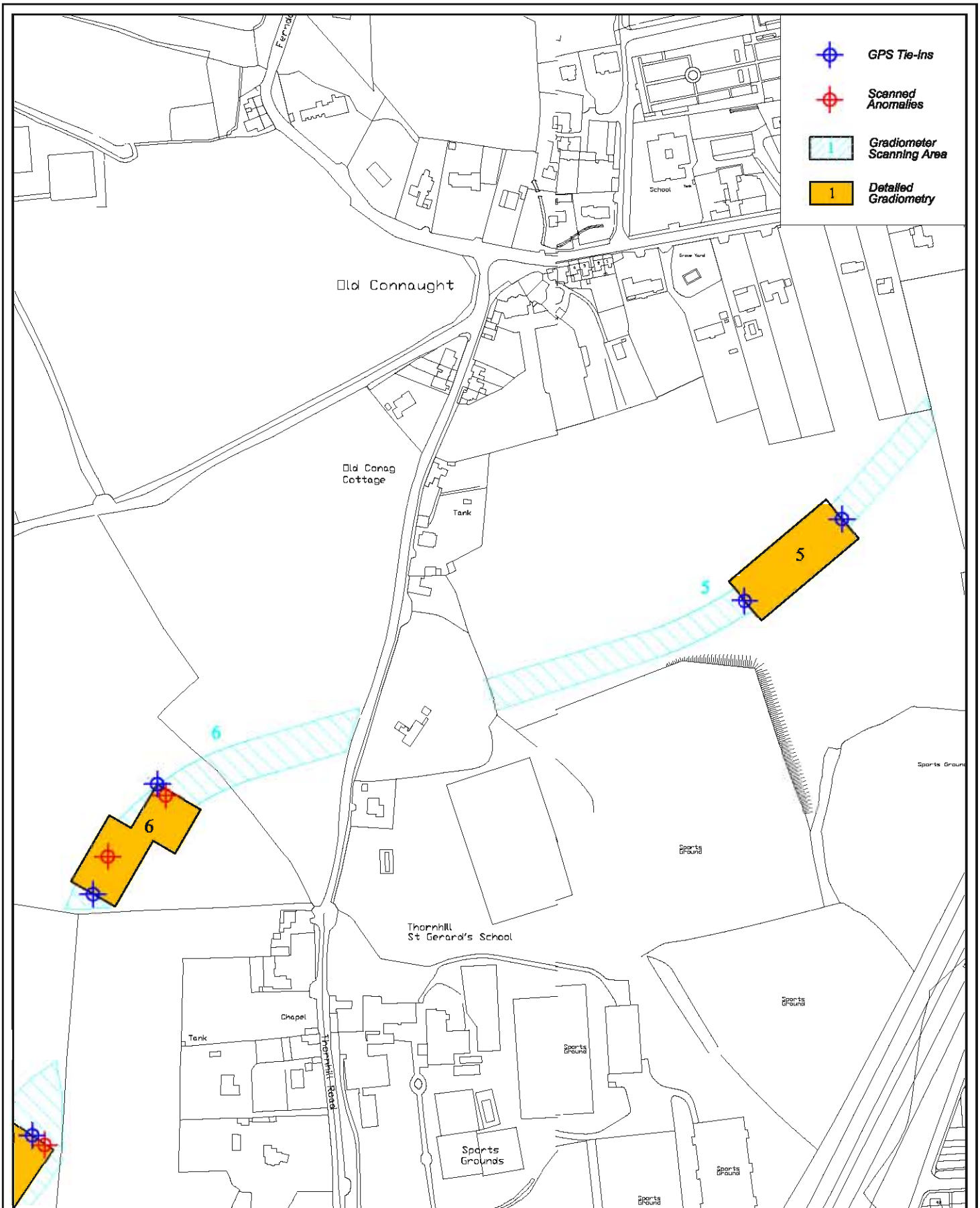


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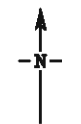
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Landline: +353 (0)1 441 8818  
Web site: [www.targetgeophysics.ie](http://www.targetgeophysics.ie)  
Email: [survey@targetgeophysics.ie](mailto:survey@targetgeophysics.ie)

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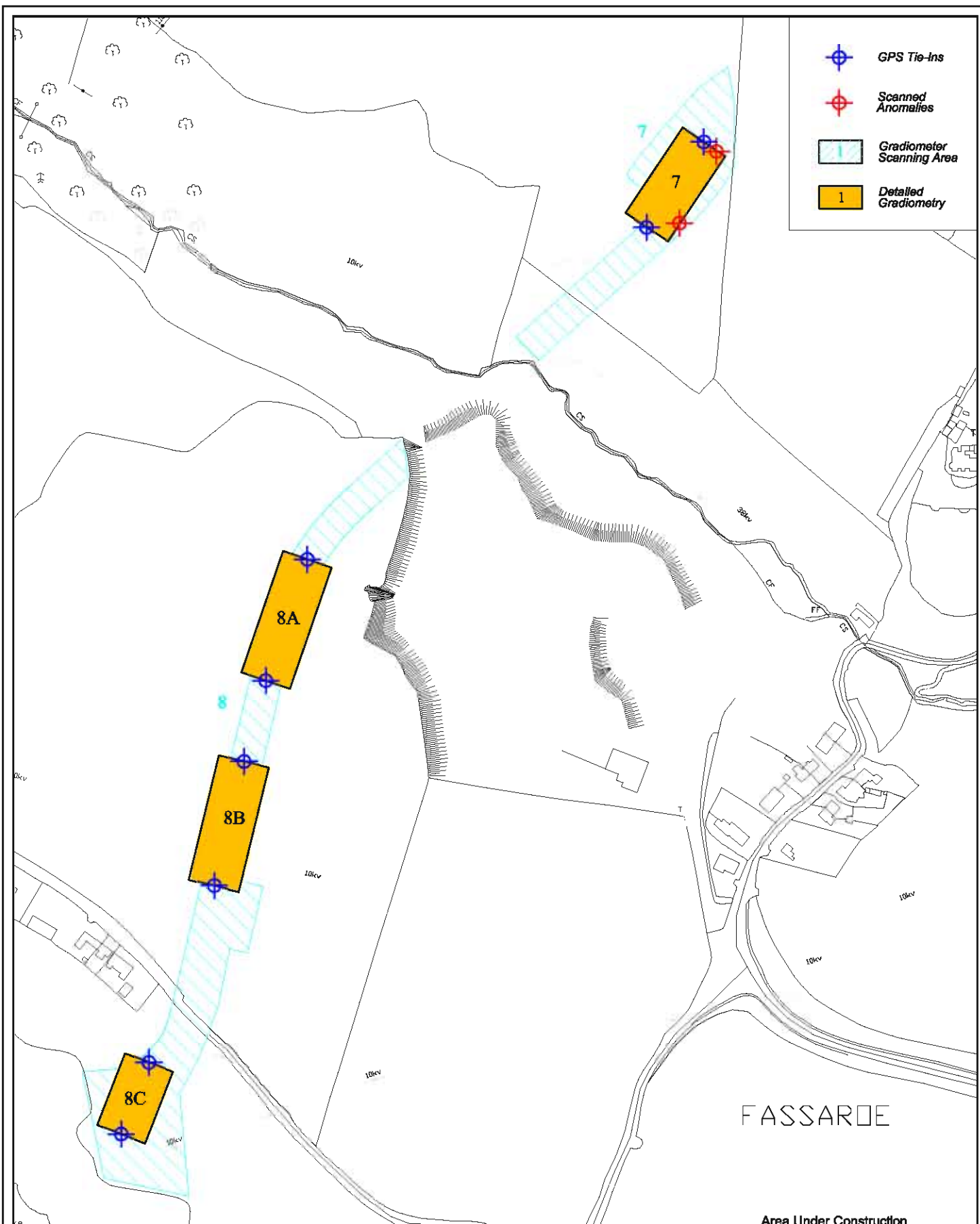
JOB NUMBER: 08/043



TITLE: GRADIOMETER SCANNING & DETAILED SURVEY AREAS 5 & 6

FIGURE: FIG. 5	DATE: 11/12/08	SCALE: 1/4000
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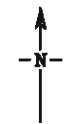
Apartment 25 Block 11 Gallery Quay Dublin 2	Mobile: +353 (0)87 858 0112 Landline: +353 (0)1 441 8818 Web site: <a href="http://www.targetgeophysics.ie">www.targetgeophysics.ie</a> Email: <a href="mailto:survey@targetgeophysics.ie">survey@targetgeophysics.ie</a>
--	--



FASSAROE

Area Under Construction

BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 160

PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW

CLIENT: A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY

LICENCE: 08R0308

JOB NUMBER: 08/043

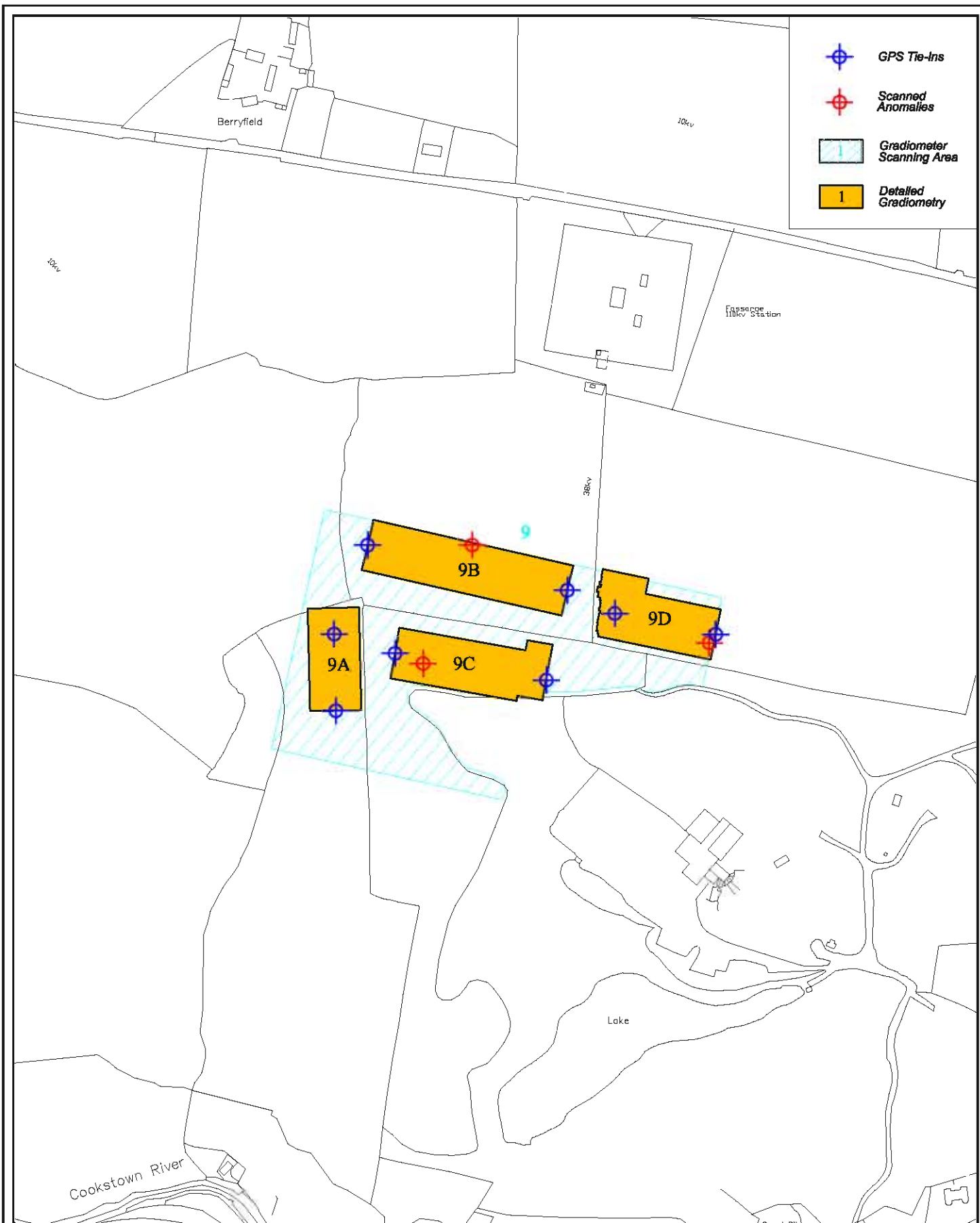






TITLE: GRADIOMETER SCANNING AREAS 7 & 8 DETAILED SURVEY AREAS 7 - 8C

FIGURE: FIG. 6	DATE: 11/12/08	SCALE: 1/4000
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Dubln 2

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-  GPS Tie-Ins
-  Scanned Anomalies
-  Gradiometer Scanning Area
-  Detailed Gradiometry

BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY

PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW

TITLE: GRADIOMETER SCANNING AREA 9 DETAILED SURVEY AREAS 9A - 9D

CLIENT: A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY

FIGURE: FIG. 7

DATE: 11/12/08

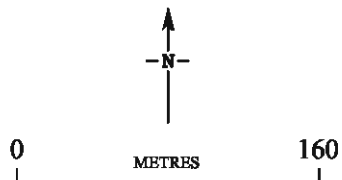
SCALE: 1/4000

LICENCE: 08R0308

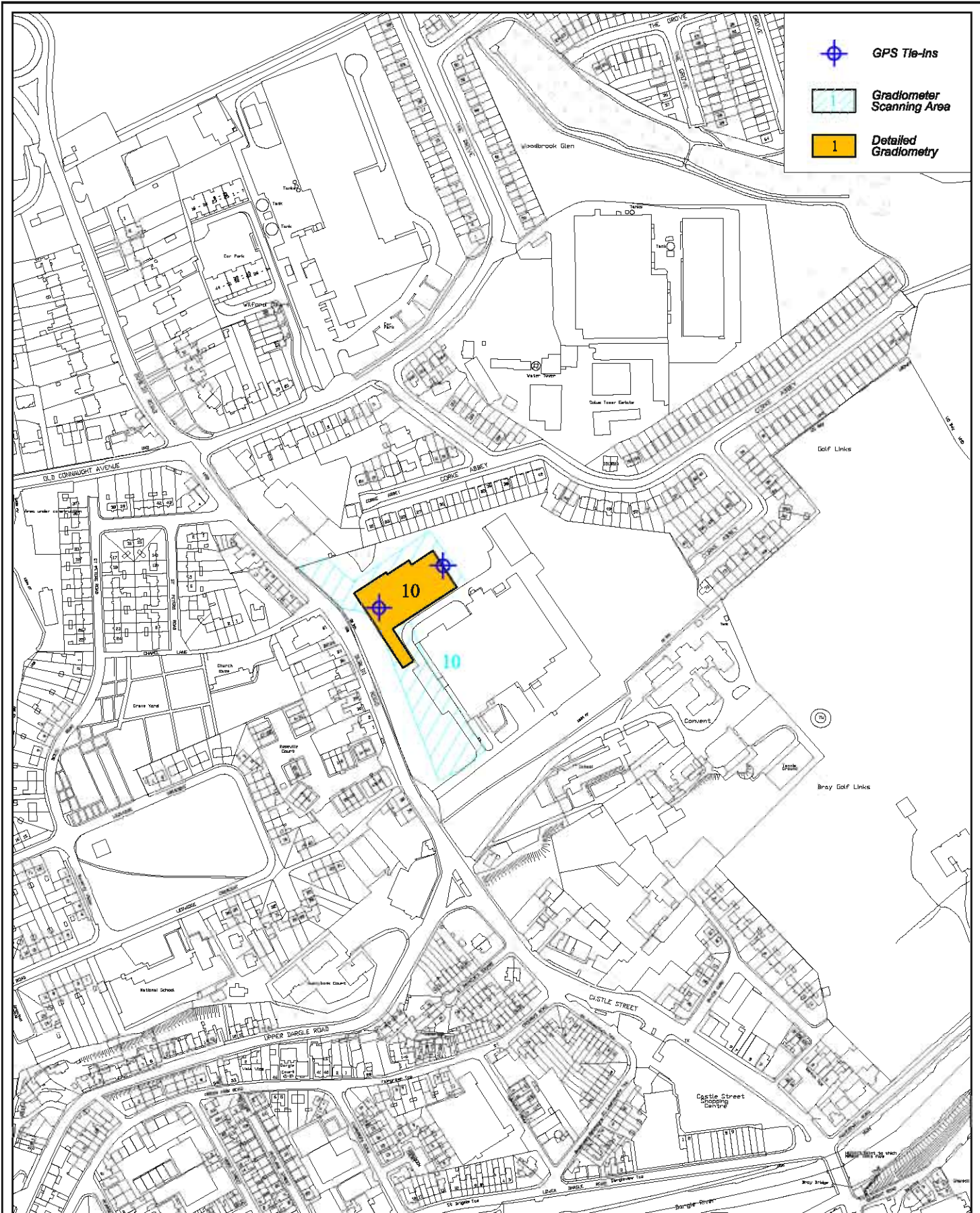





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JOB NUMBER: 08/043



 **GPS Tie-Ins**  
 **Gradiometer Scanning Area**  
 **Detailed Gradiometry**

BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



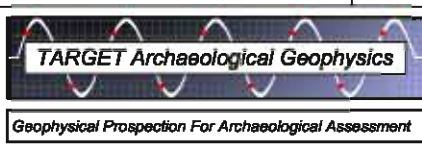
0 METRES 160

**PROJECT:**  
 LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE  
 SOUTH CO. DUBLIN & CO. WICKLOW

**CLIENT:**  
 A.C.S. LTD. ON BEHALF OF  
 THE RAILWAY PROCUREMENT AGENCY

**LICENCE:**  
 08R0308

**JOB NUMBER:**  
 08/043



**TARGET Archaeological Geophysics**  
 Geophysical Prospection For Archaeological Assessment

**TITLE:**  
 GRADIOMETER SCANNING &  
 DETAILED SURVEY AREA 10

**FIGURE:**  
 FIG. 8

**DATE:**  
 11/12/08

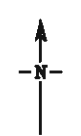
**SCALE:**  
 1/4000

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BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



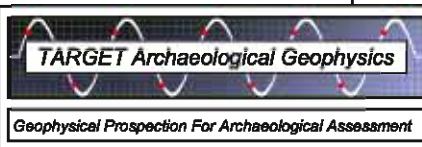
0 METRES 60

**PROJECT:**  
 LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE  
 SOUTH CO. DUBLIN & CO. WICKLOW

**CLIENT:**  
 A.C.S. LTD. ON BEHALF OF  
 THE RAILWAY PROCUREMENT AGENCY

**LICENCE:**  
 08R0308

**JOB NUMBER:**  
 08/043



**TITLE:**  
 GREYSCALE: DETAILED GRADIOMETRY AREA 2

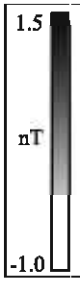
**FIGURE:**  
 FIG. 9

**DATE:**  
 11/12/08

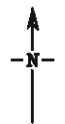
**SCALE:**  
 1/1500

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BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



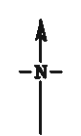
0 METRES 60

PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW		TITLE: GREYSCALE: DETAILED GRADIOMETRY AREA 3		
CLIENT: A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY		FIGURE: FIG. 10	DATE: 11/12/08	SCALE: 1/1500
LICENCE: 08R0308	<p><b>TARGET Archaeological Geophysics</b></p> <p>Geophysical Prospection For Archaeological Assessment</p>		Apartment 25 Block 11 Gallery Quay Dublin 2	
JOB NUMBER: 08/043			Mobile: +353 (0)87 858 0112 Landline: +353 (0)1 441 8818 Web site: <a href="http://www.targetgeophysics.ie">www.targetgeophysics.ie</a> Email: <a href="mailto:survey@targetgeophysics.ie">survey@targetgeophysics.ie</a>	

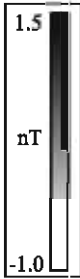




BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW		TITLE: GREYSCALE: DETAILED GRADIOMETRY AREAS 4A & 4B		
CLIENT: A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY		FIGURE: FIG. 11	DATE: 11/12/08	SCALE: 1/1500
LICENCE: 08R0308			Apartment 25 Block 11 Gallery Quay Dublin 2	
JOB NUMBER: 08/043			Mobile: +353 (0)87 858 0112 Landline: +353 (0)1 441 8818 Web site: <a href="http://www.targetgeophysics.ie">www.targetgeophysics.ie</a> Email: <a href="mailto:survey@targetgeophysics.ie">survey@targetgeophysics.ie</a>	
		<i>Geophysical Prospection For Archaeological Assessment</i>		



4

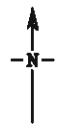
4B

4C

4D

TK

BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY

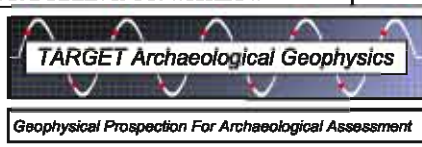


PROJECT: LUAS LINE B2, SOUTH CO. DUBLIN TITLE: GREYSCALE: DETAILED GRADIOMETRY AREAS 4B - 4D

CLIENT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW FIGURE: FIG. 12 DATE: 11/12/08 SCALE: 1/1500

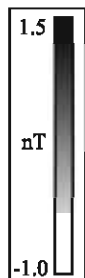
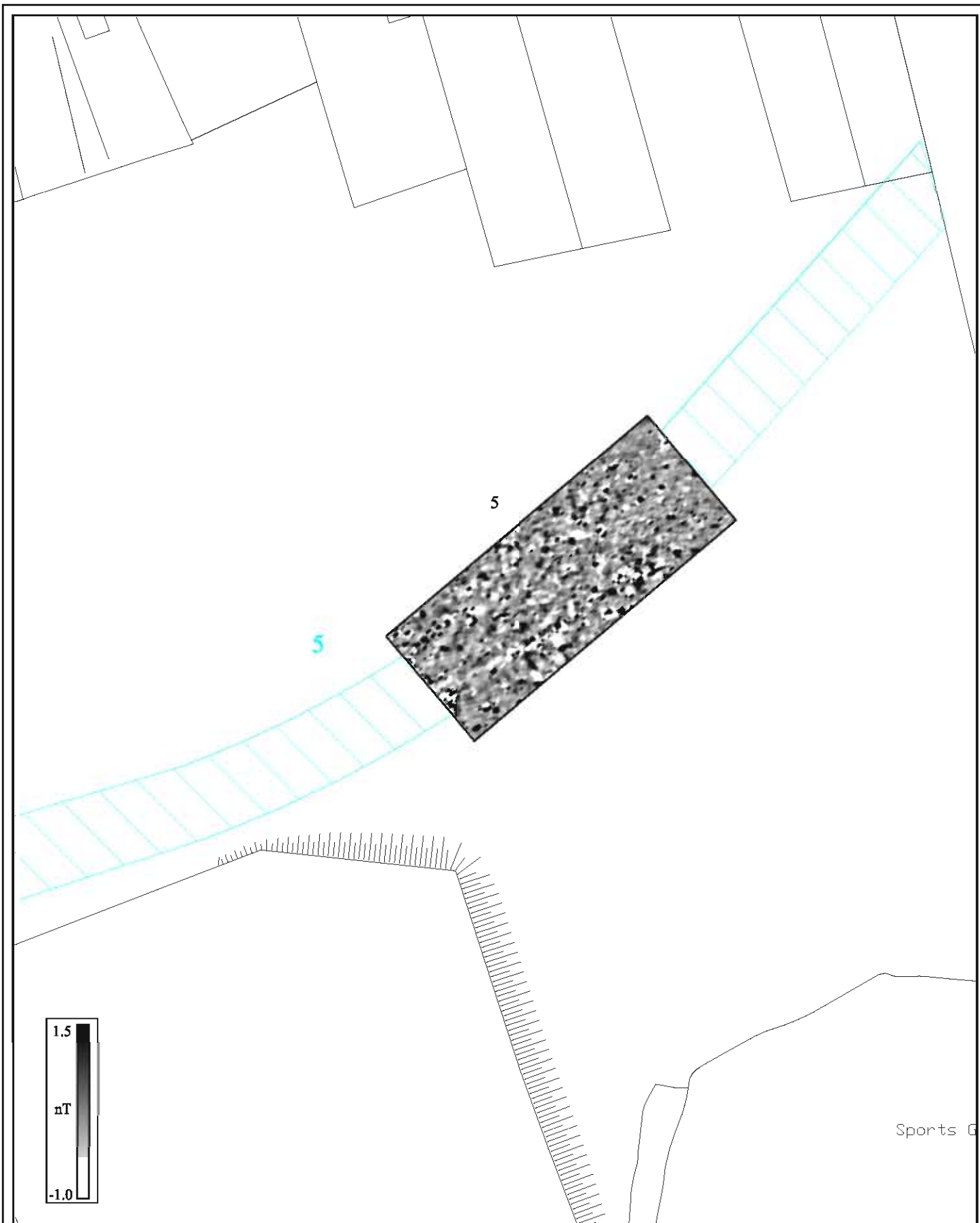
LICENCE: 08R0308

JOB NUMBER: 08/043



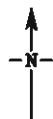
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Sports G

BASED ON MAPPING PROVIDED  
BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT: LUAS LINE B2, SOUTH CO. DUBLIN		TITLE: GREYSCALE; DETAILED GRADIOMETRY AREA 5	
CLIENT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW		FIGURE: FIG. 13	DATE: 11/12/08
LICENCE: 08R0308	<p><b>TARGET Archaeological Geophysics</b></p> <p>Geophysical Prospection For Archaeological Assessment</p>	Apartment 25 Block 11 Gallery Quay Dublin 2	
JOB NUMBER: 08/043		Mobile: +353 (0)87 858 0112 Landline: +353 (0)1 441 8818 Web site: <a href="http://www.targetgeophysics.ie">www.targetgeophysics.ie</a> Email: <a href="mailto:survey@targetgeophysics.ie">survey@targetgeophysics.ie</a>	



BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT:  
LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROB  
SOUTH CO. DUBLIN & CO. WICKLOW

CLIENT:  
A.C.S. LTD. ON BEHALF OF  
THE RAILWAY PROCUREMENT AGENCY

LICENCE:  
08R0308

JOB NUMBER:  
08/043



TITLE:  
GREYSCALE: DETAILED GRADIOMETRY AREA 6

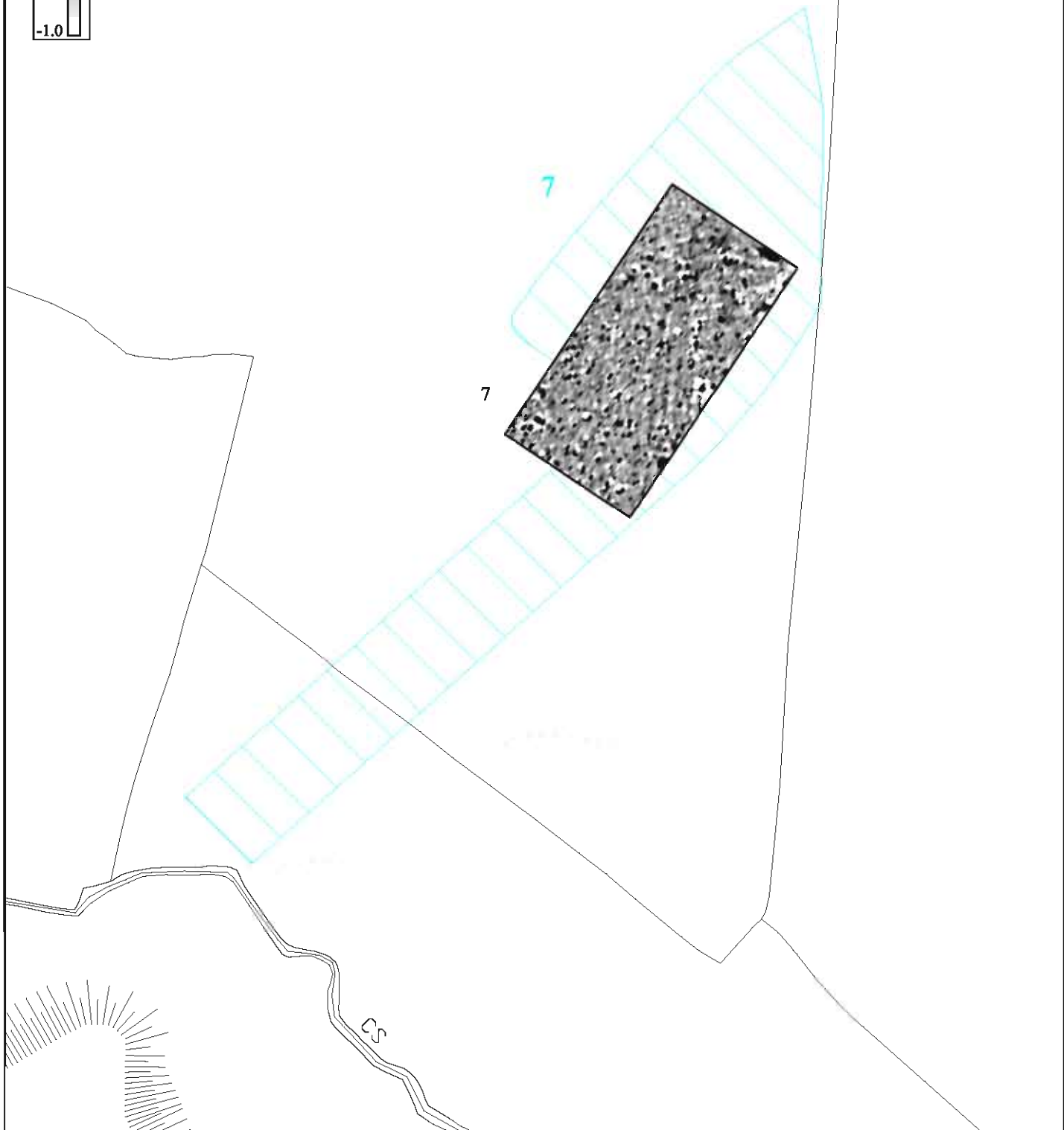
FIGURE:  
FIG. 14

DATE:  
11/12/08

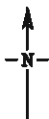
SCALE:  
1/1500

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BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT:  
LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE  
SOUTH CO. DUBLIN & CO. WICKLOW

CLIENT:  
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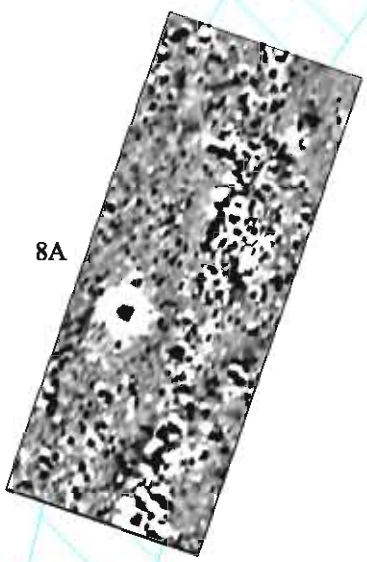
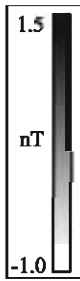


TITLE:  
GREYSCALE: DETAILED GRADIOMETRY AREA 7

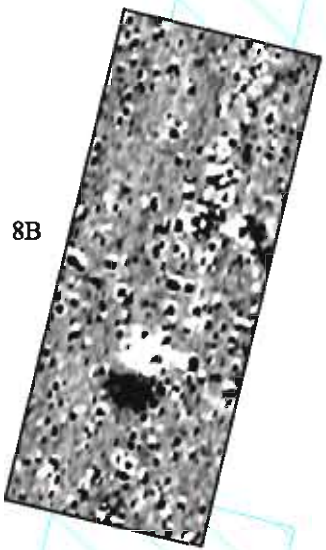
FIGURE: FIG. 15	DATE: 11/12/08	SCALE: 1/1500
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8A

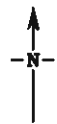


8B

8

10kv

BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY

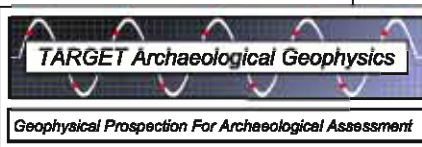


PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW TITLE: GRBYSSCALE: DETAILED GRADIOMETRY AREAS 8A & 8B

CLIENT: A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY FIGURE: FIG. 16 DATE: 11/12/08 SCALE: 1/1500

LICENCE: 08R0308

JOB NUMBER: 08/043



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0 METRES 60

**PROJECT:**  
 LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE  
 SOUTH CO. DUBLIN & CO. WICKLOW

**CLIENT:**  
 A.C.S. LTD. ON BEHALF OF  
 THE RAILWAY PROCUREMENT AGENCY

**LICENCE:**  
 08R0308

**JOB NUMBER:**  
 08/043



**TITLE:**  
 GREYSCALE: DETAILED GRADIOMETRY AREA 8C

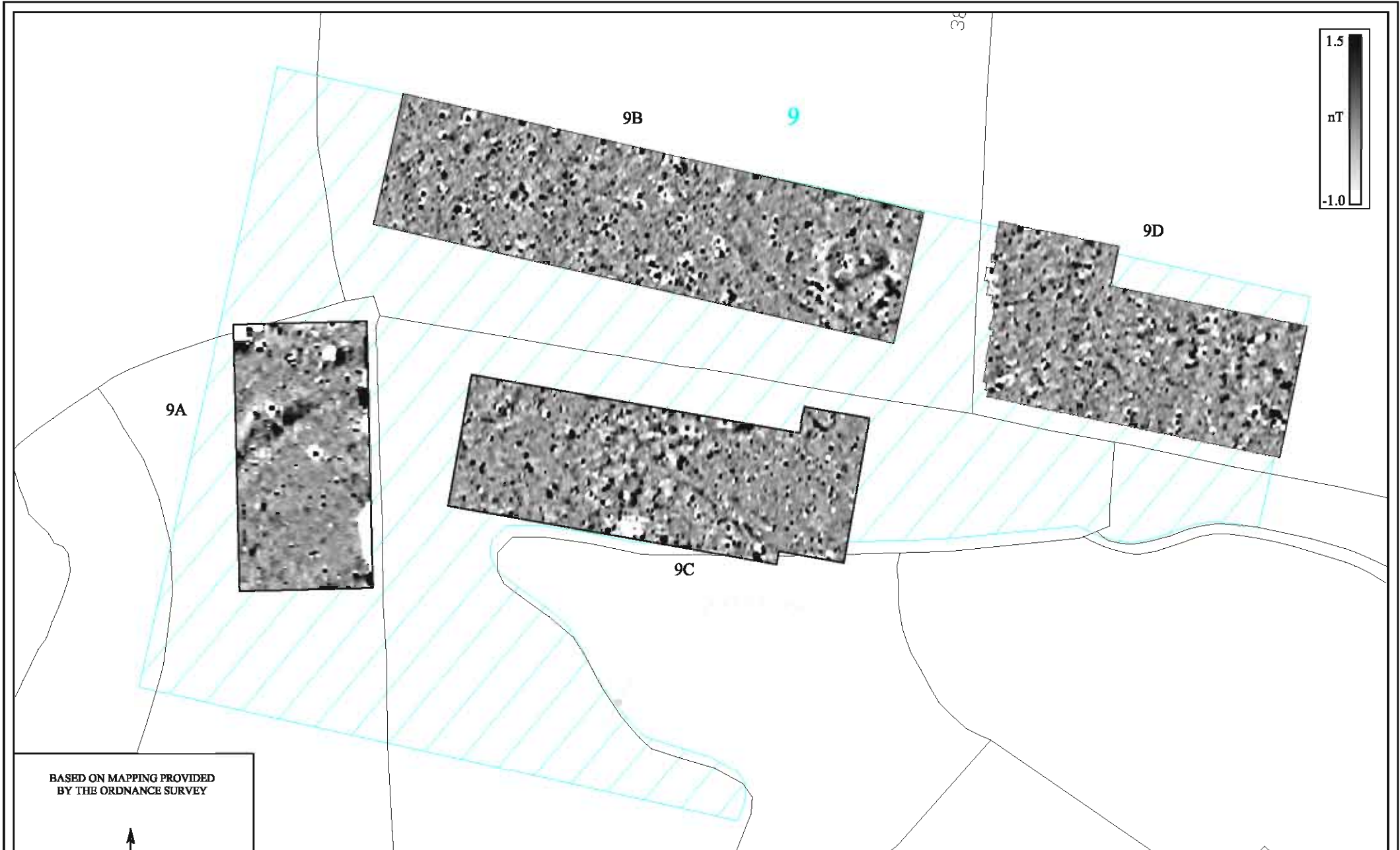
**FIGURE:**  
 FIG. 17

**DATE:**  
 11/12/08

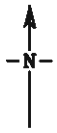
**SCALE:**  
 1/1500

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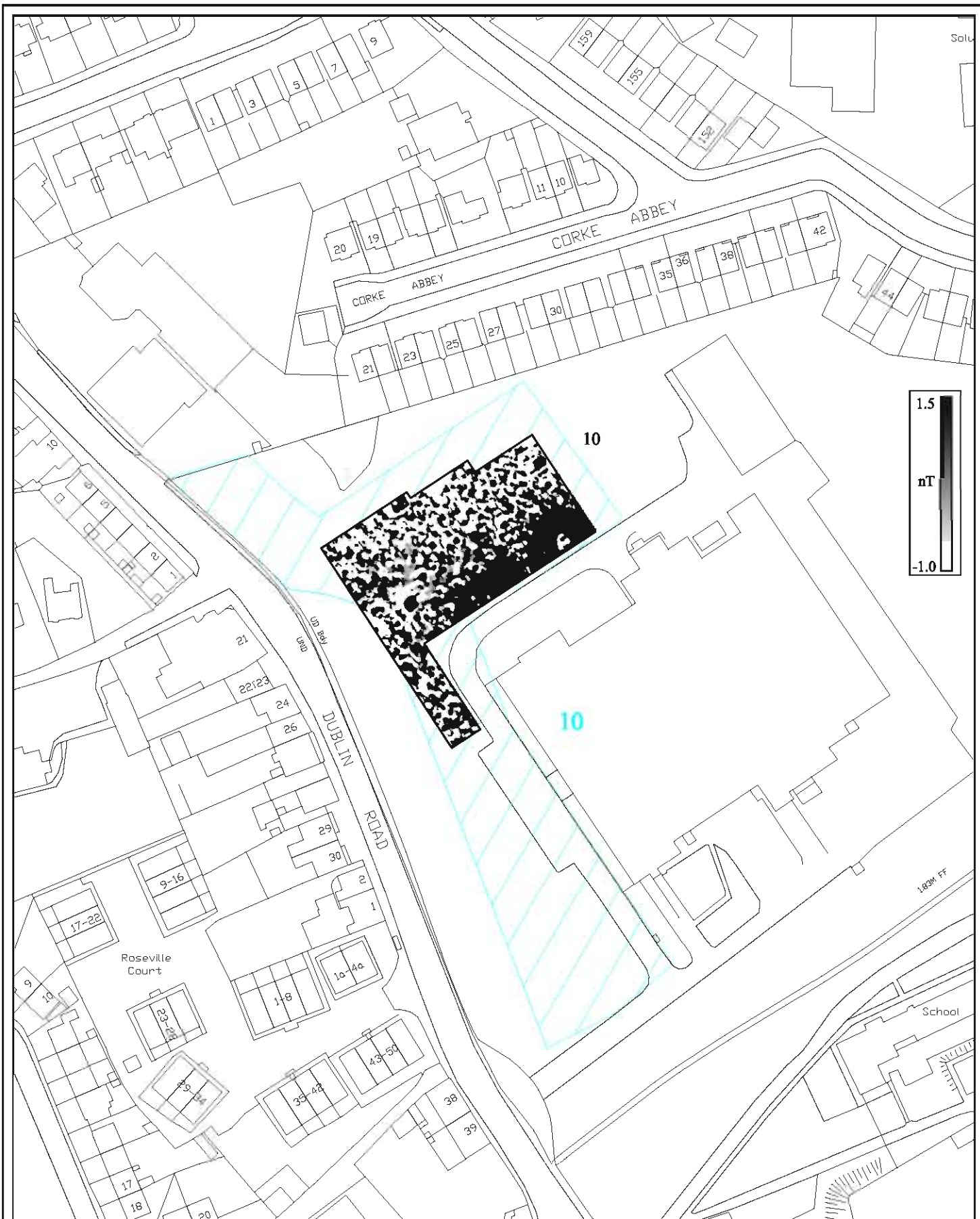
BASED ON MAPPING PROVIDED  
BY THE ORDNANCE SURVEY



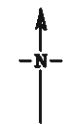
0 METRES 60

<b>PROJECT:</b> LUAS LINE B2 CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW		<b>TITLE:</b> GREYSCALE: DETAILED GRADIOMETRY AREAS 9A - 9D			<b>JOB NUMBER:</b> 08/043			Apartment 25 Block 11 Gallery Quay Dublin 2	Mobile: +353 (0)87 858 0112 Landline: +353 (0)1 441 8818 Web site: <a href="http://www.targetgeophysics.ie">www.targetgeophysics.ie</a> Email: <a href="mailto:survey@targetgeophysics.ie">survey@targetgeophysics.ie</a>
<b>CLIENT:</b> A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY		<b>FIGURE:</b> FIG. 18	<b>DATE:</b> 11/12/08	<b>SCALE:</b> 1/1500	<b>LICENCE:</b> 08R0308				





BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

**PROJECT:**  
 LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE  
 SOUTH CO. DUBLIN & CO. WICKLOW

**CLIENT:**  
 A.C.S. LTD. ON BEHALF OF  
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**LICENCE:**  
 08R0308

**JOB NUMBER:**  
 08/043



**TITLE:**  
 GREYSCALE: DETAILED GRADIOMETRY AREA 10

**FIGURE:**  
 FIG. 19

**DATE:**  
 11/12/08

**SCALE:**  
 1/1500

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BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY

PROJECT:  
 LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE  
 SOUTH CO. DUBLIN & CO. WICKLOW

TITLE:  
 INTERPRETATION; DETAILED GRADIOMETRY AREA 2

CLIENT:  
 A.C.S. LTD. ON BEHALF OF  
 THE RAILWAY PROCUREMENT AGENCY

FIGURE:  
 FIG. 20

DATE:  
 11/12/08

SCALE:  
 1/1500

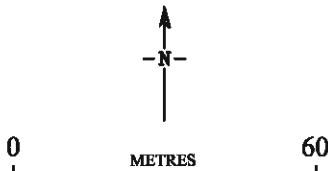
LICENCE:  
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JOB NUMBER:  
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-  ? Archaeology
-  Positive Trend
-  Magnetic Disturbance
-  Ferrous

BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW TITLE: INTERPRETATION: DETAILED GRADIOMETRY AREA 3

CLIENT: A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY FIGURE: FIG. 21 DATE: 11/12/08 SCALE: 1/1500

LICENCE: 08R0308








JOB NUMBER: 08/043



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-  ? Archaeology
-  Increased Response
-  Positive Trend
-  Cultivation
-  ? Natural
-  Magnetic Disturbance
-  Ferrous

BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY

PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW

TITLE: INTERPRETATION: DETAILED GRADIOMETRY AREAS 4A & 4B

CLIENT: A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY

FIGURE: FIG. 22

DATE: 11/12/08

SCALE: 1/1500

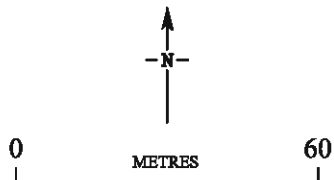
LICENCE: 08R0308











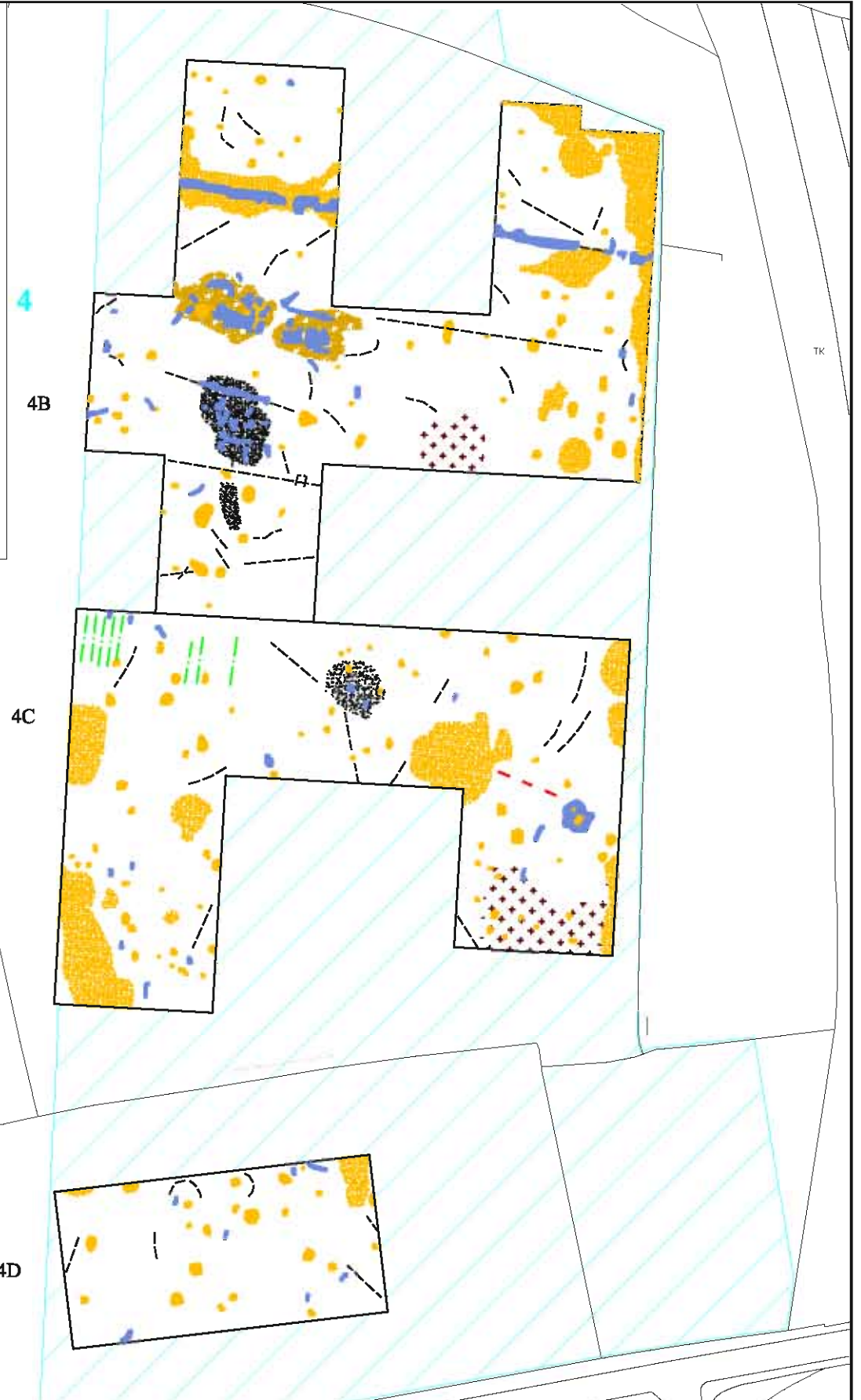
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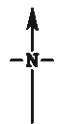
JOB NUMBER: 08/043



-  ? Archaeology
-  Increased Response
-  Positive Trend
-  Negative Trend
-  Cultivation
-  ? Natural
-  Magnetic Disturbance
-  Ferrous



BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT: LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW

CLIENT: A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY

LICENCE: 08R0308

JOB NUMBER: 08/043








TITLE: INTERPRETATION: DETAILED GRADIOMETRY AREAS 4B - 4D

FIGURE: FIG. 23	DATE: 11/12/08	SCALE: 1/1500
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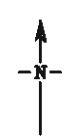
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Web site: [www.targetgeophysics.ie](http://www.targetgeophysics.ie)  
Email: [survey@targetgeophysics.ie](mailto:survey@targetgeophysics.ie)

-  ? Archaeology
-  Positive Trend
-  Negative Trend
-  ? Natural
-  Ferrous



BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



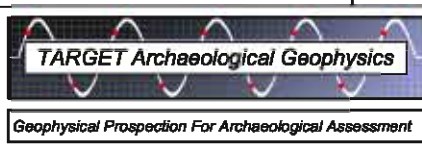
0 METRES 60

PROJECT:  
 LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE  
 SOUTH CO. DUBLIN & CO. WICKLOW

CLIENT:  
 A.C.S. LTD. ON BEHALF OF  
 THE RAILWAY PROCUREMENT AGENCY

LICENCE:  
 08R0308

JOB NUMBER:  
 08/043



TITLE:  
 INTERPRETATION; DETAILED GRADIOMETRY AREA 5






FIGURE:  
 FIG. 24

DATE:  
 11/12/08

SCALE:  
 1/1500

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-  ? Archaeology
-  Positive Trend
-  Negative Trend
-  ? Natural
-  Ferrous



BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY

PROJECT:  
LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE  
SOUTH CO. DUBLIN & CO. WICKLOW

TITLE:  
INTERPRETATION: DETAILED GRADIOMETRY AREA 6

CLIENT:  
A.C.S. LTD. ON BEHALF OF  
THE RAILWAY PROCUREMENT AGENCY

FIGURE:  
FIG. 25

DATE:  
11/12/08

SCALE:  
1/1500

LICENCE:  
08R0308







JOB NUMBER:  
08/043

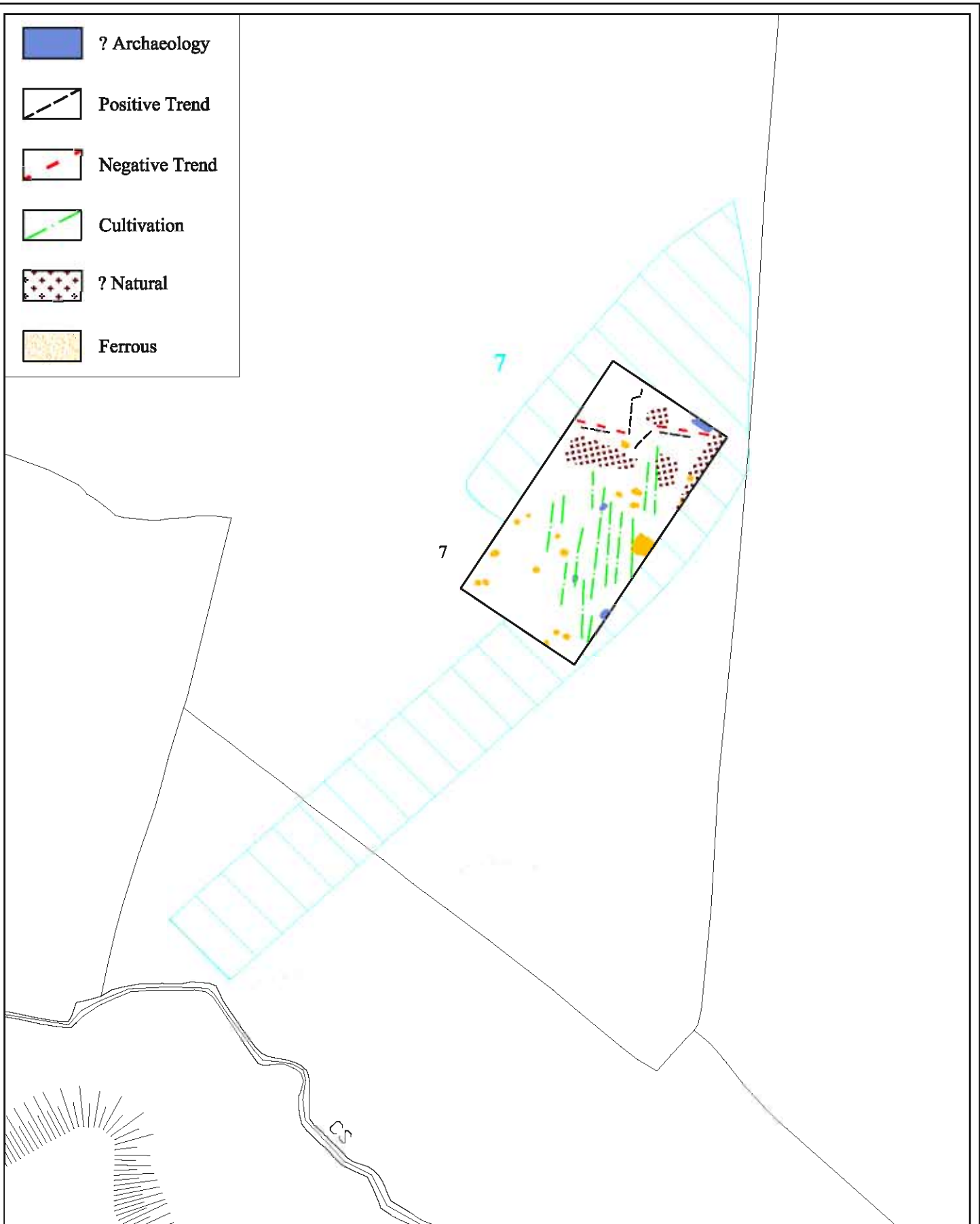


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0 METRES 60

-  ? Archaeology
-  Positive Trend
-  Negative Trend
-  Cultivation
-  ? Natural
-  Ferrous



BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT:  
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JOB NUMBER:  
**08/043**









TITLE:  
**INTERPRETATION: DETAILED GRADIOMETRY AREA 7**

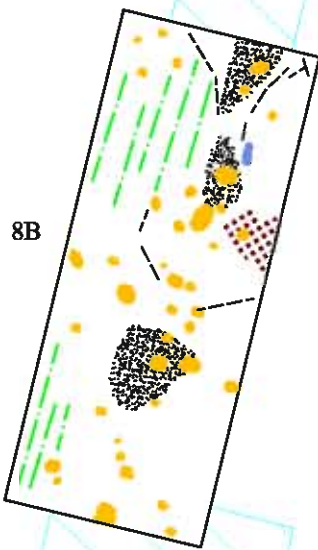
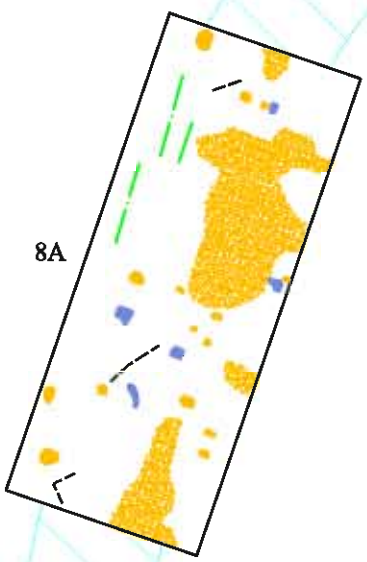
FIGURE: <b>FIG. 26</b>	DATE: <b>11/12/08</b>	SCALE: <b>1/1500</b>
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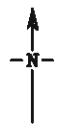
-  ? Archaeology
-  Increased Response
-  Positive Trend
-  Cultivation
-  ? Natural
-  Ferrous



8

10kv

BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT:  
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LICENCE:  
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JOB NUMBER:  
08/043








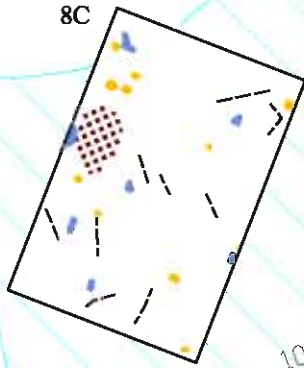
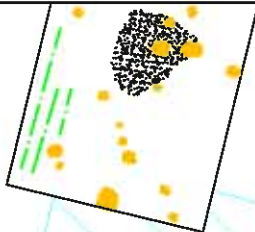
TITLE:  
INTERPRETATION:  
DETAILED GRADIOMETRY AREAS 8A & 8B

FIGURE: FIG. 27	DATE: 11/12/08	SCALE: 1/1500
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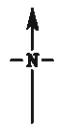
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Email: [survey@targetgeophysics.ie](mailto:survey@targetgeophysics.ie)

-  ? Archaeology
-  Positive Trend
-  Cultivation
-  ? Natural
-  Ferrous



Lake

BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT:  
LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROE  
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CLIENT:  
A.C.S. LTD. ON BEHALF OF  
THE RAILWAY PROCUREMENT AGENCY

LICENCE:  
08R0308

JOB NUMBER:  
08/043



TITLE:  
INTERPRETATION:  
DETAILED GRADIOMETRY AREA 8C

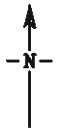
FIGURE: FIG. 28	DATE: 11/12/08	SCALE: 1/1500
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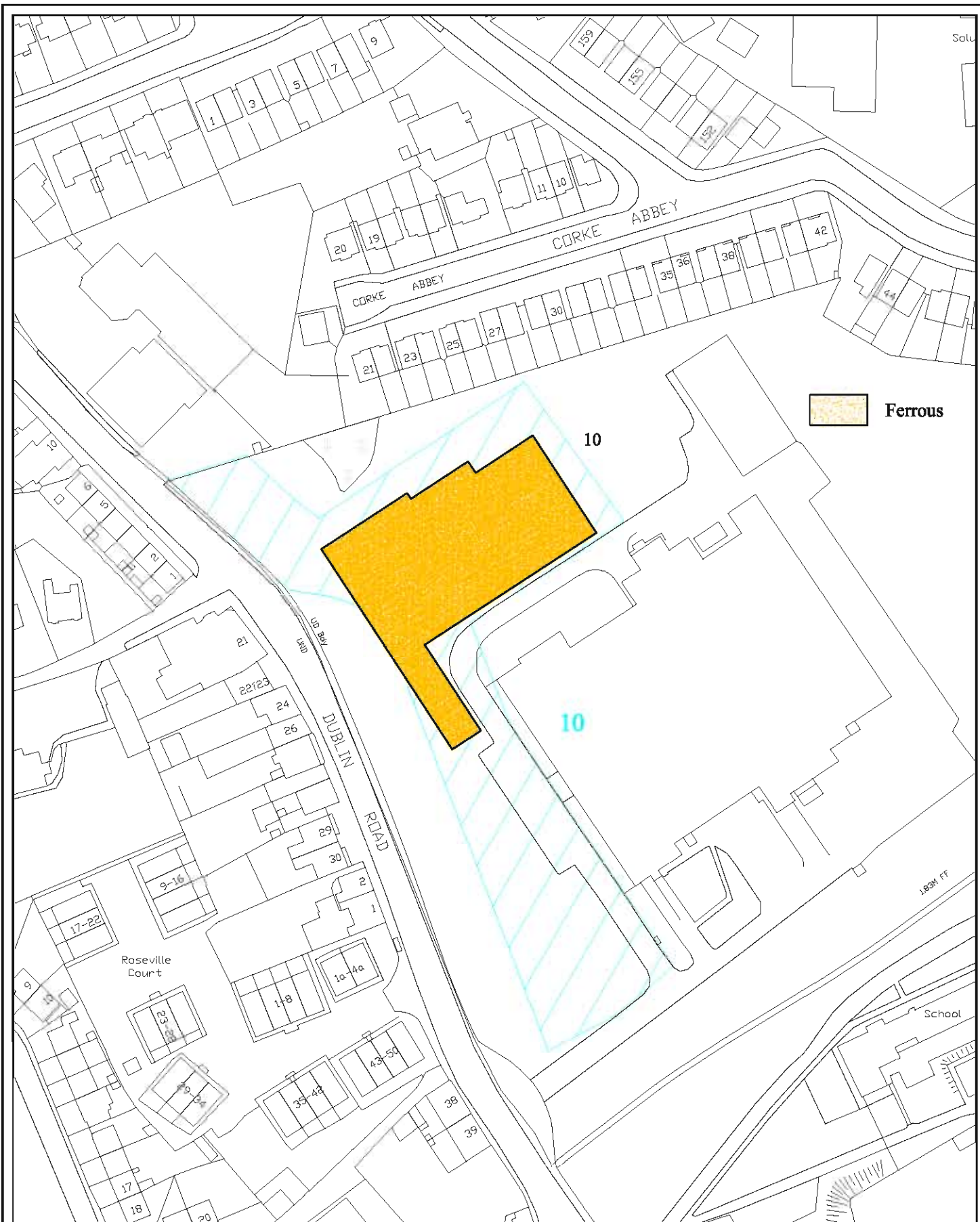


BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT: LUAS LINE B2 CHERRYWOOD TO BRAY / FASSAROE SOUTH CO. DUBLIN & CO. WICKLOW		TITLE: INTERPRETATION: DETAILED GRADIOMETRY AREAS 9A - 9D			JOB NUMBER: 08/043	 <b>TARGET Archaeological Geophysics</b> <i>Geophysical Prospection For Archaeological Assessment</i>	Apartment 25 Block 11 Gallery Quay Dublin 2	Mobile: +353 (0)87 858 0112 Landline: +353 (0)1 441 8818 Web site: <a href="http://www.targetgeophysics.ie">www.targetgeophysics.ie</a> Email: <a href="mailto:survey@targetgeophysics.ie">survey@targetgeophysics.ie</a>
CLIENT: A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY		FIGURE: FIG. 29	DATE: 11/12/08	SCALE: 1/1500	LICENCE: 08R0308			



BASED ON MAPPING PROVIDED BY THE ORDNANCE SURVEY



0 METRES 60

PROJECT:  
**LUAS LINE B2, CHERRYWOOD TO BRAY / FASSAROB SOUTH CO. DUBLIN & CO. WICKLOW**

CLIENT:  
**A.C.S. LTD. ON BEHALF OF THE RAILWAY PROCUREMENT AGENCY**

LICENCE:  
**08R0308**

JOB NUMBER:  
**08/043**



TITLE:  
**INTERPRETATION: DETAILED GRADIOMETRY AREA 10**

FIGURE:  
**FIG. 30**

DATE:  
**11/12/08**

SCALE:  
**1/1500**

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