

# Appendix C17.05

## Archaeological Geophysical Survey Final Report

TEN-T Priority Route Improvement Project,  
Drumboe lower, Ballynaglack, Ballyraine, Trimragh,  
Carnshannagh, Murlough & Curraghalane Td's,  
County Donegal

Archaeological Geophysical Survey

Detection Licence No. 20R0078

ITM: 613410,895454  
613515,895915  
618947,911805  
621237,911224  
628587,904423  
631615,899290  
632263,897206  
628551,904492

Survey Director: Heather Gimson

Survey undertaken on behalf of  
Donegal County Council

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EAG 403

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[earthsound.ie](http://earthsound.ie)

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## Summary of Results

*Between the 25<sup>th</sup> May - 3<sup>rd</sup> July, 10<sup>th</sup> - 13<sup>th</sup> August and 28<sup>th</sup> September – 1<sup>st</sup> October 2020, a geophysical survey commissioned by Donegal County Council was conducted over eight pre-selected sites of archaeological interest along the proposed TEN-T Priority Route Improvement Project, County Donegal. The sites were investigated using a combination of resistivity, magnetometer and ground penetrating radar surveys.*

*The survey was conducted upon a bedrock geology consisting of a combination of Feldspathic psammite; quartzite, marble, semi-pelitic & graphitic schist and grit. The majority of the survey area was covered in short grass, pasture or cut crop with areas of high thistles and rushes present.*

*A complex archaeological landscape was revealed in sites ER1 and ER7 where multi-ditched enclosures were detected with associated internal divisions and possible pits. The site at ER1 contains structural remains which are likely to represent the remains associated with Drumboe Abbey. Within ER7 these enclosure remains are surrounding and associated with a souterrain previously found on site during ploughing.*

*Further possible archaeological evidence was also detected at both ER1 and ER7 through potential sub-circular ditches, pits, boundary ditches and zones of disturbed soil.*

*The surveys at ER8 revealed the presence of a large enclosure as well as agricultural features and two areas of soil disturbance which might be archaeological in origin.*

*Numerous arcing ditches, potential stone features and possible pits were detected throughout the other sites. These are suggestive of potential archaeological remains but could also be attributed to geological processes.*



## Statement of Indemnity

*A geophysical survey is a scientific procedure that produces observations of results which are influenced by specific variables. The results and subsequent interpretation of the geophysical survey presented here should not be treated as an absolute representation of the underlying archaeological features, but as a hypothesis that must be proved or disproved. **Direct investigations are recommended to confirm the findings of this report.** Verification can only be provided via intrusive means, such as Test Trench excavations.*

## **1 Introduction**

### **1.1 Brief Description of the Proposed Development**

EarthSound Geophysics Ltd. were commissioned by Donegal County Council to carry out a geophysical survey along pre-selected areas of the TEN-T Priority Route Improvement Project, Co. Donegal.

The TEN-T Priority Route Improvement Project is part of the Trans-European Transport Network and comprises the construction of three sections of new road: Section 1: N15/N13 Ballybofey/Stranolor Urban Region, Section 2: N56/N30 Letterkenny to Manorcunningham and Section 3: N14 Manorcunningham to Lifford/Strabane/A5 link. The project is currently at the design and environmental evaluation phase.

The geophysical surveys for this report are being undertaken at the location of archaeological monuments listed on the Sites and Monuments Record and potential archaeological monuments identified by the Option Selection Study and subsequent archaeological assessment of LiDAR data that are within or in close proximity to the route corridor.

Resistivity surveys were commissioned at 8 locations comprising a total area of 20 hectares, Magnetometer surveys at 4 locations comprising a total area of 10.96 hectares and Ground Penetrating Radar surveys at 2 locations comprising of 3 hectares.

### **1.2 Aims of the Survey**

Donegal County Council required an archaeological geophysical survey of the route of the TEN-T Priority Route Improvement Project. The survey was carried out in accordance with the brief prepared by the TII Archaeology section supplied by Donegal County Council, using a combination of Earth Resistance (ER), Magnetic Gradiometer (MG) and Ground Penetrating Radar (GPR). The aims of the Stage (i) i Geophysical Survey Services were to:

- identify any geophysical anomalies of possible archaeological origin within the specified survey areas.
- accurately locate these anomalies and present the findings in map form.
- describe the anomalies and discuss their likely provenance in a written report.
- recommend any further work (including other forms of geophysical survey if appropriate) likely to contribute to the mitigation of the impact of the road scheme on these features.
- incorporate all of the above in a report to Donegal County Council.

### 1.3 Description of the Survey Area

The individual survey areas are listed below and are based on the tender document supplied by Donegal TII in 2020.

Survey Area	Townland	ITM	SMR ref.	Route Selection ref.	LiDAR site ref.	Description	Survey Technique
ER1	Drumboe Lower	613410, 895454	DG078-005	N/A	L123-1	'Site of' Drumboe Abbey	ER 6.8Ha MG 6.8Ha GPR 2.75Ha
ER2	Ballynaglack	613515, 895915	N/A	S1-AP01	L123-2	Potential enclosure	ER 0.48Ha MG 0.48Ha
ER3	Ballyraine	618947, 911805	DG053-026	N/A	L201-2	In proximity to 'White fort' Ringfort	ER 1.64Ha
ER4	Trimragh	621237, 911224	DG053-028, DG053-028001	N/A	L213-6	In proximity to' site of ' church and graveyard	ER 3.4Ha
ER5	Carnshannagh	628587, 904423	DG062-024	S3-AP01	L334-1, L334-2	Area at & in proximity to 'site of 'enclosure & potential enclosure	ER 1.54Ha MG 1.54Ha
ER6	Murlough	631615, 899290	DG070-048	N/A	L354-1	Area in close proximity to 'site of 'standing stone	ER 2.11Ha
ER7	Curragehalane	632263, 897206	DG070-082	N/A	L362-1	Souterrain & possible enclosure	ER 2.14Ha MG 2.14Ha GPR 0.25Ha
ER8	Curragehalane	628551, 904492	High resolution LiDAR surveys undertaken during the geophysical fieldwork revealed the location of recorded monument DG070-082 may in fact be in the adjacent field therefore the survey area was added				ER 1.8Ha

The survey areas comprised of pasture fields and arable lands and are located across a wide area with varying bedrock geology – these comprise a combination of Feldspathic psammite; quartzite, marble, semi-pelitic & graphitic schist and grit. These were overlain by Till derived from Metamorphic rocks. The majority of these geologies are highly magnetic in nature and this was the reason Earth Resistance surveys were primarily used.

The climatic conditions during the months prior to the survey were warm and dry with very little rainfall, causing the site to be too dry for Earth Resistance surveys. For this reason, the method was replaced by EMI apparent electrical resistivity surveys. The weather continued to be predominantly dry for most of the survey with some heavier rain in the last two weeks. The weather is unlikely to have had an impact on the results obtained by the EMI, radar or magnetometer surveys.

#### **1.4 Archaeological Background and Statutory Protections**

A number of known monuments exist within or in close proximity to the proposed scheme. DG078-005 'Site of' Drumboe Abbey, DG053-026 'White fort' Ringfort, DG053-028 & DG053-28001 to 'site of' church and graveyard, DG062-024 'site of' enclosure, DG070-048 'site of' standing stone and DG070-082 Souterrain & possible enclosure. A number of other possible archaeological features were noted through the evaluation undertaken in advance of the proposed road scheme.

The souterrain (DG70-082), which is located in survey area ER7, has only recently been discovered when a stone roof lintel was dislodged during ploughing in April 2019. The monument comprises a roughly circular drystone wall chamber with a corbelled roof forming a bee-hive shape in profile. A possible creepway-type entrance to a passage was noticed in the northern wall, but could not be further investigated due to safety concerns (O,Shaughnessy, 2019). Previous geophysical surveys were carried out for the N14/15 link road in 2011/12 in the field to the west of ER7. They revealed a medieval landscape comprising a series of field boundaries and trackways, a number of oval anomalies and pits, some of which are in a curvilinear alignment (Gimson, 2012). Some of these features may be related to the souterrain.

The National Monuments Acts (1930-2014) prohibit the unauthorised use of detecting devices on archaeological sites as well as unauthorised searches for archaeological objects using such devices. All elements of the survey were carried out in accordance with a written method statement and an application for a detection licence from the Department of Culture, Heritage, and the Gaeltacht to carry out the work. Detection Licence 20R0078 was issued to Heather Gimson.

#### **1.5 Health and Safety requirements**

A health and safety statement was submitted to Donegal County Council/TII prior to the commencement of work.

## **2 Methodology**

The fieldwork was carried out between the 25<sup>th</sup> May – 3<sup>rd</sup> July, 10<sup>th</sup> - 13<sup>th</sup> August and 28<sup>th</sup> September – 1<sup>st</sup> October 2020 by C. Hogan and U. Garner of Earthsound Geophysics Ltd. The original brief called for Earth Resistance surveys, however March-May 2020 were exceptionally dry and hot months with very limited rainfall. This caused the soil to dry out to the extent that Earth Resistance surveys could not be viably used. This technique was therefore replaced with resistivity surveys which measure a comparable property in the ground. Resistivity surveys are not affected by the very dry ground conditions and are a frequently used technique throughout Ireland, producing viable and reliable results.

An area of 20 hectares of Resistivity was assigned using a GF Instruments CMD Mini-Explorer. Surveys were collected using survey grids which were set out using a Trimble RTK GPS VRS Now system. Data was collected at a sample interval of 0.5m x 0.25m using a gridless system with each data point logged using a Trimble RTK GPS VRS Now system. A total of 10.96 hectares of Magnetometer survey was assigned using a LEA MAX Förster gradiometer system. This data was collected at a sample interval of 0.5 x 0.25m using a gridless system with each data point logged using a Trimble RTK GPS VRS Now system. In addition 3 hectares of Ground Penetrating Radar surveys were undertaken using a GSSI TerraSIRch SIR System-3000 with a 400 MHz antenna. Data was collected at a sample interval of 0.25m x 0.05m using survey grids which were set out using a Trimble RTK GPS VRS Now system.

The techniques used have been used in commercial and research archaeological projects for many years and are considered the most appropriate techniques for a detailed investigation of the underlying archaeology (Aspinall *et al.* 2008, Clark 1996, Conyers 2004, Schmidt 2013, Scollar *et al.* 1990, Gaffney & Gater 2003).

Where possible, the use of multiple geophysical techniques allows a greater confidence to be placed in the interpretation of detected anomalies, which is especially useful on small sites such as this. Their combined application can be used to determine the geometry, compositional material and the extent of an archaeological target.

## 2.1 Resistivity Survey

<b>EMI Measurement</b>	Apparent Electrical Resistivity ( $ER_a$ )
<b>Instrument</b>	GF Instruments CMD-MiniExplorer
<b>Data Acquisition Resolution</b>	0.5m x 0.2s
<b>Coil Configuration / Effective depth range</b>	Vertical Coplanar Coil configuration (VPC) or ‘half-depth’, effective depth range: 0.25m, 0.5m, 0.9m
<b>Platform</b>	SparrowHawk-1000 cart system, sensor positioned 10cm above the ground
<b>Data Acquisition Method</b>	Continuous mode, Gridless, using a Trimble RTK GPS VRS Now system to an accuracy of 5cm
<b>Measuring Range</b>	$ER_a$ : 1000mS/m, resolution 0.1mS/m
<b>Data Logger</b>	CMD Control Unit
<b>Calibration</b>	According to manufacturers guidelines (GF Instruments 2010)
<b>Data Processing</b>	CMD Data Transfer: conversion to Apparent Electrical Resistivity ( $ER_a$ ) from Apparent Electrical Conductivity (Quadrature) Process-it: Drift correction using a moving filter, Despiking, Low Pass Gaussian Filter, Interpolation
<b>Graphical Display / Dynamic Range</b>	Greyscale 130 mS/m (white) to 175 mS/m (black)

## 2.2 Magnetometer Survey

<b>Instrument</b>	Eastern Atlas LEA MAX <sup>1505</sup> System
<b>Components</b>	LEA D2, 10-channel digitiser
<b>Data Acquisition Resolution</b>	0.5m x 0.1m
<b>Sensors</b>	8 x Förster FEREX <sup>®</sup> 4.032 CON650 fluxgate gradiometers
<b>Platform</b>	LEA MAX <sup>1505</sup> System cart
<b>Data Acquisition Method</b>	Gridless, using a Trimble RTK GPS VRS Now system
<b>Sensitivity</b>	<0.2 nT
<b>Data Logger</b>	Panasonic Toughbook CF-H2 Field computer
<b>Calibration</b>	According to manufacturers guidelines (Pilz & Goossens 2015)
<b>Data Processing</b>	Ealdec: Profile decoding Ealmat.m: Normalisation, drift correction Surfer 8: Data Gridding (0.5m x 0.25m), using Kriging
<b>Graphical Display</b>	Greyscale -5nT (white) to 5nT (black)

## 2.3 Ground Penetrating Radar Survey

<b>Instrument</b>	GSSI TerraSIRch SIR System-3000
<b>Antenna</b>	400MHz
<b>Data Acquisition Resolution</b>	0.25m x 0.05m
<b>Platform</b>	GSSI Model 623 Survey Cart
<b>Data Acquisition Method</b>	Survey Wheel with Calibrated Odometer
<b>Measuring Range</b>	0-8000nS
<b>Data Logger</b>	SIR-3000
<b>Calibration</b>	According to manufacturers guidelines (GSSI 2003)
<b>Relative Diel. Permittivity</b>	5
<b>Time Zero offset</b>	1
<b>Time Window</b>	50nS
<b>No. of Profiles Collected</b>	1532
<b>Profile Direction</b>	Zig-zag
<b>Radargram Data Processing</b>	GPR Viewer: Gain, Background Averaging Subtraction of background signal Autogain separately for each transect
<b>Timeslice Data Processing</b>	GPR Process: Creation of 50 timeslices of 0.1 m thickness Zero Median Transect for each line of each timeslice Low-pass filtering along each line of each transect using a filter radius of 0.05m Surfer: Gridded using Kriging
<b>Graphical Display</b>	Amplitude slice-maps

## 2.4 Reporting, Mapping & Archiving

The geophysical survey and report follow the recommendations outlined by relevant best practice guidance documents as a minimum standard (Bonsall *et al.* 2014; David *et al.* 2008; Gaffney *et al.* 2002, Schmidt *et al.* 2015).

Ordnance Survey of Ireland mapping was supplied by Donegal County Council. Geophysical data, the figures presented here and the text have been archived following the recommendations of the Archaeology Data Service (Schmidt & Ernenwein 2011).

### 3 Results & Discussion

*The interpretation figures should not be looked at in isolation but in conjunction with the relevant discussion section and with the information contained in the Appendices. Features are highlighted in the interpretation diagrams and are described and interpreted within the text.*

#### 3.1 ER1

<b>Survey Methodology:</b>		<b>ER1 Resistivity</b>				<b>Townland:</b>		<b>Drumboe Lower</b>			
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD			
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20      6.8 Ha			
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.									
<b>Figure No.:</b>		5 & 6									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
1	Linear high resistivity anomaly	613320.15,895480.511			✓		✓		Linear compact earth or stone feature, 20m in length. This anomaly could be archaeological or geological in origin.	✓	
2	Spread of raised resistivity	613315.801,895465.041			✓		✓		Curvilinear spread of compact earth or stone, 18m in length. Located on the edge of a natural escarpment, probably geological.	✓	
3	Three isolated high resistivity anomalies	613308.044,895421.503			✓		✓		Three isolated compact earth or stone features which may represent archaeological or geological deposits. Measuring in size from 3m to 7m in diameter.	✓	
4	Curvilinear low resistivity anomaly	613320.532,895439.166	✓						Curvilinear possible ditch or cut feature, 34m in length. This feature could be archaeological in origin or be associated with a break or fault in the geology.	✓	
5	Linear high resistivity anomaly	613335.192,895408.382			✓		✓		Curvilinear compact earth or stone feature, 11m in length. Possibly archaeological in origin.	✓	
6	Five isolated high resistivity anomalies	613349.213,895424.187			✓		✓		Five isolated compact earth or stone deposits; these could represent near surface geological deposits or be associated with archaeology.	✓	
7	Oval high resistivity anomaly	613341.158,895443.868			✓		✓		A series of compact earth or stone features forming an oval boundary, surrounding and encompassing anomaly 5. 26m N-S & 18m E-W, this could represent archaeologically.	✓	

<b>Survey Methodology:</b>		<b>ER1 Resistivity</b>				<b>Townland:</b>		<b>Drumboe Lower</b>			
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD			
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha			
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.									
<b>Figure No.:</b>		5 & 6									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
8	Linear high resistivity anomaly	613356.373,895435.519			✓		✓		Linear compact earth or stone feature, 48m in length which may represent a relict field boundary. This feature could be associated with anomaly 9.	✓	
9	Curvilinear high resistivity anomaly	613348.914,895465.339			✓		✓		Curvilinear compact earth or stone feature, 41m in length which may represent a relict boundary or may be associated with geological remains.	✓	
10	Curvilinear low resistivity anomaly	613362.339,895471.303	✓		✓				Curvilinear possible ditch, 27m in length, this anomaly could be archaeological, agricultural or geological in origin.	✓	
11	Arcing low resistivity anomaly	613372.249,895441.041		✓					Arcing ditch which represents a probable enclosure ditch. Measuring 71m in length and c. 3m in width this anomaly is likely to extend into anomaly 12.	✓	
12	Arcing low resistivity anomaly	613412.323,895400.189		✓					Arcing enclosure ditch, 46m in length. This enclosure may have an entranceway to the SW and appears to enclose an area c.72m in width. The enclosure is likely to be bounded by anomalies 13 & 14 and appears to enclose a LiDAR anomaly.	✓	
13	Arcing high resistivity anomaly	613368.678,895444.412			✓				Arcing compact earth or stone feature which runs along the outside edge of anomaly 11. Measuring 39m in length this possible banked feature appears to contain at least two circular compact earth or stone deposits on its external edge. These deposits measure 7m & 9m in diameter and may be associated with the bank.	✓	
14	Arcing high resistivity anomaly	613417.481,895393.645			✓				Arcing compact earth or stone feature which runs along the outside edge of anomaly 12. Measuring 56m in length this anomaly represents a continuation of anomaly 13 and contains the same external circular compact earth or stone deposits.	✓	
15	Large high resistivity deposit	613439.899,895411.295			✓		✓		A large deposit of compact earth or stone which might be archaeological or geological in origin. Measuring 18m N-S & 11m E-W, the location of this anomaly suggests that it might be associated with the archaeological enclosure (anomalies 11-14).	✓	
16	Linear high resistivity anomaly	613437.122,895389.084			✓		✓		Linear 29m long compact earth or stone feature, possibly associated with anomaly 14.	✓	

<b>Survey Methodology:</b>		<b>ER1 Resistivity</b>					<b>Townland:</b>		<b>Drumboe Lower</b>	
<b>ITM Coordinate:</b>		613410,895454					<b>OD height of Survey Area</b>		66 m OD	
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall					<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha	
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey								
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.								
<b>Figure No.:</b>		5 & 6								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
17	Arcing high resistivity anomaly	613443.867,895432.315			✓		✓	Linear compact earth or stone feature, 24m in length, which may be archaeological in origin, possibly associated with the archaeological enclosure (anomalies 11-14).	✓	
18	'U-shaped' low resistivity anomaly	613424.028,895435.29	✓		✓			'U-shaped' possible ditch or cut feature. Measuring 35m in length and partially enclosing an area 12m x 12m, this anomaly could be structural in origin.	✓	
19	Three isolated low resistivity anomalies	613413.91,895417.244, 613393.477,895413.873, 613405.776,895454.327			✓			Three large possible pits located within enclosure (anomalies 11-14). Measuring between 4m & 7m in width these are probably archaeological in origin.	✓	
20	Linear low resistivity anomaly	613405.776,895427.754	✓		✓			Linear ditch or cut feature, 16m in length which runs between anomalies 19 & 22. This feature could be archaeological or agricultural in origin.	✓	
21	Two arcing low resistivity anomalies	613384.259,895430.595, 613405.776,895454.327	✓		✓			Two sections of an oval enclosure ditch. Bounding an area 31m in diameter these anomalies are likely to be archaeological in origin.	✓	
22	Large high resistivity deposit	613395.061,895437.427			✓		✓	Large deposit of compact earth or stone which is located within the centre of anomaly 21. Measuring 21m N-S & 18m E-W this anomaly could be associated with structural remains or near surface geology.	✓	
23	Two curvilinear high resistivity anomalies	613419.862,895441.239, 613434.939,895456.707			✓		✓	Two curvilinear compact earth or stone features, 20m & 23m in length. These anomalies could be archaeological or agricultural in origin.	✓	
24	Curvilinear low resistivity anomaly	613471.442,895418.632	✓		✓			Curvilinear possible ditch or cut feature, 41m in length. This anomaly could be archaeological, agricultural or geological in origin.	✓	
25	Linear high resistivity anomaly	613477.394,895440.247			✓		✓	Linear compact earth or stone feature, 24m in length, which may be archaeological, agricultural or geological in nature.	✓	
26	Linear high resistivity anomaly	613395.061,895437.427			✓		✓	Linear compact earth or stone feature, 10m in length, which may be archaeological, agricultural or geological in origin.	✓	

<b>Survey Methodology:</b>		<b>ER1 Resistivity</b>					<b>Townland:</b>		<b>Drumboe Lower</b>	
<b>ITM Coordinate:</b>		613410,895454					<b>OD height of Survey Area</b>		66 m OD	
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall					<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha	
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey								
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.								
<b>Figure No.:</b>		5 & 6								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
27	Curvilinear high resistivity anomaly	613395.061,895437.427			✓		✓	Curvilinear compact earth or stone feature, 35m in length. This anomaly may represent a relict field boundary.	✓	
28	Curvilinear low resistivity anomaly	613503.391,895497.879	✓		✓			Curvilinear ditch or cut feature, 123m in length. This feature may be archaeological in origin but is more likely to be associated with agriculture.	✓	
29	Arcing high resistivity anomaly	613474.733,895503.828			✓		✓	Arcing compact earth or stone feature, 57m in length, which could be archaeological, agricultural or geological in origin.	✓	
30	Linear high resistivity anomaly	613510.666,895519.474			✓		✓	Linear compact earth or stone feature, 63m in length, which represents a relict field boundary once present on site.	✓	
31	Two linear high resistivity anomaly which cross	613481.787,895534.238, 613486.196,895546.578			✓		✓	Two compact earth or stone features, 30m & 53m in length, which appear to cross each other. These anomalies could represent relict field divisions or be associated with agricultural processes.	✓	
32	'U-shaped' high resistivity anomaly	613486.196,895546.578			✓		✓	'U-shaped' compact earth or stone feature, 33m in length, which could be archaeological or agricultural in origin.	✓	
33	Curvilinear high resistivity anomaly	613525.489,895549.133			✓		✓	Curvilinear compact earth or stone feature, 37m in length, which may surround anomaly 32 and may represent archaeological or agricultural remains.	✓	
34	Area of low resistivity	613525.489,895549.133					✓	Area of disturbed soil which is located in the corner of the field. This anomaly is likely to be agricultural in origin.	✓	
35	Curvilinear high resistivity anomaly	613442.475,895494.592			✓		✓	Curvilinear compact earth or stone feature, 23m in length. This feature could be archaeological, agricultural or geological in origin.	✓	
36	Isolated high resistivity anomaly	613426.603,895506.492			✓		✓	Isolated compact earth or stone feature. This feature could represent a near surface rock, archaeological deposit or agricultural feature.	✓	
37	Linear low resistivity anomaly	613406.322,895515.747	✓		✓			Linear possible ditch or cut feature, 28m in length, likely to be agricultural in origin.	✓	

<b>Survey Methodology:</b>		<b>ER1 Resistivity</b>				<b>Townland:</b>		<b>Drumboe Lower</b>			
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD			
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha			
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.									
<b>Figure No.:</b>		5 & 6									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
38	Right-angled low resistivity anomaly	613400.59,895499.44	✓		✓				Right-angled possible ditch or cut feature, 32m in length. This anomaly could be related to anomaly 37 and is likely to be agricultural in origin.	✓	
39	Five isolated low resistivity anomalies	613397.945,895504.509, 613395.52,895493.711, 613383.616,895518.832, 613380.088,895508.034, 613377.443,895501.644,			✓		✓		Five possible pits which form into two linear alignments. The pits appear to run down the internal edges of anomalies 38 & 40. They could represent archaeological pits, agricultural pits or tree bowls.	✓	
40	Curvilinear high resistivity anomaly	613373.916,895505.61			✓		✓		Curvilinear compact earth or stone feature, 34m in length which appears to bound a portion of anomaly 39. This possible bank is likely to be agricultural in nature.	✓	
41	Linear high resistivity anomaly	613351.871,895527.426			✓		✓		Linear possible bank which may interlink with anomalies 47 & 40. It is likely that this anomaly represents agricultural activity.	✓	
42	Curvilinear low resistivity anomaly	613434.319,895531.833	✓		✓				Curvilinear ditch or cut feature, 33m in length which may be archaeological or agricultural in origin.	✓	
43	Linear low resistivity anomaly	613419.989,895540.207	✓		✓				Linear ditch or cut feature, measuring 114m in length. This anomaly represents a relict field boundary, a continuation of anomaly 30.	✓	
44	Right-angled low resistivity anomaly	613408.085,895554.09	✓		✓				Right-angled ditch or cut feature which is dissected by anomaly 43. Measuring 62m in length this anomaly could represent a relict field division.	✓	
45	Two interconnecting low resistivity anomalies	613367.523,895555.632, 613364.216,895575.464	✓		✓				Two interconnecting ditch or cut features which are likely to be agricultural in origin. Measuring 27m and 36m in length these features may be associated with anomaly 44.	✓	
46	Area of high resistivity	613377.443,895564.887			✓		✓		Compact earth or stone deposit which could represent archaeological, agricultural or geological activity. The deposit measures 20m N-S & 14m E-W.	✓	
47	Linear high resistivity anomaly	613406.542,895620.197			✓		✓		Linear earth or stone feature, 127m in length, which is likely to represent a relict field boundary.	✓	

<b>Survey Methodology:</b>		<b>ER1 Resistivity</b>				<b>Townland:</b>		<b>Drumboe Lower</b>			
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD			
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha			
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.									
<b>Figure No.:</b>		5 & 6									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
48	Curvilinear high resistivity anomaly	613449.113,895551.766			✓		✓		Curvilinear earth or stone feature, 35m in length, which abuts anomaly 49 and may be archaeological or agricultural in origin.	✓	
49	Oval low resistivity anomaly	613444.042,895588.786			✓		✓		Oval possible enclosure ditch, measuring 64m N-S & 38m E-W. The southern edge of this feature overlaps the northern edge of a feature detected in the LiDAR data taken across the site. Although no direct correlation exists between the geophysical results and the LiDAR anomalies it is possible that they are related	✓	
50	Area of high resistivity	613420.895,895585.481			✓		✓		Deposit of compacted earth or stone which may be archaeological or geological in origin. This feature measures 24m N-S & 20m E-W and is dissected by a modern field boundary.	✓	
51	Curvilinear high resistivity anomaly	613413.62,895573.802			✓		✓		Linear earth or stone feature, 12m in length, which is likely to be associated with anomaly 50 and may be archaeological in origin.	✓	
52	Isolated high resistivity anomaly	613429.493,895594.736			✓		✓		Possible stone capped pit, stone deposit or near surface geology.	✓	
53	Linear low resistivity anomaly	613429.272,895614.568	✓		✓				Linear ditch or cut feature, 23m in length, which runs into anomaly 49. This feature may represent an archaeological ditch associated with the possible enclosure.	✓	
54	Linear low resistivity anomaly	613394.221,895610.822					✓		Linear ditch, 32m in length, which corresponds to a portion of a relict field boundary which was once present on site.	✓	
55	Linear high resistivity anomaly	613392.898,895626.027			✓		✓		Linear earth or stone feature, 24m in length, which extends from field boundary 54 and therefore is likely to be related.	✓	
56	A series of linear high resistivity anomalies	613407.668,895654.013			✓		✓		A series of small linear compacted earth or stone features which are located on the edge of the survey area. Measuring c. 19m in length these are likely to be agricultural in origin, possibly associated with land drains.	✓	

<b>Survey Methodology:</b>		<b>ER1 Resistivity</b>					<b>Townland:</b>		<b>Drumboe Lower</b>		
<b>ITM Coordinate:</b>		613410,895454					<b>OD height of Survey Area</b>		66 m OD		
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall					<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha		
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.									
<b>Figure No.:</b>		5 & 6									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
57	'U-shaped' high resistivity anomaly	613434.122,895630.434			✓		✓	'U-shaped' compacted earth or stone feature, 16m N-S & 13m E-W, which may be archaeological in origin, possibly associated with enclosure (anomaly 49).	✓		
58	'U-shaped' high resistivity anomaly	613445.806,895624.705			✓		✓	'U-shaped' compacted earth or stone feature, 4m N-S & 8m E-W, which may be archaeological in origin, possibly associated with anomaly 57 and enclosure (anomaly 49).	✓		
59	Area of high resistivity	613480.416,895594.075					✓	✓	Compact earth or stone deposit which could represent archaeological, agricultural or geological activity. The deposit measures 20m N-S & 19m E-W and is located adjacent to the field boundary.	✓	
60	Linear high resistivity anomaly	613462.119,895644.537			✓		✓		Linear earth or stone feature, 80m in length, which may represent a relict field division.	✓	
61	Linear low resistivity anomaly	613486.589,895674.506	✓		✓				Linear ditch or cut feature, 52m in length, which may represent a relict field division.	✓	
62	Area of low resistivity	613439.854,895695.881						✓	Area of disturbed soil which is located in the corner of the field. This anomaly is likely to be agricultural or geological in origin.	✓	
63	Area of low resistivity	613502.02,895681.117						✓	Area of disturbed soil which is located in the corner of the field. This anomaly is likely to be agricultural or geological in origin.	✓	
64	Area of low resistivity	613523.404,895678.913						✓	Area of disturbed soil which is likely to be agricultural, archaeological or geological in origin.	✓	
65	Linear low resistivity anomaly	613568.375,895667.895	✓		✓				Linear ditch or cut feature, 72m in length, which may represent a relict field division.	✓	
66	Right-angled high resistivity anomaly	613585.79,895642.554			✓		✓		Right-angled compacted earth or stone feature, 37m in length, which may represent a relict field division.	✓	

<b>Survey Methodology:</b>		<b>ER1 Resistivity</b>				<b>Townland:</b>		<b>Drumboe Lower</b>		
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD		
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha		
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey								
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.								
<b>Figure No.:</b>		5 & 6								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
67	Linear high resistivity anomaly	613556.912,895641.893			✓		✓	Linear earth or stone feature, 45m in length, which may represent a relict field division.	✓	
68	Linear high resistivity anomaly	613534.867,895632.638			✓		✓	Linear compacted earth or stone feature. Measuring 60m in length this anomaly may represent a relict field division.	✓	
69	Right-angled high resistivity anomaly	613524.947,895632.858			✓		✓	Right-angled compacted earth or stone feature, 77m in length, which may be agricultural or archaeological in origin.	✓	
70	Curvilinear high resistivity anomaly	613521.419,895624.044			✓		✓	Curvilinear compacted earth or stone feature, 24m in length, which appears to respect anomaly 69 and is possibly related. Possibly archaeological or agricultural.	✓	
71	Arcing high resistivity anomaly	613518.774,895614.789			✓		✓	Arcing compacted earth or stone feature, 23m in length and enclosing an area 15m in diameter. This anomaly could be archaeological or geological in origin.	✓	
72	Area of low resistivity	613571.241,895641.011					✓	Area of disturbed soil which is likely to be agricultural, archaeological or geological in origin.	✓	
73	Curvilinear low resistivity anomaly	613586.892,895624.485	✓		✓			Linear ditch or cut feature, 33m in length, which may be archaeological or agricultural in nature.	✓	
74	Curvilinear low resistivity anomaly	613586.892,895624.485	✓		✓			Linear ditch or cut feature, 47m in length, which may be archaeological or agricultural in origin.	✓	
	Parallel trends	Multiple locations					✓	Evidence for cultivation furrows were detected across the southern half of the survey area.		

<b>Survey Methodology:</b>		<b>ER1 Magnetometer</b>					<b>Townland:</b>		<b>Drumboe Lower</b>		
<b>ITM Coordinate:</b>		613410,895454					<b>OD height of Survey Area</b>		66 m OD		
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall					<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha		
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.									
<b>Figure No.:</b>		7 & 8									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
75	Isolated magnetic anomaly	613315.51,895473.402			✓		✓		Isolated possible pit. This anomaly could be archaeological, agricultural or geological in origin.	✓	
76	Two parallel magnetic anomalies	613343.058,895424.152, 613342.14,895420.787			✓		✓		Two parallel possible ditches, 11m & 15m in length, which are located in a zone of geological interference. These anomalies could be archaeological or geological.	✓	
77	Arcing highly magnetic anomaly	613360.812,895405.798	✓		✓		✓		Arcing area of high magnetism. Measuring 18m in length this anomaly could relate to a burnt archaeological ditch or geological activity.	✓	
78	Arcing magnetic anomaly	613359.974,895419.89							Arcing weakly magnetic ditch, 55m in length, which appears to terminate to the south in a possible pit. The location of this termination matches a break in the enclosure detected in the resistivity data (anomalies 11 & 12), suggesting that the two are related. It is likely that anomaly 78 represents an outer ditch which surrounds the enclosure detected in the resistivity and radar. The magnetometer anomaly would surround all this, forming an enclosure 107m in width. Anomaly 78 is likely to continue in anomalies 79 & 80.	✓	
79	Arcing magnetic anomaly	613396.626,895393.504			✓				Arcing weakly magnetic ditch, 40m in length which represents an extension to anomaly 78.	✓	
80	Arcing magnetic anomaly	613441.043,895395.367			✓				Arcing weakly magnetic ditch, 23m in length. This anomaly is likely to represent the same ditch as anomaly 79, but geological interference has meant that the anomaly is broken in the geophysical data.	✓	
81	Linear magnetic anomaly	613441.664,895382.95	✓		✓				Linear possible ditch, measuring 11m. This anomaly could relate to archaeological or geology.	✓	
82	Five isolated magnetic anomalies	Multiple locations			✓				Five possible pits which are located on the inside of anomaly 80. These anomalies could be archaeological or agricultural in origin and may be associated with magnetometer anomaly 14.	✓	

<b>Survey Methodology:</b>		<b>ER1 Magnetometer</b>					<b>Townland:</b>		<b>Drumboe Lower</b>			
<b>ITM Coordinate:</b>		613410,895454					<b>OD height of Survey Area</b>		66 m OD			
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall					<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha			
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey										
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.										
<b>Figure No.:</b>		7 & 8										
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment		Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils	Interference / Modern			Test Excavation	Geophysical Survey
83	Sub-rectangular highly magnetic anomaly	613435.141,895419.209		✓					Sub-rectangular anomaly which comprises probable burnt remains. This could relate to a structure or internal division, 24m N-S & 20m E-W.	✓		
84	Linear magnetic anomaly	613377.827,895416.652	✓		✓				Linear possible ditch, measuring 16m in length.	✓		
85	Curvilinear magnetic anomaly	613359.704,895443.603	✓		✓				Curvilinear possible ditch, measuring 17m, which is likely to be related to the enclosure previously identified.	✓		
86	'U-shaped' magnetic anomaly	613371.354,895434.548	✓		✓				'U-shaped' possible ditch which is likely to represent an internal division within the previously identified enclosure. 25m NW-SE & 16m NE-SW.	✓		
87	Series of highly magnetic anomalies	613390.556,895455.247		✓					Series of features which suggest burnt material. These form possible structural remains, 16m x 13m.	✓		
88	Two arcing magnetic anomalies	613412.994,895460.206, 613419.898,895439.291	✓		✓				Two arcing possible ditches, which may form an oval division measuring 26m N-S & 19m E-W.	✓		
89	Two parallel magnetic anomalies	613430.038,895451.366, 613439.531,895453.953	✓		✓				Two parallel possible ditches or cut features, 16m & 28m which may be archaeological or agricultural in origin.	✓		
90	Series of isolated magnetic anomalies	Multiple locations			✓		✓		Series of possible pits which may be associated with anomaly 88. These features could relate to archaeological or agricultural pits, or geological activity.	✓		
91	Curvilinear magnetic anomaly	613352.799,895476.161	✓		✓				Curvilinear possible ditch, measuring 21m in length.	✓		
92	Curvilinear magnetic anomaly	613361.645,895471.633	✓		✓				Curvilinear possible ditch, measuring 20m in length.	✓		
93	'U-shaped' magnetic anomaly	613478.151,895433.254			✓				U-shaped' zone of magnetic material. This could relate to burnt material or geological activity; however it does appear to have archaeological characteristics. Measuring 28m N-S & 9m E-W this anomaly could relate to structural remains.	✓		

<b>Survey Methodology:</b>		<b>ER1 Magnetometer</b>					<b>Townland:</b>		<b>Drumboe Lower</b>		
<b>ITM Coordinate:</b>		613410,895454					<b>OD height of Survey Area</b>		66 m OD		
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall					<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha		
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.									
<b>Figure No.:</b>		7 & 8									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment		Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils	Interference / Modern		Test Excavation	Geophysical Survey
94	Isolated magnetic anomaly	613498.216,895412.771			✓				Possible pit located near to southern edge of anomaly 93. This possible pit could be archaeological in origin.	✓	
95	Curvilinear magnetic anomaly	613505.12,895428.51	✓		✓		✓		Curvilinear possible ditch, which has similar magnetic properties to anomaly 93. The feature measures 10m in length and could be archaeological, agricultural or geological.	✓	
96	Two arcing magnetic anomalies	613490.903,895480.829, 613499.749,895504.331	✓		✓				Two arcing possible ditch or cut features which may form an oval enclosure, 28m N-S & 25m E-W.	✓	
97	Curvilinear magnetic anomaly	613487.451,895515.759	✓		✓				Curvilinear possible ditch or cut feature, 29m in length which may relate to archaeological, agricultural or geological activity.	✓	
98	Curvilinear magnetic anomaly	613429.198,895493.119	✓		✓				Curvilinear possible ditch or cut feature, 25m in length, possibly archaeological, agricultural or geological.	✓	
99	Curvilinear magnetic anomaly	613422.942,895512.956	✓		✓				Curvilinear possible ditch or cut feature, 43m in length, which may relate to archaeological or agricultural activity.	✓	
100	'U-shaped' magnetic anomaly	613373.535,895519.209	✓		✓				'U-shaped' possible ditch or cut feature, 29m in length, which may relate to archaeological, agricultural or geological activity.	✓	
101	Three curvilinear highly magnetic anomalies	613394.463,895551.12, 613405.25,895553.061, 613407.192,895564.273	✓		✓		✓		Three curvilinear highly magnetic features which are located on the edge of a zone of geological interference. The composition of the anomalies suggests that they could be archaeological or geological in origin.	✓	
102	Linear magnetic anomaly	613425.099,895566.86	✓		✓		✓		Linear possible ditch or cut feature, 20m in length, which may relate to archaeological or geological activity.	✓	
103	Linear magnetic anomaly	613439.804,895584.915	✓		✓		✓		Linear possible ditch or cut feature, 37m in length, which may relate to archaeological or geological activity.	✓	
104	Right-angled magnetic anomaly	613455.338,895601.948	✓		✓		✓		Right-angled possible ditch or cut feature, 55m in length, which may relate to archaeological, geological or agricultural activity.	✓	

<b>Survey Methodology:</b>		<b>ER1 Magnetometer</b>				<b>Townland:</b>		<b>Drumboe Lower</b>			
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD			
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		25/05/20 - 11/06/20 6.8 Ha			
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the survey area.									
<b>Figure No.:</b>		7 & 8									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
105	Linear magnetic anomaly	613418.66,895613.592	✓		✓		✓		Linear possible ditch or cut feature, 36m in length. This anomaly may interlink with anomaly 104, possibly forming a relict field boundary.	✓	
106	Oval magnetic anomaly	613454.259,895637.956	✓		✓				Oval possible enclosure ditch, 41m N-S & 32m E-W. This anomaly may contain a possible entranceway to the west, possibly bounded by a post pit.	✓	
107	Linear magnetic anomaly	613445.197,895634.291	✓		✓				Linear possible ditch or cut feature, 14m in length, which may represent an internal division within the enclosure (anomaly 106).	✓	
108	Multiple isolated magnetic anomalies	Multiple locations			✓				Six possible pits which are located within enclosure anomaly 106. It should however be noted that a zone of geological interference was detected to the south and these features may represent geological outliers.	✓	
109	Highly magnetic trend	613462.026,895617.257			✓		✓		Highly magnetic trend which crosses the northern half of the survey area. Although this feature is strongly magnetic it relates to geological activity and has no archaeological significance.	✓	
	Weakly magnetic trends	Multiple locations			✓		✓		These trends are weakly magnetic and could relate to archaeological, agricultural or geological processes.	✓	
	Areas of high magnetic contrast	Multiple locations					✓		These areas relate to geological formations. The survey area was undertaken over bedrock which contains highly magnetic igneous components. While the general background of the survey is more magnetic than on other geologies, it is within these highly magnetic zones that the full geological impact can be seen within the data. Any small archaeological features within these zones may not be detected within the magnetometer data; however the other techniques used on site are not affected by the geological situation.		
	Parallel trends	Multiple locations					✓		Evidence for cultivation furrows were detected across the survey area.		

<b>Survey Methodology:</b>		<b>ER1 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Drumboe Lower</b>			
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD			
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		15/06/20 - 26/06/20 2.75 Ha			
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.									
<b>Figure No.:</b>		9, 10, 11, 12 & ,13									
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110	Shallow depth - area of high amplitude responses	613418.321,895661.422					✓	✓	Area of soil disturbance located on the northern edge of the survey area. Measuring c. 49m N-S & 22m E-W this anomaly is most likely related to agricultural processes.		
111	Shallow depth – multiple linear responses	Multiple locations						✓	A number of parallel ditches or drains were detected in the northwestern corner of the survey area. Max 27m in length the majority of these anomalies run in two directions and their location coincides with anomaly 110 suggesting that they are agricultural in origin.		
112	Shallow depth – multiple isolated responses	Multiple locations			✓			✓	Series of isolated possible pits or small areas of disturbed ground detected throughout the northern field. These may be related to archaeology, agricultural processes or the removal of large geological boulders.	✓	
113	Shallow depth – two linear responses	613457.321,895625.274 613481.730,895649.521	✓						Two parallel possible ditches running in NW-SE direction. These anomalies are likely to be agricultural in origin.	✓	
114	Shallow depth – multiple linear and curvilinear anomalies	Multiple locations	✓		✓				Three curvilinear possible cut features, up to 23m in length, were detected in the centre of the northern field. These three features may be archaeological or geological in origin. Three parallel possible ditches overcut this area. These anomalies are likely to relate to field drainage or plough furrows.	✓	
115	Shallow depth - curvilinear and linear responses	Multiple locations	✓		✓				A curvilinear possible ditch (c. 11m wide), enclosing four linear possible cut features near to the eastern field wall. These anomalies may be related to resistivity anomaly 59 and may be archaeological in nature.	✓	
116	Shallow depth - isolated response	613444.098,895561.895			✓			✓	A large possible pit or area of disturbance, 1.5m x 4.5m in size. This anomaly is similar to anomaly 112 and may relate to archaeological remains or the removal of large geological boulders.	✓	

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<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		15/06/20 - 26/06/20 2.75 Ha		
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117	Shallow depth – multiple curvilinear anomalies	Multiple locations	✓		✓		✓	Series of curvilinear possible ditch or cut features, forming a possible oval division 23m in width and associated outliers. Could be archaeological or geological.	✓	
118	Shallow depth – three parallel linear responses	Multiple locations	✓		✓		✓	Three parallel possible ditches or cultivation furrows. These anomalies are likely to be agricultural in origin.	✓	
119	Shallow depth - linear anomaly	613400.526,895530.683			✓			Linear compact earth, wall or bank, 108m in length, which is likely to represent a former field boundary division.	✓	
120	Shallow depth - linear anomaly	613430.097,895515.712			✓		✓	A possible ditch or plough furrow running parallel to anomaly 118 & 119.	✓	
121	Shallow depth - amorphous anomaly	613474.080,895573.546					✓	A compacted earth or stone surface which is located inside the access gate to the field and is related to the modern farm track leading into the field		
122	Shallow depth - two linear anomalies	613356.184,895479.324 613349.876,895463.787	✓		✓			Two possible ditches which intersect or cross at an almost perpendicular angle, c. 25m and 17.5m in length. These anomalies may be agricultural or archaeological in origin and may be related to anomaly 123.	✓	
123	Shallow depth - one arcing and two linear anomalies	613362.655,895471.323 613355.992,895469.794	✓		✓			Two linear ditches which may form one perpendicular feature, enclosed by an arcing possible ditch or cut feature (c. 16.5m diam.). These features may be archaeological in origin and may be associated with a number of possible pits which were detected within the vicinity. A number of these possible pits may be located along or near the enclosure ditch.	✓	
124	Shallow depth – two linear anomalies	613363.938,895456.389 613356.894,895421.164	✓		✓			Two linear ditches which are likely to form one continuous feature. Measuring 68m in total length this anomaly is likely to represent a former field division which is likely to be related to anomaly 128.	✓	

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125	Shallow depth - one linear anomaly	613341.166,895429.280	✓		✓				A possible ditch or cultivation furrow, c. 13m in length.	✓	
126	Shallow depth - curvilinear anomaly	613400.609,895467.009	✓		✓				An arcing possible ditched feature, measuring c. 14.2m in length. This anomaly could be archaeological, agricultural or be associated with natural soil structure.	✓	
127	Shallow depth - multiple isolated responses	Multiple locations			✓		✓		Numerous shallow possible pits or areas of soil disturbance, located throughout the southern field. Measuring between 0.3m and 3.8m in length these anomalies could relate to agricultural or archaeological remains or the removal of large geological boulders.	✓	
128	Shallow depth - linear anomaly	613421.284,895456.595	✓		✓				Linear possible ditch, c. 52.5m in length, which is likely to relate to a former field division. Anomaly 128 runs on the same orientation as ditch 124.	✓	
129	Shallow depth – arcing anomaly	613410.748,895443.202			✓		✓		A broad arcing feature or area of disturbed ground, measuring c. 11.3m E-W and 7.5m N-S. This anomaly could be archaeological, agricultural or geological in origin.	✓	
130	Shallow depth – sub-circular anomaly	613424.462,895447.651			✓		✓		A sub-circular feature or area of disturbed ground, c. 5.5m in diameter which may relate to anomaly 129.	✓	
131	Shallow depth – multiple interconnecting anomalies	613430.803,895462.175	✓		✓		✓		A series of interconnecting curvilinear ditches or cut features which may be agricultural, archaeological or geological in nature.	✓	
132	Shallow depth – linear anomaly	613436.636,895446.579	✓		✓				Linear possible ditch, c.17.1m in length which runs perpendicular to anomaly 128 and is likely to be associated with the former field division.	✓	
133	Shallow depth – curvilinear anomaly	613428.541,895406.817	✓		✓				Curvilinear possible ditch, c. 19.8m in length, located in the southeastern section of the survey area. This anomaly could be related to 128 & 132 and may represent agricultural or archaeological remains.	✓	

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134	Shallow depth – two linear anomalies	613406.595,895400.595 613381.992,895407.340	✓	✓				Two perpendicular interconnecting possible ditches, c. 55.2m (E-W) and 19.5m (N-S) in length. The orientation of these anomalies matches that of the adjacent field boundary indicating that anomaly 134 probably relates to a relict field boundary.	✓	
135	Shallow depth – isolated oval anomaly	613379.285,895440.865					✓	Oval area of disturbance ground which is located within the vicinity of an ESB pole. It is likely that this anomaly relates to the placement of the pole.		
136	Medium depth – multiple interconnecting linear and curvilinear high amplitude anomalies	Multiple locations		✓			✓	A series of interconnecting and linear hard or compact features which were detected in the northwestern corner of the field. Measuring between 37m and 5m in the length, these could represent field drains, agricultural divisions or archaeological features. These anomalies are possibly associated with anomalies 137 & 139 and are overcut by liner land drains which traverse the northern part of the survey area.	✓	
137	Medium depth – 'Y-shaped' high amplitude anomaly with interconnecting features	613428.943,895635.539	✓	✓			✓	'Y-shaped' hard or compact feature, covering an area of 23m in width, which may be archaeological or agricultural in origin. The feature appears to connect with a number of linear hard or compact features and two possible ditches to the south and west.	✓	
138	Medium depth – isolated anomaly	613479.825,895661.881		✓			✓	An isolated possible pit or soil disturbance, measuring c. 1.2m x 1.6m.	✓	
139	Medium depth – arcing high amplitude anomaly enclosing multiple linears	613409.587,895651.167	✓				✓	An arcing hard or compact feature, 36m in length which appears to enclose land on the edge of the survey area. This feature may represent archaeological remains and appears to enclose a series of parallel possible ditches, running in NW-SE direction.	✓	
140	Medium depth – multiple parallel linear anomalies	Multiple locations	✓	✓			✓	Series of linear interconnecting ditches which divide the southern edge of the northern field. Orientated NW-SE and with a maximum length of 55m these are likely to be associated with relict field divisions.	✓	

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141	Medium depth – three curvilinear anomalies	Multiple locations	✓	✓				A series of possible ditches in the eastern half of the northern field. The majority of these are contained within a large arcing ditch, 45m in length and potentially enclosing an area 29m in diameter. This feature could represent an archaeological enclosure with a number of possible internal divisions detected. One c. 31m wide curving feature encloses two smaller curving possible ditches which cross each other at the centre. Two linear possible ditches are located to the south. These anomalies are possible archaeology or of agricultural origin.	✓	
142	Medium depth – two linear anomalies	613443.641,895616.221 613468.486,895605.668	✓	✓			✓	Two linear possible ditches of probable agricultural origin. One contains a right-angled turn and is 32m in length. The other is linear, measures 26m in length and runs parallel to the modern field boundaries.	✓	
143	Medium depth – four isolated anomalies	Multiple locations		✓			✓	Four small possible pits or areas of soil disturbance, maximum length of 1.4m. These could be archaeological or agricultural in origin.	✓	
144	Medium depth – amorphous area	613364.652,895585.176		✓			✓	An area of soil disturbance, measuring c. 10m x 7.5m in diameter. This anomaly could be archaeological, agricultural or geological in origin.	✓	
145	Medium depth – curvilinear and linear anomalies	613390.604,895575.176 613383.938,895581.724 613387.152,895574.700 613395.842,895569.343	✓	✓				Two curvilinear possible ditched features forming a sub-oval shape (c. 17.7 x 7.6m diam.) with a gap at the northern and southern sides. Two linear ditched features are located between the curving ditches. These features could represent an archaeological enclosure with internal divisions 17m in length.	✓	
146	Medium depth – oval anomaly	613385.566,895570.396		✓			✓	Oval possible pit or area of soil disturbance, measuring c. 3m in diameter. This is located on the southwestern edge of ditched feature 145 indicating that it might be archaeological in origin.	✓	

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147	Medium depth – curvilinear and linear anomalies	613410.566,895564.762	✓		✓			Curvilinear possible ditched feature, measuring c. 26.5m in length. It is possible that this anomaly represents a continuation of anomaly 149 forming an archaeological enclosure. The linear feature to the east may represent a division within this possible enclosure.	✓	
148	Medium depth – Two isolated responses	613443.641,895616.221 613411.409,895559.927			✓		✓	Two possible pits which are located within the confines of anomalies 147 & 149. Measuring a maximum diameter of 1.4m these pits could be archaeological in origin.	✓	
149	Medium depth – large arcing and oval anomalies	613442.471,895556.352 613428.746,895535.957			✓			A large arcing area of disturbed ground, measuring c. 30.7m N-S and up to 6m wide. This feature is most likely associated with a cut feature and may contain pits on its outer edge. It is likely that this represents an archaeological enclosure ditch which probably extends into anomaly 147. To the south an oval area of disturbed ground was detected, measuring c. 15.6m x 6.8m. This feature is likely to be archaeological in origin.	✓	
150	Medium depth – multiple interconnecting linears	Multiple locations	✓		✓		✓	A series of interconnecting linear possible ditches, up to 17m in length, which are located to the east of anomaly 149 and may be archaeological or agricultural in origin.	✓	
151	Medium depth – multiple curvilinear and linear anomalies	Multiple locations	✓		✓			A series of linear and curvilinear possible ditches in the southern section of the central field. The two longest ditches measure 46m and 43m in length. The majority of these anomalies are likely to be agricultural in origin, however the northern arcing feature, 12m in diameter may represent an archaeological ditch.	✓	
152	Medium depth – isolated responses	Multiple locations			✓		✓	Four possible pits which are located on the southern edge of the middle field. Measuring a maximum of 2.9m in length these pits could be archaeological or agricultural in origin and there is also a possibility that they may be associated with burials.	✓	

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153	Medium depth – zone of isolated reflections	613363.307,895473.925			✓		✓	Located in the northwest corner of the southern field a zone of isolated reflections was detected. Within this zone 15 clear features can be identified, ranging in size from 0.80m – 1.5m in width and could represent pits or burials (either the full burial cut or for the smaller anomalies reflections from cranium remains within the cut). It must be noted however, that a large number of other isolated features were detected within this zone. These were not distinctive enough to attribute as a definitive feature but could still represent remains associated with burial or archaeological deposits.	✓	
154	Medium depth – 'U-shaped' high amplitude anomaly	613345.688,895473.091			✓			Located between anomalies 153 & 155 a 'U-shaped' zone of very high reflections was detected. Measuring 1.8m E-W and 1.2m N-S, this anomaly appears to comprise of a 'U-shaped' stone or compact surface feature with a possible opening to the west. This feature is likely to be archaeological in origin and could possibly be associated with a kiln.	✓	
155	Medium depth – rectangular anomaly	613344.260,895471.306		✓				A rectangular probable structure was detected on the western edge of the southern field. Measuring 7.3m NW-SE and 6.4m SW-NE, a number of possible internal divisions were detected as well as possible extensions to the SW and NW. It is likely that this structure is associated with anomaly 154 and may be associated with resistivity data anomaly 9 and have been masked by the geological interference in the magnetometer data.	✓	
156	Medium depth – two linear anomalies	613356.879,895469.044 613352.593,895472.853	✓		✓			Two linear possible ditches, 13m & 21m in length. Although these features appear to cut across anomaly 153 and the pit / burial features within it, it is likely that these ditches represent a non-contemporary phase of archaeological activity.	✓	

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157	Medium depth – numerous isolated anomalies	Multiple locations			✓		✓	Seventeen possible pits or burials were detected to the south of zone 153. The size and shape of the anomalies is very similar to those contained within 153 and it is possible that they represent similar archaeological features. The anomalies within 157 appear to be isolated and are located on undulating land but are within close proximity to a large archaeological enclosure.	✓	
158	Medium depth – Large oval anomaly	613379.524,895422.631		✓				Oval archaeological enclosure ditch. Measuring 57 m N-S & c.75m E-W this ditch represents the outer enclosure of a potential monastic site. Contained within 158 are two further possible defensive elements (161 & 162). It is also interesting to note that anomaly 158 does not match magnetometer anomalies 78, 79 & 80. These follow the same alignment as 158, but are located 20m south and west. It is likely that anomaly 158 represent an enclosure which is surrounded by further defensive features. There is partial alignment between 158 and resistivity anomaly 11, indicating that there may have been reworking of the ditches on the site. Anomaly 158 is abutted by two external features (159 & 160) and may also be related to 164. It contains a number of possible pits on its southern and southwestern extents.	✓	
159	Medium depth – two linear anomalies	613368.668,895435.330 613370.166,895433.248	✓	✓				Two parallel ditches which form a possible entranceway or boundary which dissects anomaly 158. Measuring 7m in length and with a spacing of 2.7m these anomalies coincide with an apparent break in enclosure ditch 158, meaning that they are probably contemporary.	✓	

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160	Medium depth – linear and curvilinear anomalies	613398.915,895471.730 613391.572,895465.716						A linear and curvilinear ditch, which extend from the northern extent of anomaly 158. Measuring 13m & 8m in length these anomalies may represent contemporary boundaries or later agricultural boundaries. A small section of possible ditch or cut feature extends from the curvilinear anomaly, 6m in length, which may be associated with anomaly 153. Surrounding anomaly 160 a number of possible pits or burials were detected which have similar characteristics to those have found in anomaly 153.	✓	
161	Medium depth – curvilinear anomaly detected in two sections	613390.869,895422.240 613377.508,895450.046		✓				Internal enclosure ditch which is located c.3.6m inside anomaly 158. The ditch was detected in two sections and encloses an area 48m in width. Two possible pits can be seen within or close to the southern section of the ditch. It is likely that the ditch totally encompasses the enclosure but could not be totally detected in the geophysical survey. The exception to this is a possible entranceway associated with anomalies 164 and potentially 165 which could explain the southern termination of the detected ditch.	✓	
162	Medium depth – two curvilinear anomalies	613399.897,895464.973 613375.823,895450.528	✓	✓				Two curvilinear anomalies which were detected on the inside of anomaly 158. These features may represent a ditch or bank or may be associated with boundary ditches 158 or 161.	✓	
163	Medium depth – right-angled and isolated anomalies	Multiple locations	✓	✓		✓		Right-angled possible ditch or cut feature, 7m in length which may be archaeological in origin, probably associated with enclosure 158 / 161. To the north of this three possible pits were detected which are likely to represent archaeological activity.	✓	
164	Medium depth – two parallel linear anomalies	613408.644,895426.984 613404.742,895429.064	✓	✓				Two linear parallel ditches which were detected running from the southern extent of anomalies 158 & 161. These parallel ditches may correspond to an entranceway or major division within the enclosure. A number of sub-divisions lead from 164 and it may be associated with anomaly 165.		

<b>Survey Methodology:</b>		<b>ER1 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Drumboe Lower</b>			
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD			
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		15/06/20 - 26/06/20 2.75 Ha			
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.									
<b>Figure No.:</b>		9, 10, 11, 12 & ,13									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
165	Medium depth – two isolated anomalies	613404.997,895422.344 613403.329,895423.573	✓		✓		✓		Two possible pits which may be associated with anomaly 164. With a separation of 2m one of these pits appears to be located on the alignment of 164 and could either be a separate feature or a pit within the ditch.	✓	
166	Medium depth – arcing and linear anomalies	613388.09,895435.306	✓		✓				A number of interconnecting linear ditches or cut features were detected on the western extent of enclosure 158 / 161. These appear to represent internal subdivision and may relate to habitation remains. The majority of these appear to be contained within an arcing division measuring 20.7m N_S and 15m E-W. This arcing division leads into anomaly 164 and contains a number of possible pits or burials measuring between 1.3m & 3.3m in length. Anomaly 166 coincides with an area of compact earth (22) detected in the resistivity data and could be associated with magnetometer anomaly 87.	✓	
167	Medium depth – interconnecting right-angled anomalies	613403.181,895443.239	✓		✓				A series of interconnecting right-angled ditches or cut features which were detected to the east of anomaly 166. Covering an area 7m N-S and 5m E-W these could relate to habitation remains.	✓	
168	Medium depth – interconnecting linear anomalies	613410.466,895450.001	✓		✓				A series of sub-rectangular subdivisions which were detected to the north and east of anomaly 167. These features appear to be similar in formation to anomaly 166, apart from the fact that they appear to be surrounded by a rectangular enclosing element. The two subdivisions to the north measure 9m N-S and 6m E-W, while a potential third subdivision can be seen to the west.	✓	
169	Medium depth – two oval anomalies and	613421.394,895459.104	✓		✓				Two oval ditches, measuring 11m x 7m and 5m x 4m, both features have breaks within their ditches which might relate to entranceways. It is likely that these anomalies relate to archaeological activity, however the location of the large anomalies would likely place it over cutting enclosure ditch 161, suggesting that the two are not contemporary.	✓	

<b>Survey Methodology:</b>		<b>ER1 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Drumboe Lower</b>		
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD		
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		15/06/20 - 26/06/20 2.75 Ha		
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey								
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.								
<b>Figure No.:</b>		9, 10, 11, 12 & ,13								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
170	Medium depth – series of linear and curvilinear anomalies	Multiple locations	✓	✓				Series of possible ditches or cut features which are located near to the northeastern corner of the southern field. Measuring between 27m & 10m in length the location and origination of these anomalies indicate that they are not contemporary with the enclosure (anomalies 158 & 161). They therefore may relate to archaeological or agricultural processes.	✓	
171	Medium depth – four isolated responses	Multiple locations		✓		✓		Four possible pits or burials which are located on the northern internal edge of enclosure ditch 161. Measuring between 3.5 & 1.9m in length these features could be associated with anomalies 166, 168 or magnetometer anomaly 87.	✓	
172	Medium depth – four isolated responses	Multiple locations		✓		✓		Four possible pits or burials which are located around or between anomalies 168 and 173. Measuring between 3.1m & 1.4m in length these anomalies could relate to pits or burials.	✓	
173	Medium depth – rectangular anomaly with two isolated responses	613430.11,895421.652		✓				Rectangular structure, 6.6m N-S & 9.2m E-W. This structure appears to contain a number of stone deposits within its boundary and these are especially noticeable on the western façade, bounding a possible entranceway. A possible pit found within the vicinity may also be associated with the possible entranceway. A larger pit, 1.7m N-S & 1.4m E-W was detected close to the centre of the eastern edge of the structure. This could be associated with structural remains or potentially burials.	✓	
174	Medium depth – three parallel linear anomalies	613429.296,895428.812 613430.647,895428.474 613429.381,895416.831	✓	✓				Three parallel ditches which are located on either side of structure 173. Measuring between 5m & 6m in length two of these anomalies form a double ditch with a separation of 1.3m. These ditches may be associated with the adjacent structure.	✓	

<b>Survey Methodology:</b>		<b>ER1 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Drumboe Lower</b>			
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD			
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		15/06/20 - 26/06/20 2.75 Ha			
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey									
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.									
<b>Figure No.:</b>		9, 10, 11, 12 & ,13									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
175	Medium depth – zone of isolated responses	613437.785,895424.903			✓		✓		This anomaly is similar to anomaly 153 and represents a zone of isolated reflections, 11m N-S & 13m E-W. The majority of these are not distinctive enough to attribute as a definitive feature but could still represent remains associated with archaeological deposits such as burials. Four distinct pits or burials features were detected within the zone, maximum 1.2m in width and these could represent either the full burial cut or smaller reflections from cranium remains with the burial.	✓	
176	Medium depth – curvilinear anomaly	613440.777,895431.145	✓		✓				Curvilinear possible ditch or cut feature, 9m in length, which is located on the northern edge of anomaly 175 and therefore possibly related to archaeological remains.	✓	
177	Medium depth – Linear anomaly	613385.748,895430.235	✓		✓				Linear possible ditch or cut feature, 23m in length. This feature appears to overcut enclosure 158 / 161 and therefore is probably associated with a later agricultural boundary.	✓	
178	Deep depth – two parallel linear anomalies	613460.153,895661.252	✓		✓		✓		Two parallel possible ditches or cut features, 8m & 11m in length which could be associated with archaeological, agricultural or geological remains.	✓	
179	Deep depth – linear and two arcing anomalies	Multiple locations	✓		✓		✓		Two arcing and one linear possible ditch or cut features. Measuring 12m, 24m & 10m in length these anomalies could be archaeological, agricultural or geological.	✓	
180	Deep depth – zone disturbed ground and associated linear and curvilinear anomalies	613445.23,895641.985	✓		✓		✓		Sub-oval zone of disturbed ground, 9m E-W & 11m N-S. This feature could represent archaeological deposits or geological activity and may be associated with a number of linear and curvilinear possible cut features which surround and intercut it. It is possible that these features combined represent archaeological remains, potentially forming a feature 12m N-S x 11m E-W.	✓	

<b>Survey Methodology:</b>		<b>ER1 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Drumboe Lower</b>		
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD		
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		15/06/20 - 26/06/20 2.75 Ha		
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey								
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.								
<b>Figure No.:</b>		9, 10, 11, 12 & ,13								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
181	Deep depth – series of curvilinear and linear anomalies	Multiple locations	✓	✓	✓			A large arcing ditch was detected, potentially enclosing the northwest corner of the survey area. Measuring 61m in length this anomaly crosses 184 and may be associated with a number of smaller linear and curvilinear ditches which were detected on its northern and western edges. These smaller possible ditch or cut features measure between 11m & 26m in length and could relate to archaeological or geological processes.	✓	
182	Deep depth – zone of disturbed ground and linear anomaly	613482.227,895608.112	✓	✓	✓			Zone of disturbed ground which may be associated with archaeological or geological processes. This anomaly may be associated with a zone of compact earth detected in the resistivity data (anomaly 59).	✓	
183	Deep depth – series of curvilinear anomalies	Multiple locations	✓	✓				Series of curvilinear anomalies which might represent archaeological, agricultural or geological processes. Measuring between 16m and 34m in length two of these features run parallel, while the other two cross.	✓	
184	Deep depth – arcing anomaly	613422.845,895599.411	✓	✓				Arcing possible ditch or cut feature, 58m in length, which might be archaeological or geological in origin.	✓	
185	Deep depth – two zones of low amplitude reflections	613418.803,895565.849 613422.534,895590.088		✓		✓		Two arcing zones of low amplitude reflections were detected on either side of the modern field boundary. The low amplitude nature of the anomalies suggests that they could represent clay filled ditches or possibly a break in the geology which has naturally silted up. Covering an area 41m in length the southern of these features contains a further anomaly of low amplitude. While this has similar characteristics it is possible that the anomalies represent the same or associated features of archaeological or geological origin. The location of this southern anomaly could indicate that these features are associated with anomalies 147 & 149.	✓	

<b>Survey Methodology:</b>		<b>ER1 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Drumboe Lower</b>		
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD		
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		15/06/20 - 26/06/20 2.75 Ha		
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey								
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.								
<b>Figure No.:</b>		9, 10, 11, 12 & ,13								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
186	Deep depth – series of interconnecting linear anomalies	613378.374,895564.483	✓	✓				Series of interconnecting linear ditch or cut features which appear to form a sub-rectangular anomaly measuring 10m x 18m. This feature may be archaeological or geological and appears to contain three possible partitions. A right-angled ditch appears to cross this, measuring 40m in length.	✓	
187	Deep depth - two interconnecting curvilinear anomalies	613400.759,895540.555	✓	✓		✓		Two interconnecting possible ditch or cut features, 49m & 60m in length. These anomalies may be archaeological, agricultural or geological in nature.	✓	
188	Deep depth – zone of disturbed ground and linear anomaly	Multiple locations	✓	✓		✓		A zone of disturbed ground, 9m in width, which may relate to archaeological or geological activity. A possible ditch, 19m in length, appears to dissect the zone.	✓	
189	Deep depth – three zones of disturbed ground and a high amplitude anomaly	Multiple locations		✓		✓		A large zone of disturbed ground, 21m in width, was detected surrounded by two smaller areas of disturbed ground or pits (4m max. in width) and a right-angled compact earth or stone feature, 20m in length. All these features may relate to archaeological, agricultural or geological processes.	✓	
190	Deep depth – two arcing and two isolated anomalies	Multiple locations	✓	✓		✓		Two arcing ditches were detected which run approximately parallel to each other on the southern edge of the middle field. Measuring 16m & 31m in width these anomalies could represent archaeological remains. Both ditches contain possible entranceways to the north while the internal ditch may contain two possible pits.	✓	
191	Deep depth – two high amplitude anomalies and a linear anomaly	613361.269,895467.116 613353.807,895468.048 613350.076,895476.439	✓	✓		✓		Two zones of stone or compacted earth were detected, 5m & 4m in length. These may relate to geological activity or potentially associated with anomaly 153. To the east of these a possible ditch was detected measuring 37m in length which could be archaeological or geological in origin.	✓	

<b>Survey Methodology:</b>		<b>ER1 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Drumboe Lower</b>		
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD		
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		15/06/20 - 26/06/20 2.75 Ha		
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey								
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.								
<b>Figure No.:</b>		9, 10, 11, 12 & ,13								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
192	Deep depth – three isolated and two arcing anomalies	Multiple locations	✓	✓	✓			Two arcing possible ditch or cut features, 12m & 13m in length. The northern of these appears to enclose an area 5m in width and contains a possible entranceway to the west. Three possible pits or burials were detected within the area, maximum 2m in length, these may be related to anomaly 153.	✓	
193	Deep depth – curvilinear and linear anomalies	613436.196,895446.606 613439.616,895453.754	✓	✓				A curvilinear possible ditch or cut feature, 20m in length which may be related to anomalies 194 & 195. Adjacent to this is a linear feature, 17m in length which may represent a boundary ditch.	✓	
194	Deep depth – right-angled anomaly	613434.331,895441.945	✓	✓				Right-angled possible ditch or cut feature, 20m in length. This anomaly may be associated with anomaly 195 and is likely to be archaeological.	✓	
195	Deep depth – curvilinear and two isolated anomalies	613426.558,895433.554 613431.222,895433.243 613434.331,895441.945	✓	✓	✓			Arcing possible ditch, 31m in length. This feature possibly represents the bottom of an enclosure ditch which may surround the structural remains detected on site (anomaly 173). Two possible pits are located to the north of this ditch; these may be archaeological or geological in origin.	✓	
196	Deep depth – oval anomaly	613424.693,895414.598	✓	✓				An oval possible ditched feature measuring 8m N-S by 6m E-W. This anomaly could be geological or archaeological in origin, possibly associated with the enclosure detected in the medium depth levels (anomaly 158).	✓	
197	Deep depth – series of curvilinear anomalies and an isolated response	Multiple locations	✓	✓	✓			Series of curvilinear possible ditches ranging in length from 25m to 19m. They could be agricultural, archaeological or geological in origin. A possible pit or burial is located to the east, measuring 2.5m in length.	✓	
198	Deep depth – three interconnecting anomalies	613358.471,895415.219	✓	✓				Three interconnecting possible ditches, covering an area of 24m x 17m, which could be archaeological or agricultural in origin.	✓	

<b>Survey Methodology:</b>		<b>ER1 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Drumboe Lower</b>		
<b>ITM Coordinate:</b>		613410,895454				<b>OD height of Survey Area</b>		66 m OD		
<b>Survey Weather Conditions:</b>		Warm and dry with periods of limited rainfall				<b>Survey Date and Area (Ha):</b>		15/06/20 - 26/06/20 2.75 Ha		
<b>Heritage Constraint Ref:</b>		DG078-005 'Site of' Drumboe Abbey								
<b>Site Description:</b>		Undulating pasture fields containing a drumlin. Land to the southwest falls very steeply from the edge of the drumlin and could not be surveyed due to its steepness. Patches of near surface geology were noted during the survey. A clearance cairn and associated soil disturbance were visible in parts of the area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.								
<b>Figure No.:</b>		9, 10, 11, 12 & ,13								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
199	Deep depth – arcing anomaly	613340.127,895436.04	✓		✓			Arcing possible ditch, potentially enclosing an area 6m in diameter. This anomaly could be archaeological or geological.	✓	
200	Deep depth – zone of high amplitude reflections with associated linear and isolated responses.	613337.951,895423.921	✓		✓		✓	Zone of stone or compact earth, 6m E-W, which could relate to an archaeological deposit or geology. Adjacent to this is a possible pit and a possible ditch, 4.5m in length. Both these anomalies could be archaeological or geological in origin.	✓	

### 3.2 ER2

<b>Survey Methodology:</b>		<b>ER2 Resistivity</b>					<b>Townland:</b>		<b>Ballynaglack</b>	
<b>ITM Coordinate:</b>		613616,895915					<b>OD height of Survey Area</b>		161 m OD	
<b>Survey Weather Conditions:</b>		Overcast					<b>Survey Date and Area (Ha):</b>		22/06/20 0.48 Ha	
<b>Heritage Constraint Ref:</b>		Site of potential Enclosure S1-AP01								
<b>Site Description:</b>		Newly cut pasture field on a W-facing slope.								
<b>Figure No.:</b>		14 & 15								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
201	Isolated low resistivity anomaly	613464.05,895921.04	✓	✓				Possible pit of archaeological or agricultural origin.	✓	
202	Arcing low resistivity anomaly	613522.28,895913.532	✓	✓				Arcing possible ditch or cut feature. Measuring 40m in length this anomaly matches the location of S1-AP01 identified in the route selection for this project as a potential enclosure. Anomaly 202 encloses an area 20m in diameter.	✓	
203	Series of parallel linear low resistivity anomalies	Multiple locations	✓	✓				A series of parallel linear ditches traverse the survey area. These are spaced c. 10m apart and could relate to land drains or be associated with historic ploughing or land division.	✓	
204	Linear low resistivity anomaly	613474.002,895928.392	✓	✓				Linear ditch or cut feature which runs along the northern edge of the survey. This feature is likely to be agricultural in origin.	✓	
205	Linear high resistivity anomaly	613497.788,895930.191		✓		✓		Linear compacted earth or stone feature, 12m in length, which may relate to agricultural or geological activity.	✓	
206	Linear high resistivity anomaly	613503.934,895930.442		✓		✓		Linear compacted earth or stone feature, 22m in length. This anomaly may be associated with agricultural or geological activity.	✓	
207	Linear high resistivity anomaly	613521.242,895926.556		✓		✓		Linear compacted earth or stone feature, 22m in length, which may relate to agricultural or geological activity.	✓	
208	Linear high resistivity anomaly	613488.499,895926.889		✓		✓		Linear compacted earth or stone feature, 16m in length, which may represent a relict field boundary and probably continues into anomaly 209.	✓	
209	Linear high resistivity anomaly	613468.942,895902.486		✓		✓		Linear compacted earth or stone feature, 30m in length, which probably represents a continuation of anomaly 208.	✓	
210	Curvilinear low resistivity anomaly	613498.919,895919.558	✓	✓				Curvilinear ditch or cut feature, 30m in length, which probably relates to agricultural activity.	✓	

<b>Survey Methodology:</b>		<b>ER2 Resistivity</b>				<b>Townland:</b>		<b>Ballynaglack</b>		
<b>ITM Coordinate:</b>		613616,895915				<b>OD height of Survey Area</b>		161 m OD		
<b>Survey Weather Conditions:</b>		Overcast				<b>Survey Date and Area (Ha):</b>		22/06/20      0.48 Ha		
<b>Heritage Constraint Ref:</b>		Site of potential Enclosure S1-AP01								
<b>Site Description:</b>		Newly cut pasture field on a W-facing slope.								
<b>Figure No.:</b>		14 & 15								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
211	Curvilinear high resistivity anomaly	613482.111,895900.48			✓		✓	Curvilinear compacted earth or stone feature, 26m in length, possibly agricultural or geological in origin.	✓	
212	Curvilinear high resistivity anomaly	613475.761,895889.723			✓		✓	Curvilinear compacted earth or stone feature, 22m in length, possibly agricultural or geological in origin.	✓	
213	Linear low resistivity anomaly	613494.693,895895.799	✓		✓			Linear ditch or cut feature, 31m in length, which probably relates to agricultural activity.	✓	
214	Linear high resistivity anomaly	613461.213,895898.991			✓		✓	Linear compacted earth or stone feature, 45m in length, which runs parallel to the present field boundary and may be related to the boundary or be associated with anomaly 203.	✓	
	Zone of modern disturbance						✓	Zone of modern disturbance associated with the modern field boundary and vehicle movement		

<b>Survey Methodology:</b>		<b>ER2 Magnetometer</b>					<b>Townland:</b>		<b>Ballynaglack</b>		
<b>ITM Coordinate:</b>		613616,895915					<b>OD height of Survey Area</b>		161 m OD		
<b>Survey Weather Conditions:</b>		Overcast					<b>Survey Date and Area (Ha):</b>		22/06/20      0.48 Ha		
<b>Heritage Constraint Ref:</b>		Site of potential Enclosure S1-AP01									
<b>Site Description:</b>		Newly cut pasture field on a W-facing slope.									
<b>Figure No.:</b>		16 & 17									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
215	Linear magnetic anomaly	613470.099,895882.55	✓		✓				Linear possible ditch or cut feature, 19m in length, probably agricultural in origin.	✓	
216	Linear magnetic anomaly	613488.436,895882.672	✓		✓				Linear possible ditch or cut feature, 22m in length, probably agricultural in origin.	✓	
217	Linear magnetic anomaly	613484.402,895897.579	✓		✓				Linear possible ditch or cut feature, 64m in length, forms a relict agricultural boundary and interlinks with anomalies 218 & 219.	✓	
218	Linear magnetic anomaly	613520.11,895901.643	✓		✓				Linear possible ditch or cut feature, 48m in length, forms a relict agricultural boundary with anomaly 217.	✓	
219	Linear magnetic anomaly	613480.979,895913.098	✓		✓				Linear possible ditch or cut feature, 19m in length, forms a relict agricultural boundary with anomaly 217.	✓	
220	Series of isolated magnetic anomalies	Multiple locations	✓		✓		✓		Series of stronger magnetic signatures which may relate to archaeological or geological processes.	✓	
221	Arcing magnetic anomaly	613503.591,895909.797		✓	✓				Arcing possible ditch or cut feature, 14m in length, which may be associated with anomaly 222, possibly forming an enclosure ditch. This feature is located in the same area as resistivity anomaly 202 and while they may be related, they do not appear to be associated with the same feature. It is possible that anomaly 220 may be associated with a potential enclosure (S1-AP01) identified in the route selection process.	✓	
222	Arcing magnetic anomaly	613516.184,895916.641	✓		✓				Arcing possible ditch or cut feature, 26m in length which is likely to be associated with anomaly 221. These features may create an enclosure ditch 16m in diameter.	✓	
	Weakly magnetic trends	Multiple locations			✓		✓		These trends are weakly magnetic and could relate to archaeological, agricultural or geological processes.	✓	
	Parallel trends	Multiple locations						✓	Evidence for cultivation furrows were detected across the survey area.		
	Zones of magnetic disturbance	Multiple locations						✓	Zone of magnetic disturbance associated with the modern field boundary and adjacent metallic deposits and structures. Evidence of a recent bonfire was also noted in the southeast corner of the survey area which would have added to the disturbance.		

### 3.3 ER3

<b>Survey Methodology:</b>		<b>ER3 Resistivity</b>				<b>Townland:</b>		<b>Ballyraine</b>			
<b>ITM Coordinate:</b>		618947,911805				<b>OD height of Survey Area</b>		6.7 m OD			
<b>Survey Weather Conditions:</b>		Overcast				<b>Survey Date and Area (Ha):</b>		12/06/20 1.64 Ha			
<b>Heritage Constraint Ref:</b>		DG053-026 In proximity to 'White Fort' Ringfort									
<b>Site Description:</b>		This former pitch and putt course / biking track contained a series of paths and tracks, fences and ropes which dissected the survey area. The land contained numerous rock and sandy deposits as well as areas of gorse, trees and rushes. The survey area was restricted due to the presence of earth mounds / hills which were present to the north and west.									
<b>Figure No.:</b>		18 & 19									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
301	Linear high resistivity anomaly	618945.461,911792.547			✓		✓	✓	Linear compacted earth or stone feature, 33m in length, which may relate to archaeology or agriculture or be associated with modifications made for the pitch and putt course or biking track.	✓	
302	Linear high resistivity anomaly	618939.238,911765.218			✓		✓	✓	Linear compacted earth or stone feature, 41m in length, which may relate to archaeological or agricultural events or be associated with modifications made for the pitch and putt course or biking track. This feature is cut by the modern tracks which could not be surveyed.	✓	
303	Linear high resistivity anomaly	618968.816,911735.585			✓		✓	✓	Linear compacted earth or stone feature, 74m in length, which may relate to archaeology or agriculture or be associated with modifications made for the pitch and putt course or biking track. This feature runs parallel to 301 and may be related. This feature is cut by the modern tracks which could not be surveyed.	✓	
304	Curvilinear high resistivity anomaly	618987.132,911768.355			✓		✓	✓	Curvilinear compacted earth or stone feature, 36m in length. This may be archaeological, geological or agricultural in origin.	✓	
305	Linear high resistivity anomaly	618989.309,911772.836			✓		✓	✓	Linear compacted earth or stone feature, 74m in length, which may relate to archaeological or agricultural events or be associated with modifications made for the pitch and putt course or biking track. This feature runs parallel to 301 and 303 and may be related.	✓	
306	Linear high resistivity anomaly	619006.224,911753.36			✓		✓	✓	Linear compacted earth or stone feature, 23m in length, which may relate to archaeology or agriculture or be associated with modifications made for the pitch and putt course or biking track.	✓	

<b>Survey Methodology:</b>		<b>ER3 Resistivity</b>				<b>Townland:</b>		<b>Ballyraine</b>			
<b>ITM Coordinate:</b>		618947,911805				<b>OD height of Survey Area</b>		6.7 m OD			
<b>Survey Weather Conditions:</b>		Overcast				<b>Survey Date and Area (Ha):</b>		12/06/20      1.64 Ha			
<b>Heritage Constraint Ref:</b>		DG053-026 In proximity to 'White Fort' Ringfort									
<b>Site Description:</b>		This former pitch and putt course / biking track contained a series of paths and tracks, fences and ropes which dissected the survey area. The land contained numerous rock and sandy deposits as well as areas of gorse, trees and rushes. The survey area was restricted due to the presence of earth mounds / hills which were present to the north and west.									
<b>Figure No.:</b>		18 & 19									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
307	Linear low resistivity anomaly	618987.3,911720.366	✓		✓			✓	Linear ditch or cut feature, 26m in length, which may relate to archaeology or agriculture or be associated with modifications made for the pitch and putt course or biking track.	✓	
308	Arcing high resistivity anomaly	619001.23,911710.173			✓		✓	✓	Arcing compacted earth or stone feature, 42m in length, which may relate to archaeology or agriculture or be associated with modifications made for the pitch and putt course or biking track.	✓	
309	Linear low resistivity anomaly	619012.276,911714.606	✓		✓			✓	Linear ditch or cut feature, 50m in length, which may be archaeological or agricultural or be associated with modifications made for the pitch and putt course or biking track. Running parallel to anomaly 307 it is possible that these features are related.	✓	
310	Linear low resistivity anomaly	619036.517,911735.5	✓		✓			✓	Linear ditch or cut feature, 32m in length. This feature is likely to be a ditch or pipe which runs into the septic tank visible on site.	✓	
311	Linear low resistivity anomaly	619002.399,911782.988	✓		✓			✓	Linear ditch or cut feature, 44m in length, which may relate to archaeological or agricultural processes or be associated with modifications made for the pitch and putt course or biking track.	✓	
312	Curvilinear high resistivity anomaly	619009.682,911804.692			✓		✓	✓	Curvilinear compacted earth or stone feature, 26m in length, which may relate to archaeological or agricultural remains or be associated with modifications made for the pitch and putt course or biking track.	✓	
313	Linear low resistivity anomaly	619019.683,911788.568	✓		✓			✓	Linear ditch or cut feature, 74m in length, which may relate to archaeology or agriculture or be associated with modifications made for the pitch and putt course or biking track. Running parallel to anomaly 311 it is possible that these features are related.	✓	
314	Curvilinear high resistivity anomaly	618976.347,911811.82			✓		✓	✓	Curvilinear compacted earth or stone feature, 22m in length, which may relate to archaeological or agricultural remains or be associated with modifications made for the pitch and putt course or biking track.	✓	

<b>Survey Methodology:</b>		<b>ER3 Resistivity</b>				<b>Townland:</b>		<b>Ballyraine</b>			
<b>ITM Coordinate:</b>		618947,911805				<b>OD height of Survey Area</b>		6.7 m OD			
<b>Survey Weather Conditions:</b>		Overcast				<b>Survey Date and Area (Ha):</b>		12/06/20      1.64 Ha			
<b>Heritage Constraint Ref:</b>		DG053-026 In proximity to 'White Fort' Ringfort									
<b>Site Description:</b>		This former pitch and putt course / biking track contained a series of paths and tracks, fences and ropes which dissected the survey area. The land contained numerous rock and sandy deposits as well as areas of gorse, trees and rushes. The survey area was restricted due to the presence of earth mounds / hills which were present to the north and west.									
<b>Figure No.:</b>		18 & 19									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
315	Arcing high resistivity anomaly	618960.977,911819.885			✓		✓	✓	Arcing compacted earth or stone feature, 15m in length, which may relate to archaeology, agriculture or modifications made for the pitch and putt or biking courses.	✓	
316	Right-angled high resistivity anomaly	618951.442,911823.129			✓		✓	✓	Right-angled compacted earth or stone feature, 21m in length. The shape of this anomaly suggests that it might represent a relict field boundary and probably continues into anomaly 320.	✓	
317	Right-angled high resistivity anomaly	618978.393,911831.306			✓		✓	✓	Right-angled compacted earth or stone feature, 46m in length. The shape of this anomaly suggests that it might represent a relict field boundary.	✓	
318	Curvilinear low resistivity anomaly	618969.366,911837.012	✓		✓			✓	Curvilinear ditch or cut feature, 64m in length, which may relate to archaeology, agriculture or modifications made for the pitch and putt or biking courses.	✓	
319	Arcing high resistivity anomaly	618954.956,911847.38			✓		✓	✓	Arcing ditch or cut feature, 24m in length. This anomaly could represent an archaeological feature such as a banked enclosure, 17m in diameter, or be associated with modifications made for the pitch and putt course or biking track.	✓	
320	Linear high resistivity anomaly	618939.651,911846.618			✓		✓	✓	Linear compacted earth or stone feature, 18m in length, which probably represents a continuation of anomaly 316.	✓	
321	Arcing low resistivity anomaly	618933.324,911843.649	✓		✓			✓	Arcing ditch or cut feature, 18m in length, which may relate to archaeology or agriculture or be associated with modifications made for the pitch and putt course or biking track.	✓	
	Zone of modern disturbance							✓	This low resistivity feature was detected on the southeastern edge of the survey area and relates to a septic tank which was visible in the landscape.		

### 3.4 ER4

<b>Survey Methodology:</b>		<b>ER4 Resistivity</b>				<b>Townland:</b>		<b>Trimragh</b>			
<b>ITM Coordinate:</b>		621237,911224				<b>OD height of Survey Area</b>		28.4 m OD			
<b>Survey Weather Conditions:</b>		Overcast, humid, light rain				<b>Survey Date and Area (Ha):</b>		29/06/20 - 30/06/20 & 13/08/20 3.4 Ha			
<b>Heritage Constraint Ref:</b>		DG053-028 In proximity to 'Site of' Church and graveyard DG053-028001									
<b>Site Description:</b>		The western field was freshly cut grassland. The land slopes down unevenly from south to north and to the eastern and western field boundaries. There are water courses running along the western, eastern and northern edges of the field. The eastern field was short to medium height pasture land with sheep present at the time of survey. The land slopes down unevenly from south to north and there was a watercourse along the western boundary.									
<b>Figure No.:</b>		20 & 21									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
401	Oval low resistivity anomaly	621205.049,911257.736			✓		✓		Possible large pit or area of disturbed ground which is located in the lowest part of the field. Measuring c. 15m x 7m in diameter this anomaly could be archaeological, agricultural or potentially associated with the adjacent road.	✓	
402	Isolated high resistivity response	621169.652,911200.157			✓		✓		An oval compacted earth or stone feature, c. 2m x 4.9m in size. Possible archaeology or near surface rock.	✓	
403	High resistivity area	621200.922,911203.014			✓		✓		An area of high resistivity, c. 10.5m x 21m in size, which may be a compacted earth or stone surface of archaeological, agricultural or geological nature.	✓	
404	Curvilinear high resistivity anomaly	621182.509,911174.443			✓		✓		A broad, curving compacted earth or stone feature, c 30m long and up to 7m wide. This is most likely related to the break of slope around this section of the field and could be an archaeological feature along this topographical expression or may be caused by near surface geology or agricultural processes.	✓	
405	Isolated low resistivity response	621217.906,911184.760			✓		✓		Possible pit or soil disturbance of archaeological or agricultural origin.	✓	
406	Isolated high resistivity response	621167.132,911157.984			✓		✓		A compacted earth or stone anomaly measuring c. 3m x 4m in diameter. It could potentially be archaeological in origin or associated with a near surface stone	✓	
407	Arcing high resistivity anomaly	621185.545,911140.048	✓		✓		✓		A possible small enclosing ditch, measuring 8.6m x 10m in diameter with a wide opening to the NE. Encloses anomaly 408 and probably archaeological in nature.	✓	
408	Three high resistivity responses	621190.783,911141.159			✓		✓		Three compacted earth or stone features enclosed by 407.	✓	
409	Oval low resistivity anomaly	621228.402,911132.746			✓		✓		Possible large pit or area of soil disturbance, measuring c. 16.5m x 4.7m which could be archaeological or agricultural.	✓	

<b>Survey Methodology:</b>		<b>ER4 Resistivity</b>				<b>Townland:</b>		<b>Trimragh</b>		
<b>ITM Coordinate:</b>		621237,911224				<b>OD height of Survey Area</b>		28.4 m OD		
<b>Survey Weather Conditions:</b>		Overcast, humid, light rain				<b>Survey Date and Area (Ha):</b>		29/06/20 - 30/06/20 & 13/08/20 3.4 Ha		
<b>Heritage Constraint Ref:</b>		DG053-028 In proximity to 'Site of' Church and graveyard DG053-028001								
<b>Site Description:</b>		The western field was freshly cut grassland. The land slopes down unevenly from south to north and to the eastern and western field boundaries. There are water courses running along the western, eastern and northern edges of the field. The eastern field was short to medium height pasture land with sheep present at the time of survey. The land slopes down unevenly from south to north and there was a watercourse along the western boundary.								
<b>Figure No.:</b>		20 & 21								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
410	Oval low resistivity anomaly	621193.799,911128.302			✓		✓	Possible large pit or area of soil disturbance, measuring c. 7.8m x 4m in size.	✓	
411	Sub-circular high resistivity anomaly	621155.227,911124.651			✓		✓	Compacted earth or stone feature, c.7.5m in diameter, which may be related to archaeological or agricultural activities or near surface geology.	✓	
412	Arcing high resistivity anomaly	621205.227,911100.048	✓		✓		✓	Possible enclosing feature such as a shallow stone filled ditch or bank, measuring c. 27.5m N-S and 15m E-W with a wide gap at the western side.	✓	
413	Arcing high resistivity anomaly	621209.989,911110.047			✓		✓	Arcing segment of compacted earth or stone, 8.5m in length, intersecting anomaly 412. This could be archaeological, agricultural or geological in origin.	✓	
414	Sub-rectangular low resistivity zone	621188.878,911077.508			✓		✓	An area of soil disturbance or large angular pit, c. 9m x 9m in diameter.	✓	
415	Linear low resistivity anomaly	621182.688,911065.445	✓		✓			Linear possible ditch, 42.5m in length, extending from the southeastern corner of the field towards the centre.	✓	
416	Arcing low resistivity anomaly	621217.449,911070.365	✓				✓	An arcing ditch or cut feature extending from the field access point, c. 13m into the field, with a c. 5.8m long linear extension forking off in eastern direction. This is most likely modern in origin.	✓	
417	Two zones of high resistivity	621308.907,911147.941, 621297.764,911170.218			✓		✓	Two zones of high resistivity, 57m and 27m in width which may be associated with agricultural or geological processes. Comprising of stone or compacted earth these two zones appear to be divided by a narrow zone of lower resistivity which might be associated with anomaly 418. These zones could be associated with the flax mill once present on site or its boundaries.	✓	

<b>Survey Methodology:</b>		<b>ER4 Resistivity</b>				<b>Townland:</b>		<b>Trimragh</b>			
<b>ITM Coordinate:</b>		621237,911224				<b>OD height of Survey Area</b>		28.4 m OD			
<b>Survey Weather Conditions:</b>		Overcast, humid, light rain				<b>Survey Date and Area (Ha):</b>		29/06/20 - 30/06/20 & 13/08/20 3.4 Ha			
<b>Heritage Constraint Ref:</b>		DG053-028 In proximity to 'Site of' Church and graveyard DG053-028001									
<b>Site Description:</b>		The western field was freshly cut grassland. The land slopes down unevenly from south to north and to the eastern and western field boundaries. There are water courses running along the western, eastern and northern edges of the field. The eastern field was short to medium height pasture land with sheep present at the time of survey. The land slopes down unevenly from south to north and there was a watercourse along the western boundary.									
<b>Figure No.:</b>		20 & 21									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
418	Curvilinear high resistivity anomaly and an isolated high resistivity feature	621281.246,911149.355, 621278.242,911160.508			✓		✓		Curvilinear stone or compact earth feature, 24m in length which may be associated with 417 and may bound an area of slightly disturbed soil. Anomaly 418 could represent archaeological or geological processes and may bound land 25m in diameter. This feature could be associated with the flax mill once present on site. The isolated response could be associated with a stone filled pit or near surface rock.	✓	
419	Oval low resistivity anomaly	621331.193,911169.886	✓		✓		✓		Possible large pit or area of disturbed ground. Measuring c. 10m x 6m in diameter this anomaly could be archaeological, agricultural and may be of similar origin to anomalies 401 and 410.	✓	
420	Curvilinear low resistivity anomaly	621326.742,911196.792	✓		✓		✓		Curvilinear ditch or cut feature, 54m in length. This anomaly may be archaeological, agricultural or geological in origin.	✓	
421	Sub-circular high resistivity anomaly and two isolated high resistivity features	621288.44,911200.653, 621284.256,911185.21, 621279.32,911179.633			✓		✓		Stone or compacted earth sub-circular feature, 71m in length and covering an area 31m in diameter. This feature may be archaeological in origin, however a geological explanation cannot be ruled out. This feature could be associated with the flax mill once present on site. The isolated responses contained within 421 could be associated with a stone filled pit or near surface rock.	✓	
422	Linear high resistivity anomaly	621293.266,911219.433			✓		✓		Linear stone or compact earth feature which traverses the centre of the survey area. Measuring 76m in length this anomaly is associated with a boundary shown on the Historic 6inch OS map.	✓	
423	Linear high resistivity anomaly	621305.813,911258.417			✓		✓		Linear stone or compact earth feature, 23m in length which might represent a former field boundary or be geological in origin.	✓	

<b>Survey Methodology:</b>		<b>ER4 Resistivity</b>				<b>Townland:</b>		<b>Trimragh</b>		
<b>ITM Coordinate:</b>		621237,911224				<b>OD height of Survey Area</b>		28.4 m OD		
<b>Survey Weather Conditions:</b>		Overcast, humid, light rain				<b>Survey Date and Area (Ha):</b>		29/06/20 - 30/06/20 & 13/08/20 3.4 Ha		
<b>Heritage Constraint Ref:</b>		DG053-028 In proximity to 'Site of' Church and graveyard DG053-028001								
<b>Site Description:</b>		The western field was freshly cut grassland. The land slopes down unevenly from south to north and to the eastern and western field boundaries. There are water courses running along the western, eastern and northern edges of the field. The eastern field was short to medium height pasture land with sheep present at the time of survey. The land slopes down unevenly from south to north and there was a watercourse along the western boundary.								
<b>Figure No.:</b>		20 & 21								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
424	Zone of low resistivity	621278.793,911265.081	✓	✓	✓			Zone of disturbed or moisture rich soil which is located in the centre of the northern half of the field. Measuring 36m by 23m this feature could be archaeological, agricultural or geological in nature.	✓	
425	Curvilinear low resistivity anomaly	621259.786,911266.996	✓	✓	✓			Curvilinear ditch or cut feature, 36m in length. this feature runs roughly parallel to the field boundary and may represent a former field division.	✓	
426	Zone of low resistivity	621290.9,911313.539	✓	✓	✓			This zone of disturbed or moisture rich soil is similar in nature to 424 and is likely to have similar origins. The anomaly may be archaeological, agricultural or geological in nature or associated with the construction of the adjacent road.	✓	
	Parallel curving and linear trends	Throughout the survey area					✓	Cultivation furrows aligning with the undulating topography.		
	Zone of modern disturbance	Along the northwestern and southern boundary					✓	This zone of low resistivity is located along the field boundary and is related to modern disturbance.		

### 3.5 ER5

<b>Survey Methodology:</b>		<b>ER5 Resistivity</b>				<b>Townland:</b>		<b>Carnshannagh</b>			
<b>ITM Coordinate:</b>		628587,904423				<b>OD height of Survey Area</b>		60.4 m OD			
<b>Survey Weather Conditions:</b>		Warm and sunny				<b>Survey Date and Area (Ha):</b>		12/08/20 - 13/08/20 1.54 Ha			
<b>Heritage Constraint Ref:</b>		DG062-024 Located over and in proximity to 'site of' Enclosure & Potential Enclosure S3-AP-01									
<b>Site Description:</b>		Newly harvested crop field with a moderate SW-facing slope.									
<b>Figure No.:</b>		22 & 23									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
501	Zone of low resistivity	628476.293,904423.958			✓		✓	✓	Zone of disturbed or moisture rich soil, 35m N-S & 19m E-W, which is located in the corner of the field. This anomaly is likely to be associated with agricultural or geological processes.	✓	
502	Curvilinear high resistivity anomaly with two isolated high resistivity features	628504.487,904429.997, 628497.051,904427.364, 628497.67,904429.222			✓		✓		Curvilinear stone or compact earth response which forms a roughly sub-circular feature, 13m N-S by 15.6 E-W. Contained within the centre of this feature are two isolated near surfaces stones or possibly stone capped pits. It is possible that anomalies contained within 502 are archaeological in origin or they could be agricultural or geological in origin.	✓	
503	Zone of high resistivity	628524.315,904410.331			✓		✓		Undulating zone of high resistivity which forms a broad U-shape. Covering an area of 72m N-S and 58m E-W this feature is likely to be geological in origin.	✓	
504	Curvilinear high resistivity anomaly	628526.297,904391.867			✓		✓		Curvilinear stone or compact earth feature, 20.8m in length. This anomaly could be archaeological in origin but is more likely to be geological or agricultural.	✓	
505	Curvilinear high resistivity anomaly	628531.612,904421.451			✓		✓		Curvilinear stone or compact earth feature, 30.8m in length. This anomaly could be archaeological in origin but is more likely to be geological or agricultural.	✓	
506	Curvilinear high resistivity anomaly	628556.74,904422.176			✓		✓		Curvilinear compact earth or stone feature, 59m in length. This anomaly could be agricultural or geological in origin.	✓	
507	Curvilinear high resistivity anomaly	628576.609,904404.796			✓		✓		Curvilinear stone or compact earth feature, 24m in length. This anomaly is likely to have similar origins to 504 and 505 and could be archaeological in origin but is more likely to be geological or agricultural.	✓	
508	Three parallel linear low resistivity anomalies	628492.732,904405.753, 628499.255,904406.115, 628568.052,904440.988	✓		✓		✓		Three parallel linear ditches which are likely to be agricultural in origin as they follow the alignment of the modern field boundaries.	✓	

<b>Survey Methodology:</b>		<b>ER5 Resistivity</b>					<b>Townland:</b>		<b>Carnshannagh</b>		
<b>ITM Coordinate:</b>		628587,904423					<b>OD height of Survey Area</b>		60.4 m OD		
<b>Survey Weather Conditions:</b>		Warm and sunny					<b>Survey Date and Area (Ha):</b>		12/08/20 - 13/08/20 1.54 Ha		
<b>Heritage Constraint Ref:</b>		DG062-024 Located over and in proximity to 'site of' Enclosure & Potential Enclosure S3-AP-01									
<b>Site Description:</b>		Newly harvested crop field with a moderate SW-facing slope.									
<b>Figure No.:</b>		22 & 23									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
509	Linear low resistivity anomaly	628599.995,904452.623	✓		✓		✓		Linear ditch or cut feature, 17m in length which could be archaeological, agricultural or geological in origin.	✓	
510	Three zones of low resistivity	628608.535,904406.801, 628607.606,904429.409, 628610.394,904451.862			✓		✓		Three curvilinear zones of low resistivity which cross the survey area. These anomalies are likely to be geological in origin and may be of similar origin to 823 and 844 detected in the adjacent site 8.	✓	
511	Linear low resistivity anomaly	628636.663,904432.806	✓		✓		✓		Linear ditch or cut feature, 55.6m in length. This anomaly is likely to be agricultural in origin and could be associated with 512 and 513.	✓	
512	Linear low resistivity anomaly	628651.763,904438.361	✓		✓		✓		Linear ditch or cut feature, 51.3m in length. This anomaly is likely to be agricultural in origin and could be associated with 512 and 513.	✓	
513	Linear low resistivity anomaly	628633.28,904468.428	✓		✓		✓		Linear ditch or cut feature, 14m in length. this anomaly is likely to represent a continuation of 836 detected in the adjacent site 8.	✓	
	Parallel linear trends	Throughout the survey area						✓	Cultivation furrows.		

<b>Survey Methodology:</b>		<b>ER5 Magnetometer</b>				<b>Townland:</b>		<b>Carnshannagh</b>		
<b>ITM Coordinate:</b>		628587,904423				<b>OD height of Survey Area</b>		60.4 m OD		
<b>Survey Weather Conditions:</b>		Warm and sunny				<b>Survey Date and Area (Ha):</b>		11/08/20 1.54 Ha		
<b>Heritage Constraint Ref:</b>		DG070-024 In close proximity to 'site of' enclosure and potential enclosure S3AP-01								
<b>Site Description:</b>		Newly harvested crop field with a moderate SW-facing slope.								
<b>Figure No.:</b>		24 & 25								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
514	Double arcing magnetic anomaly	628488.218,904405.537	✓	✓				Double arcing ditch, which may relate to archaeology or geology. The larger anomaly measures 25m in diameter while the inner measures 13m in diameter. This feature could relate to the RMP monument.	✓	
	Highly magnetic trends	Multiple locations		✓		✓		Highly magnetic trend which crosses the survey area. Although this feature is strongly magnetic it relates to geological activity and has no archaeological significance.		
	Weakly magnetic trends	Multiple locations		✓		✓		These trends are weakly magnetic and could relate to archaeological, agricultural or geological processes.		
	Areas of high magnetic contrast	Multiple locations					✓	These areas relate to geological formations. The survey area was undertaken over bedrock which contains highly magnetic igneous components. While the general background of the survey is more magnetic than on other geologies, it is within these highly magnetic zones that the full geological impact can be seen within the data. Any small archaeological features within these zones may not be detected within the magnetometer data; however the other techniques used on site are not affected by the geological situation.		

### 3.6 ER6

<b>Survey Methodology:</b>		<b>ER6 Resistivity</b>				<b>Townland:</b>		<b>Murlough</b>			
<b>ITM Coordinate:</b>		631615,899290				<b>OD height of Survey Area</b>		51m OD			
<b>Survey Weather Conditions:</b>		Light drizzle				<b>Survey Date and Area (Ha):</b>		01/07/20 - 02/07/20 2.11 Ha			
<b>Heritage Constraint Ref:</b>		DG070-048 Located in proximity to 'site of' Standing Stone									
<b>Site Description:</b>		The western field was covered in medium height silage and lay on an uneven moderate to steep NW-facing slope. A section along the western field boundary was too steep for survey. The eastern field was covered by partially grazed pasture with some areas of high thistles in the northern half. The field also lies on a N-facing slope with a very steep rise in the southern section which could not be surveyed.									
<b>Figure No.:</b>		26 & 27									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
601	Isolated low resistivity anomaly	631521.996,899360.252			✓		✓		Possible pit or area of soil disturbance located in the northwestern corner of the survey area.	✓	
602	Curvilinear low resistivity anomaly	631527.472,899355.252	✓		✓		✓		Possible arcing ditch in the northwestern corner of the field, c. 28.3m in length, could be archaeological, agricultural or geological.	✓	
603	Zone of high resistivity	631535.329,899301.205					✓		Amorphous area of compacted earth or stone, measuring c. 29.8m E-W and 19.5m N-S. Most likely caused by geology, agriculture or natural changes in the soil.	✓	
604	Two oval low resistivity anomalies	631525.805,899274.776 631532.948,899281.443			✓		✓		Two possible pits or areas of disturbed soil, measuring between 5m and 5.7m in diameter.	✓	
605	Amorphous high resistivity anomaly	631559.853,899321.205			✓		✓		Compacted earth or stone feature, measuring c. 27m N-S and 8.7m E-W. The linear nature of the anomaly may have been partially caused by cultivation soil movement. The anomaly may be associated with near surface geology, archaeological remains or agricultural activities.	✓	
606	Sub-rectangular low resistivity anomaly	631571.519,899308.586			✓		✓		Possible area of soil disturbance (14.7m x 8.6m) which may be caused by archaeology or agricultural activities.	✓	
607	Two oval high resistivity anomalies	631563.662,899300.014 631576.758,899295.014			✓		✓		Two oval compacted earth or stone features. Measuring c. 9.8m x 6.8m and 11.2m x 7.3m, they may be of archaeological, agricultural or geological origin and are possibly associated with anomaly 603.	✓	
608	Linear high resistivity anomaly	631566.758,899287.157			✓		✓		Linear earth or stone feature, c. 15.9m in length. This feature may be archaeological or geological in origin.	✓	
609	Linear high resistivity anomaly	631595.329,899343.824			✓		✓		Linear earth or stone feature running into the central field boundary and measuring c. 26m in length.	✓	

<b>Survey Methodology:</b>		<b>ER6 Resistivity</b>				<b>Townland:</b>		<b>Murlough</b>				
<b>ITM Coordinate:</b>		631615.899290				<b>OD height of Survey Area</b>		51m OD				
<b>Survey Weather Conditions:</b>		Light drizzle				<b>Survey Date and Area (Ha):</b>		01/07/20 - 02/07/20 2.11 Ha				
<b>Heritage Constraint Ref:</b>		DG070-048 Located in proximity to 'site of' Standing Stone										
<b>Site Description:</b>		The western field was covered in medium height silage and lay on an uneven moderate to steep NW-facing slope. A section along the western field boundary was too steep for survey. The eastern field was covered by partially grazed pasture with some areas of high thistles in the northern half. The field also lies on a N-facing slope with a very steep rise in the southern section which could not be surveyed.										
<b>Figure No.:</b>		26 & 27										
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment		Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils	Interference / Modern			Test Excavation	Geophysical Survey
610	Multiple isolated low resistivity anomalies	631617.472,899334.300 Multiple locations			✓		✓		A series of eight possible pits near the centre of the survey area. They range in size from 2m to 4.7m in diameter and may be caused by archaeology or agricultural activities.	✓		
611	Oval high resistivity anomalies	631596.043,899315.967			✓		✓		The largest anomaly, an oval stone or compacted earth feature, c 5.4m x 3.4m in size is possible associated with archaeological or agricultural remains. The three smaller anomalies are likely to be associated with near surface rock.	✓		
612	Curvilinear low resistivity anomaly	631597.710,899271.443	✓		✓			✓	A curvilinear ditch or cut feature which appears to surround the bottom of a topographic expression. A small gap or entrance can be seen in the centre of the anomaly. The western segment is c. 59m long and the eastern segment is 26m in length. It is likely that this feature represents archaeological activity.	✓		
613	Oval high resistivity anomaly	631603.662,899265.49			✓		✓		An earth or stone deposit measuring c. 8.7m x 3m in diameter. This feature may be geological in origin or associated with anomaly 612.	✓		
614	Four curvilinear high resistivity anomalies	631627.789,899278.784 Multiple locations			✓		✓		Four possible compacted earth or stone features, between 7m and 15m in length. These features may be geological in origin or associated with anomaly 612, suggesting the possibility of archaeological remains within the area.	✓		
615	Two curvilinear low resistivity anomalies	631636.837,899278.308 631652.551,899284.657	✓		✓		✓		Two possible ditches or cut features, c. 12.2 and 7.1m in length. The shorter feature abuts anomaly 612 at the eastern end and appears to run into anomaly 616. As these anomalies are in the same area as 614 they could be archaeological.	✓		
616	Oval high resistivity anomaly	631646.202,899280.213			✓		✓		An oval area of compacted earth or stone, c. 14m x 5.7m in diameter which could be geological or archaeological in origin.	✓		
617	C-shaped low resistivity anomaly	631656.519,899296.879			✓		✓		C-shaped ditch or cut feature near the eastern field boundary. Measuring c. 2.8m in diameter this anomaly is surrounded by an area of general lower resistivity suggesting that it could be associated with an area of general soil disturbance.	✓		

<b>Survey Methodology:</b>		<b>ER6 Resistivity</b>				<b>Townland:</b>		<b>Murlough</b>			
<b>ITM Coordinate:</b>		631615,899290				<b>OD height of Survey Area</b>		51m OD			
<b>Survey Weather Conditions:</b>		Light drizzle				<b>Survey Date and Area (Ha):</b>		01/07/20 - 02/07/20 2.11 Ha			
<b>Heritage Constraint Ref:</b>		DG070-048 Located in proximity to 'site of' Standing Stone									
<b>Site Description:</b>		The western field was covered in medium height silage and lay on an uneven moderate to steep NW-facing slope. A section along the western field boundary was too steep for survey. The eastern field was covered by partially grazed pasture with some areas of high thistles in the northern half. The field also lies on a N-facing slope with a very steep rise in the southern section which could not be surveyed.									
<b>Figure No.:</b>		26 & 27									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
618	Sub-circular low resistivity anomaly	631652.075,899302.911			✓		✓		Sub-circular pit or cut feature, c. 3m in diameter. This anomaly may be archaeological or agricultural in origin.	✓	
619	Multiple linear and curvilinear high resistivity anomalies	631630.369,899321.483 Multiple locations			✓		✓		Several possible compact earth or stone features, located on a NE-facing slope. They are up to 16.5m in length and may be caused by archaeology, agriculture or geology.	✓	
620	Multiple isolated high resistivity anomalies	631638.305,899325.610			✓		✓		Four isolated compacted earth or stone anomalies located within the vicinity of 619. They may be caused by archaeological features or geological deposits.	✓	
621	Curvilinear high resistivity anomaly	631655.924,899342.911			✓		✓		Possible earth or stone feature, measuring c. 33m in length and 6m in width. The form of this anomaly, detected as multiple short stone features could suggest geological activity or potentially a structure.	✓	
622	Oval low resistivity anomaly	631663.385,899319.895			✓		✓		Oval pit or area of soil disturbance near the eastern field boundary. Measuring c. 6.2m x 4m in size this anomaly could be archaeological or agricultural in origin.	✓	
623	Two curvilinear high resistivity anomalies	631679.416,899339.578 631670.051,899328.943			✓		✓		Two curving possible earth or stone features, c. 16m and 14m in length, extending from the eastern field boundary into the field. Forming an apparent subdivision these features may be archaeological or agricultural.	✓	
624	Sub-rectangular low resistivity anomaly	631681.956,899349.895			✓		✓		A possible pit or area of soil disturbance located on the edge of the survey area. This anomaly measures c. 8.2m E-W and may extend beyond the survey area. It could be archaeological or agricultural in origin.	✓	
	Parallel curving and linear trends	Throughout the western survey area						✓	Cultivation furrows running roughly in N-S direction.		
	Zones of modern disturbance	Multiple locations						✓	Areas of modern disturbance, mostly along the central field boundary, may be caused by fencing materials and soil disturbance.		

### 3.7 ER7

<b>Survey Methodology:</b>		<b>ER7 Resistivity</b>				<b>Townland:</b>		<b>Curraghane</b>			
<b>ITM Coordinate:</b>		632263,897206				<b>OD height of Survey Area</b>		21 m OD			
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain				<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      2.14 Ha			
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1									
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE									
<b>Figure No.:</b>		30 & 31									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
701	Curvilinear raised resistivity anomaly	632172.135,897191.384			✓		✓		Possible compacted earth or stone feature, measuring c. 19m NE-SW. Possible archaeology or natural changes in the soil.	✓	
702	Linear raised resistivity anomaly	632176.044,897185.141			✓		✓		Possible compacted earth or stone feature, measuring c. 10m NE-SW. Possible archaeology or natural changes in the soil.	✓	
703	Zone of low resistivity	632200.349,897192.395					✓		An area of disturbed ground or soil changes with higher moisture content.		
704	Linear low resistivity anomaly	632227.108,897183.571	✓		✓		✓		A possible ditch, c. 141m N-S. May be archaeology or agricultural.	✓	
705	Linear high resistivity anomaly	632236.473,897239.840			✓		✓		A possible compacted earth or stone feature, c. 60.4m NE-SW. May be archaeology or caused by natural changes in the soil.	✓	
706	Curvilinear raised resistivity anomaly	632250.309,897235.335			✓		✓		A possible compacted earth or stone feature, c. 31.5m NE-SW. May be archaeology or caused by natural changes in the soil.	✓	
707	Linear low resistivity anomaly	632243.309,897227.192	✓		✓		✓		A possible ditch, c. 43.7m NW-SE. May be archaeology or agricultural.	✓	
708	Zone of high resistivity	632269.875,897225.717			✓		✓		Arcing area of compact soil or stone, measuring c. 35m by 24m. May be related to the underlying geology but may also contain archaeological material.	✓	
709	Zone of high resistivity	632254.732,897204.670			✓		✓		Sub-linear area of compacted soil or stone, measuring c. 34m by 11m. This anomaly may be associated with 708 and may relate to geology but may also contain archaeological material.	✓	
710	Low resistivity anomaly	632260.542,897210.860			✓				Zone of lower resistivity which suggests disturbed ground, 10m in diameter. Contained on the northern edge of this zone is a 'Y-shaped' anomaly which appears to represent a cut feature. This anomaly could be archaeological in origin.	✓	
711	Linear high resistivity anomaly	632275.399,897215.527			✓		✓		A possible compacted earth or stone feature, measuring c. 18m in length and 3.9m in width. May be archaeology and is possibly related to anomalies 708 and 710.	✓	

<b>Survey Methodology:</b>		<b>ER7 Resistivity</b>					<b>Townland:</b>		<b>Curraghlane</b>	
<b>ITM Coordinate:</b>		632263.897206					<b>OD height of Survey Area</b>		21 m OD	
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain					<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      2.14 Ha	
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1								
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE								
<b>Figure No.:</b>		30 & 31								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
712	Isolated low resistivity anomaly	632240.722,897198.459			✓			A possible pit or cut feature, measuring c. 6.4m in diameter. May be archaeology or agricultural.	✓	
713	Isolated high resistivity anomaly	632250.867,897187.625			✓		✓	A possible compacted earth or stone feature, c.4.2m in diameter. May be archaeology or agricultural.	✓	
714	Curvilinear high resistivity anomaly	632255.629,897184.197			✓		✓	Curving possible compacted earth or stone feature, c. 16.2m E-W. May be related to anomaly 713. Possible archaeology or natural soil changes.	✓	
715	Linear high resistivity anomaly	632248.677,897176.197			✓		✓	A possible compact feature such as a bank, c. 143m in length and running across the field in SW-NE direction. May be a former field division.	✓	
716	Three isolated high resistivity anomalies	632254.069,897174.887 632262.130,897181.123 632245.718,897170.472			✓		✓	Three possible compacted earth or stone features, up to 5m in diameter and aligned parallel to the south of anomaly 715. May be archaeology or agricultural.	✓	
717	Linear high resistivity anomaly	632280.296,897201.816			✓		✓	Possible compacted earth or stone feature, measuring c. 33m E-W. Possible archaeology or agricultural.	✓	
718	Linear high resistivity anomaly	632292.736,897212.697			✓			Possible compacted earth or stone feature, measuring c. 97m NW-SE. Possible archaeology or agricultural.	✓	
719	Linear low resistivity anomaly	632291.847,897195.326	✓		✓			Possible ditch, measuring c. 22.5m N-S and meeting area of low resistivity at the S end. May be archaeology or agricultural.	✓	
720	Zone of low resistivity	632282.704,897186.310			✓		✓	Sub-circular area of possible soil disturbance or cut feature, ca. 10m to 11m in diameter. May be related to possible ditch 719 and is possible archaeology, agricultural or natural changes in the soil.	✓	
721	Zone of high resistivity	632304.852,897189.194			✓		✓	Sub-circular area of compact soil or stone, measuring c. 22m to 25m in diameter. May be related to the underlying geology but may also contain archaeological material.	✓	
722	Linear low resistivity anomaly	632298.702,897172.043	✓		✓			Possible ditch, measuring c. 55.8m NW-SE. May be archaeology or agricultural.	✓	

<b>Survey Methodology:</b>		<b>ER7 Resistivity</b>					<b>Townland:</b>		<b>Curraghane</b>		
<b>ITM Coordinate:</b>		632263.897206					<b>OD height of Survey Area</b>		21 m OD		
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain					<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20 2.14 Ha		
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1									
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE									
<b>Figure No.:</b>		30 & 31									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
723	Zone of raised resistivity	632279.622,897172.067			✓		✓		A sub-oval area of compacted earth or stone, measuring c. 15m by 20m in diameter. Possible geology or soil change.	✓	
724	Zone of low resistivity	632312.051,897162.496			✓		✓		Sub-oval area of possible soil disturbance or higher moisture content in the soil, measuring c. 23m by 29m in diameter. Possible geology or soil change.	✓	
725	Zone of raised resistivity	632328.622,897149.781			✓		✓		A large area of compact earth or stone, measuring c. 31m by 42m in size. Possible geology or soil change.	✓	
726	Two high resistivity linear anomalies	632276.301,897153.138 632268.126,897127.924			✓				Two possible compacted earth or stone linear features. One is c. 89m in length and running in NW-SE direction parallel to multiple plough furrows, the other is joining it at a perpendicular angle and c. 71m in length. Likely related to anomaly 715. They may be stone filled drains or former field divisions and may be archaeology or agricultural.	✓	
727	Three interconnecting linear and curving low resistivity anomalies	632279.395,897144.109 632292.729,897136.109 632275.396,897125.075	✓		✓				Three possible ditches running in different orientations and meeting roughly at the centre. They are up to 55m in length and may be archaeology or caused by natural changes in the soil.	✓	
728	Zone of raised resistivity	632283.038,897117.153			✓		✓		An oval area of compacted soil or stone near the southern end of the survey area. The area is c. 12.4m by 17m in size and may be caused by geology or natural changes in the soil.	✓	
729	Zone of low resistivity	632303.324,897110.153					✓		An area of soil disturbance or high moisture content in the soil which is c. 12m wide and runs along the southern field boundary (c. 134m) which is also the lowest part of the field. May be caused by an agricultural ditch or natural changes in the soil.	✓	
730	Linear high resistivity anomaly	632249.609,897145.867			✓				A possible compacted earth or stone feature running parallel to cultivation furrows in NW-SE direction across the entire field (c. 156m). May be a former field division or pronounced cultivation furrow. A field boundary running roughly in this direction is visible on the historic Cassini and 25 inch OS maps.	✓	
731	Zone of raised resistivity	632255.752,897107.295			✓		✓		A circular area of compacted earth or stone, c. 6.9m in diameter. Possible geology or soil change.	✓	

<b>Survey Methodology:</b>		<b>ER7 Resistivity</b>					<b>Townland:</b>		<b>Curraghane</b>		
<b>ITM Coordinate:</b>		632263.897206					<b>OD height of Survey Area</b>		21 m OD		
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain					<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      2.14 Ha		
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1									
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE									
<b>Figure No.:</b>		30 & 31									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
732	Zone of raised resistivity	632246.591,897101.944			✓		✓		A sub-oval area of compacted earth or stone, c. 22m by 11m in size. Possible geology or soil change.	✓	
733	Curvilinear low resistivity anomaly	632240.972,897120.706	✓		✓				A curving ditch, measuring c. 14m N-S. Possible archaeology or soil change.	✓	
734	Curvilinear high resistivity anomaly	632219.924,897138.134			✓		✓		A curving possible compacted earth or stone feature, measuring c. 28m N-S and approximately half of it running through an area of high resistivity 736. Possible archaeology or soil change.	✓	
735	Zone of low resistivity	632212.876,897125.563			✓		✓		Sub-oval area of possible soil disturbance or higher moisture content in the soil, measuring c. 8.5m by 23m in diameter. Possible geology or soil change.	✓	
736	Zone of raised resistivity	632217.353,897162.158			✓		✓		A large area of compact earth or stone, measuring c. 40m by 58m in size. Possible geology or natural soil changes.	✓	
737	Oval high resistivity anomaly	632228.972,897159.110			✓		✓		An oval area of possible compacted earth or stone, c. 13m by 6.6m in size and located within zone of raised resistivity 736. May be archaeology or geological.	✓	
738	Sub-oval high resistivity anomaly	632200.115,897154.634			✓		✓		A sub-oval area of possible compacted earth or stone, c. 21m by 15m in size and located within zone of raised resistivity 736. May be archaeology or geological.	✓	
739	Zone of low resistivity	632174.115,897165.682			✓		✓		Sub-oval area of possible soil disturbance or higher moisture content in the soil, measuring c. 10m by 22m in diameter. Possible geology or soil change.		
	Parallel linear trends	Throughout the survey area							Cultivation furrows running in NW-SE direction.		

<b>Survey Methodology:</b>		<b>ER7 Magnetometer</b>					<b>Townland:</b>		<b>Curraghane</b>		
<b>ITM Coordinate:</b>		632263,897206					<b>OD height of Survey Area</b>		21 m OD		
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain					<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      2.14 Ha		
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1									
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE									
<b>Figure No.:</b>		32 & 33									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
741	Arcing magnetic anomaly	632291.847,897210.863	✓	✓					Three sections of an enclosure ditch measuring 31m in length. This ditch appears to contain two breaks or possible entranceways to the east. This enclosure ditch appears to be associated with resistivity anomalies 708 and 709.	✓	
742	Arcing magnetic anomaly	632281.229,897210.787	✓	✓					Arcing ditch which appears to represent a sub-division or boundary which appears to interlink with or overcut enclosure 741. Measuring 40m in length this sub-enclosure appears to be associated with a number of internal features.	✓	
743	Zone of archaeological potential	632276.231,897204.429			✓				Zone of archaeological potential which is contained within ditch 742. Measuring 12m N-S and 13.5m E-W this zone contains a central void area which might be associated with near surface rock. It is likely that this zone has been created by multiple archaeological features which have been ploughed out.	✓	
744	Two isolated magnetic anomalies	632276.458,897200.341, 632278.616,897206.245		✓					Two probable pits which are located within the centre of anomalies 742 and 743.	✓	
745	Three isolated magnetic anomalies and a linear magnetic anomaly	Multiple locations	✓		✓				Three possible pits which are located on the western edge of zone 743. These pits could be associated with sub-enclosure 742. The presence of a linear ditch may represent to western edge of the sub-enclosure or it may be agricultural in origin.	✓	
746	Series of isolated magnetic anomalies	Multiple locations		✓	✓				Contained on the external edge of sub-enclosure 742 a series of possible pits and two probable pits were detected.	✓	
747	Series of five isolated ferrous anomalies	Multiple locations					✓		These ferrous items are likely to be modern in origin, although an archaeological explanation cannot be ruled out. Their location in linear formation is however intriguing. It is likely that the southern of these anomalies represents the sealing material for the souterrain detected in the ground penetrating radar data (anomaly 787)	✓	
748	Arcing magnetic anomaly	632260.197,897198.008	✓	✓					Ditch, 34m in length, which appears to intersect with anomaly 742 and cut 749. This ditch is likely to be archaeological in origin, probably representing an internal division with enclosure 741.	✓	

<b>Survey Methodology:</b>		<b>ER7 Magnetometer</b>					<b>Townland:</b>		<b>Curraghane</b>		
<b>ITM Coordinate:</b>		632263.897206					<b>OD height of Survey Area</b>		21 m OD		
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain					<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      2.14 Ha		
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1									
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE									
<b>Figure No.:</b>		32 & 33									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment		Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils	Interference / Modern		Test Excavation	Geophysical Survey
749	Arcing magnetic anomaly	632252.054,897213.579	✓	✓					Ditch, 21m in length, which appears to be archaeological in origin, probably representing an internal division with enclosure 741.	✓	
750	Series of curvilinear magnetic anomalies	Multiple locations	✓	✓					Series of curvilinear ditches or cut features which are located within the eastern portion of enclosure 741. These anomalies are likely to represent internal divisions or features, some of which may be associated with the possible entranceways within enclosure 741 and/or pits 746.	✓	
751	Arcing magnetic anomaly	632276.981,897223.543	✓	✓					Arcing ditch or cut feature, 9m in length. This anomaly is likely to be archaeological.	✓	
752	Arcing magnetic anomaly	632268.046,897223.461	✓	✓					Arcing ditch or cut feature, 16m in length. This anomaly is likely to be archaeological or agricultural in origin.	✓	
753	Arcing magnetic anomaly	632260.386,897226.318	✓	✓					Arcing ditch or cut feature, 10m in length. This anomaly is likely to be archaeological and could be associated with anomaly 752.	✓	
754	Series of isolated magnetic anomalies	Multiple locations		✓					Four possible pits, the highly magnetic signatures suggest that they may contain burnt remains.	✓	
755	Series of isolated magnetic anomalies	Multiple locations		✓					Four possible pits, the highly magnetic signatures suggest that they may contain burnt remains.	✓	
756	Series of isolated magnetic anomalies	Multiple locations		✓		✓			Six highly magnetic possible pits, possibly containing of burnt remains.	✓	
757	Four isolated magnetic anomalies	632285.647,897185.228 Multiple locations		✓					Four possible pits, the highly magnetic signatures suggest that they may contain burnt remains.	✓	
758	Linear magnetic anomaly	632291.001,897179.03	✓	✓					Linear ditch or cut feature, 55m in length, which is likely to be archaeological or agricultural.	✓	
759	Two interlinking magnetic anomalies	632307.209,897193.465	✓	✓					Two interlinking ditches or cut features, 47 & 26m in length, which is could be archaeological or agricultural.	✓	
760	Arcing magnetic anomaly	632318.788,897177.946	✓	✓					Arcing ditch or cut feature, 31m in length. This anomaly could be archaeological or geological.	✓	

<b>Survey Methodology:</b>		<b>ER7 Magnetometer</b>					<b>Townland:</b>		<b>Curraghallane</b>		
<b>ITM Coordinate:</b>		632263.897206					<b>OD height of Survey Area</b>		21 m OD		
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain					<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      2.14 Ha		
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1									
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE									
<b>Figure No.:</b>		32 & 33									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
761	Semi-circular magnetic anomaly dissected by multiple isolated anomalies	632317.557,897148.237							Semi-circular ditch or cut feature, 53m in length which may be archaeological in origin. The ditch appears to contain a series of possible pits within it or adjacent to it. This possible enclosure ditch measures 20m N-S and 18m E-W.	✓	
762	Series of isolated magnetic anomalies	632309.037,897149.733 Multiple locations							Series of possible pits which are located within the centre of anomaly 761. The largest of these may be multiple pits in close proximity or a cut feature.	✓	
763	Linear magnetic anomaly	632293.731,897163.026	✓	✓					Linear ditch or cut feature, 128m in length, which is likely to be agricultural.	✓	
764	Two section of a linear magnetic anomaly	632340.881,897139.31, 632252.394,897146.352	✓	✓					Two sections of a linear ditch or cut feature. Measuring of a total of 140m in length, which is likely to be agricultural.	✓	
765	Linear magnetic anomaly	632254.257,897128.064	✓	✓					Linear ditch or cut feature, 36m in length, which is likely to be agricultural.	✓	
766	Series of isolated magnetic anomalies	Multiple locations		✓					Seven possible pits, the highly magnetic signatures suggest that they may contain burnt remains.	✓	
767	Curvilinear magnetic anomaly	632295.375,897116.028	✓	✓					Curvilinear ditch or cut feature, 24m in length, which is likely to be agricultural.	✓	
768	Linear interconnecting magnetic anomalies	632277.321,897122.007	✓	✓					Two interconnecting linear ditch or cut features, which are likely to be agricultural.	✓	
769	Curvilinear magnetic anomaly	632248.382,897109.434	✓	✓					Curvilinear ditch or cut feature, 42m in length, which could be archaeological or agricultural.	✓	
770	Linear magnetic anomaly	632221.518,897131.611	✓	✓					Linear ditch or cut feature, 40m in length, which is likely to be agricultural.	✓	
771	Linear magnetic anomaly	632201.933,897153.54	✓	✓					Linear ditch or cut feature, 19m in length. This anomaly could be archaeological or agricultural.	✓	
772	Linear magnetic anomaly	632203.4,897165.585	✓	✓					Linear ditch or cut feature, 25m in length, which is likely to be agricultural.	✓	
773	Linear magnetic anomaly	632178.81,897180.702	✓	✓					Linear ditch or cut feature, 84m in length, which is likely to be agricultural.	✓	
774	Linear magnetic anomaly	632247.704,897176.082	✓	✓					Linear ditch or cut feature, 28m in length, which could be archaeological or agricultural.	✓	

<b>Survey Methodology:</b>		<b>ER7 Magnetometer</b>				<b>Townland:</b>		<b>Curraghane</b>			
<b>ITM Coordinate:</b>		632263,897206				<b>OD height of Survey Area</b>		21 m OD			
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain				<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      2.14 Ha			
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1									
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE									
<b>Figure No.:</b>		32 & 33									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
775	Linear magnetic anomaly	632240.007,897163.959						✓	Linear ditch which relates to a relict field boundary, shown on the historic OS maps.	✓	
776	Three isolated magnetic anomalies	632177.997,897161.001 Multiple locations			✓		✓		Three possible pits, there highly magnetic nature suggests that they may contain burnt remains.	✓	
777	Curvilinear magnetic anomaly	632197.599,897210.641	✓		✓				Possible ditch or cut feature, 43m in length	✓	
778	Curvilinear magnetic anomaly	632236.631,897245.754	✓		✓				Possible ditch or cut feature, 22m in length, archaeological or agricultural in origin.	✓	
	Zone of High magnetism	632230.131,897224.666						✓	Zone of high magnetism which relates to geological activity and has no archaeological significance.		

<b>Survey Methodology:</b>		<b>ER7 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Curragalane</b>		
<b>ITM Coordinate:</b>		632263.897206				<b>OD height of Survey Area</b>		21 m OD		
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain				<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      0.25 Ha		
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1								
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE. A slight topographical expression was visible over the majority of the survey area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.								
<b>Figure No.:</b>		34, 35, 36, 37, 38, 39 & 40								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
779	Shallow depth - area of high amplitude responses	632279.362,897213.888			✓			Area which comprises of stony or compacted ground, measuring 34m x 34m. This anomaly roughly matches resistivity anomalies 708 and 709 and is associated with the same material at the bottom of the plough soil. This material is likely to be archaeological in origin.	✓	
780	Shallow depth – zone of very low amplitude responses	632264.478,897209.434			✓			Zone of very quiet radar signatures. Measuring 9m N-S and 17m E-W this feature contains a central core, diffuse edges and could be associated with a break in the stony material of 779, a clay deposit or a dug archaeological feature.	✓	
781	Shallow depth - area of high amplitude responses	632251.922,897222.187			✓			Area which comprises of stony or compacted ground, measuring 9m in diameter. This feature is likely to comprise the same material as 779 and could represent a continuation to the feature or a separate archaeological deposit.	✓	
782	Shallow depth - two interconnecting linear anomalies	632264.083,897200.485	✓		✓			Two interconnecting ditches which are likely to be agricultural in origin. They match the direction of the surrounding cultivation furrows, possibly interlink with anomaly 784 and overcut 779.	✓	
783	Shallow depth - two curvilinear anomalies	632264.876,897223.526, 632279.839,897220.077	✓		✓			Two possible ditches which run roughly parallel to each other and cross anomaly 779. Measuring 17m and 18m these anomalies are likely to be agricultural in origin and may represent deep plough furrows.	✓	
784	Shallow depth - linear anomaly	632271.258,897188.629	✓		✓			Linear possible ditch, 41m in length. This feature is likely to be agricultural in origin and may interlink with anomaly 782	✓	
	Shallow depth – series of parallel responses	Multiple locations					✓	Cultivation furrows detected across the survey area.		

<b>Survey Methodology:</b>		<b>ER7 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Curraghane</b>		
<b>ITM Coordinate:</b>		632263.897206				<b>OD height of Survey Area</b>		21 m OD		
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain				<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      0.25 Ha		
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1								
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE. A slight topographical expression was visible over the majority of the survey area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.								
<b>Figure No.:</b>		34, 35, 36, 37, 38, 39 & 40								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
785	Medium depth – three arcing responses	632279.815,897196.861, 632279.687,897232.039, 632251.508,897219.931	✓	✓				Three sections of an inner enclosure ditch measuring 39m in diameter. A further portion of this feature was detected in anomaly 741. This feature appears to enclose a series of internal archaeological features and roughly corresponds to the limits of anomalies 708 & 709.	✓	
786	Medium depth - two arcing responses	632242.578,897207.773, 632246.202,897226.138	✓	✓				Two sections of enclosure ditch, 36m in length, which run around the western edge of 785. This feature may represent an outer enclosure ditch. The presence of a distinctive break between the two portions of 786 could indicate the presence of a possible entranceway.	✓	
787	Medium depth – sub-linear zone of very high amplitude reflections	632269.888,897200.142		✓				The western end of this anomaly appears to be circular in shape and measures 5.6m in diameter. The high amplitude reflections of the anomaly indicate that it comprises of stone and corrects to the souterrain known to be located on site. The geophysical anomaly indicates that the monument contains a c.10m passageway running to the east. This anomaly appears to be located within the sub-enclosure identified in the magnetometer data (anomaly 742)	✓	
788	Medium depth – arcing high amplitude reflections	632254.874,897199.495		✓				Arcing area of compact earth or stone, 4m in length, which could be archaeological and may form a feature within enclosure 785 or it could be geological in origin.	✓	
789	Medium depth – series of high amplitude reflections	Multiple locations		✓				Series of compact earth or stone features measuring between 2.7m and 6m in length which are located in the centre of enclosure 785. These features could be archaeological or geological in origin.	✓	
790	Medium depth – two arcing high amplitude anomalies	632279.596,897221.612, 632275.195,897215.533		✓				Two arcing compact earth or stone features which possibly form an internal division within enclosure 785. They cover an area 8m N-S and 10m E-W and possibly lead from ditch 785.	✓	

<b>Survey Methodology:</b>		<b>ER7 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Curraghallane</b>			
<b>ITM Coordinate:</b>		632263.897206				<b>OD height of Survey Area</b>		21 m OD			
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain				<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      0.25 Ha			
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1									
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE. A slight topographical expression was visible over the majority of the survey area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.									
<b>Figure No.:</b>		34, 35, 36, 37, 38, 39 & 40									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
791	Medium depth - arcing high amplitude anomaly	32287.005,897207.465			✓				Arcing compact earth or stone feature, 11m in length, possibly archaeological in origin. This anomaly may represent an internal feature within enclosure 785.	✓	
792	Medium depth – series of linear and arcing anomalies	Multiple locations	✓		✓				Large number of possible ditches or cut features which are located in the centre of enclosure 785. A number of possible sub-division are visible and all appear to respect the location of enclosure ditch 785. It is likely that these are archaeological in origin and while they appear to be located under the plough soil it is possible that some of these anomalies are associated with this process or geological activity.	✓	
793	Medium depth – zone of possible archaeological activity	632270.794,897227.561			✓				Zone of possible archaeological activity which is located in the northern portion of enclosure 785. Measuring 12m in length this zone could comprise of multiple small archaeological features or deposits or could correspond to natural soil changes or geology.	✓	
794	Medium depth – four zones of disturbed ground	Multiple locations			✓				Four small zones of possible disturbed ground, between 3m and 0.8m in length. These anomalies could relate to archaeological cut features and are located within enclosure 785.	✓	
795	Medium depth – two sets of interconnecting linear anomalies	632238.49,897223.109, 632246.077,897191.175			✓				Two sets of interlinking ditch or cut features which are located outside enclosure 785. The parallel nature of these anomalies indicates that they are likely to represent former boundary features.	✓	
796	Medium depth - zone of disturbed ground	632249.697,897188.502			✓				Zone of disturbed soil, 4m in width which may be archaeological, agricultural or geological in origin.	✓	
797	Deep depth – three curvilinear anomalies	632242.745,897224.709, 632277.027,897227.407, 632247.074,897207.041	✓		✓				Three possible ditches, between 11m and 8m in length. These anomalies could be archaeological in origin however given their depth they could also be associated with breaks in the bedrock or natural soil changes.	✓	

<b>Survey Methodology:</b>		<b>ER7 Ground Penetrating Radar</b>				<b>Townland:</b>		<b>Curraghallane</b>		
<b>ITM Coordinate:</b>		632263,897206				<b>OD height of Survey Area</b>		21 m OD		
<b>Survey Weather Conditions:</b>		Cold with periods of heavy rain				<b>Survey Date and Area (Ha):</b>		28/09/20 - 1/10/20      0.25 Ha		
<b>Heritage Constraint Ref:</b>		DG070-082 Souterrain and potential enclosure L362-1								
<b>Site Description:</b>		Newly harvested crop field which is undulating and sloping down from NW to SE. A slight topographical expression was visible over the majority of the survey area. The data has been divided for interpretation purposes into three depth ranges. If full depth penetration was achieved then it is estimated that the shallow depth features are located between c.0m – 1.12m, medium depth = c.1.12m – 2.88m and deep depth = c.2.88m – 4.00m.								
<b>Figure No.:</b>		34, 35, 36, 37, 38, 39 & 40								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
798	Deep depth – multiple areas of high amplitude responses	Multiple locations			✓		✓	Multiple zones of radar reflections which suggest the presence of stone remains. These anomalies could represent the basal deposits within archaeological features, but are more likely to be geological in origin.	✓	
799	Deep depth – three areas of amplitude responses	Multiple locations	✓		✓		✓	Three areas of apparent disturbed ground. This disturbed ground could be associated with archaeological or geological activity.	✓	
800	Deep depth – three sections of an arcing anomaly	632258.151,897195.445	✓		✓			Possible ditch or cut feature which is located at depth within the radar data. This anomaly measures 15m N-S and c.9m E-W and appears to contain at least two breaks. It is possible that this feature is archaeological in origin, however given its depth a geological explanation cannot be ruled out.	✓	

### 3.8 ER8

<b>Survey Methodology:</b>		<b>ER8 Resistivity</b>				<b>Townland:</b>		<b>Carnshannagh</b>			
<b>ITM Coordinate:</b>		628551,904492				<b>OD height of Survey Area</b>		74 m OD			
<b>Survey Weather Conditions:</b>		Light drizzle and warm dry weather				<b>Survey Date and Area (Ha):</b>		2/07/20 - 3/07/20 1.8 Ha			
<b>Heritage Constraint Ref:</b>		DG062-024 High resolution LiDAR revealed that the recorded monument might in fact be located within this survey area.									
<b>Site Description:</b>		Two pasture fields on a moderate to steep W-facing slope. There was a broad linear topographical expression in the northern part of the eastern field. A steep section in the middle of the western field could not be surveyed.									
<b>Figure No.:</b>		22 & 23									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
801	Right-angled high resistivity anomaly	628455.303,904496.383			✓		✓		Right-angled possible compacted earth or stone feature, measuring c. 15m in length and running into the western field boundary.	✓	
802	Curvilinear low resistivity anomaly	628455.198,904490.774	✓		✓		✓		A curvilinear possible ditch or cut feature, c. 12m in length. This feature crosses 801 and may be archaeological or agricultural.	✓	
803	Linear low resistivity anomaly	628461.653,904494.901	✓		✓		✓		A linear possible ditch or cut feature measuring 25.7m in length. This anomaly may be related to anomaly 806 which it appears to meet at the eastern end and may once have been a field boundary.	✓	
804	Linear low resistivity anomaly	628474.669,904477.547	✓		✓				Linear possible ditch or cut feature, c. 37m in length. This feature crosses anomaly 806 and terminates within a large area of modern disturbance in the SW corner of the field.	✓	
805	Oval low resistivity area	628461.970,904466.542			✓				A possible pit or area of disturbed soil, c. 4m x 2.4m in size which could be archaeological or agricultural in origin.	✓	
806	Right-angled low resistivity anomaly	628482.288,904462.785	✓		✓		✓		A broad right-angled possible ditch or boundary feature, measuring c. 37m N-S and 30m E-W. This anomaly probably interlinks with 803 and could represent a former field division.	✓	
807	Curvilinear high resistivity anomaly	628484.827,904465.325			✓		✓		Short curvilinear possible compacted earth or stone feature, c. 7.8m in length, which runs parallel to a section of anomaly 806. This feature could also be associated with the former field division.	✓	
808	Oval low resistivity anomaly	628485.674,904478.341			✓		✓		Possible pit or soil disturbance, c. 2.3m x 3.9m in diameter which could be archaeological or agricultural.	✓	
809	Three isolated high resistivity anomalies	628506.415,904477.177 628504.933,904474.637 628508.108,904468.923			✓		✓		A small cluster of three possible compacted earth or stone features near the centre of the field. These could represent archaeological deposits or be associated with near surface stone.	✓	

<b>Survey Methodology:</b>		<b>ER8 Resistivity</b>				<b>Townland:</b>		<b>Carnshannagh</b>		
<b>ITM Coordinate:</b>		628551,904492				<b>OD height of Survey Area</b>		74 m OD		
<b>Survey Weather Conditions:</b>		Light drizzle and warm dry weather				<b>Survey Date and Area (Ha):</b>		2/07/20 - 3/07/20 1.8 Ha		
<b>Heritage Constraint Ref:</b>		DG062-024 High resolution LiDAR revealed that the recorded monument might in fact be located within this survey area.								
<b>Site Description:</b>		Two pasture fields on a moderate to steep W-facing slope. There was a broad linear topographical expression in the northern part of the eastern field. A steep section in the middle of the western field could not be surveyed.								
<b>Figure No.:</b>		22 & 23								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
810	Curvilinear high resistivity anomaly	628476.679,904502.150			✓		✓	Compacted earth or stone feature, c. 10.5m in length, which may be related to a zone of high resistivity 811.	✓	
811	Amorphous zone of very high resistivity	628489.803,904505.219			✓		✓	A zone of very high resistivity which contains a number of distinguishable features within it (812 & 813). The zone could be caused by near surface geological features or a stone filled deposit of either archaeological or agricultural origin.	✓	
812	Two arcing high resistivity anomalies	628494.245,904496.330 628419.494,904500.351			✓		✓	Two arcing segments forming a sub-circular possible enclosing feature. This appears to be made of compacted earth or stone and measuring c. 5m in diameter. It is possible that this anomaly is archaeological in origin and it may be related to anomaly 813.	✓	
813	Multiple isolated high resistivity responses	628493.081,904498.235 628484.510,904498.764 628494.669,904499.610 628482.288,904500.034			✓		✓	Four small isolated stone or compacted earth features, located within anomaly 811. These isolated stone features are distinguishable from the high resistivity zone 811 and could relate to archaeological stone deposits or near surface stone which may be part of anomaly 811.	✓	
814	Amorphous low resistivity anomaly	628536.362,904508.923			✓		✓	A possible pit or area of disturbed soil, measuring c. 5.6m x 3.2m in diameter. Located at the top of a geological rise this anomaly could be archaeological or agricultural.	✓	
815	Curvilinear and linear low resistivity anomalies	628536.573,904518.446	✓		✓		✓	Two possible ditches running roughly parallel to each other and meeting to form a rectangular division, 5m wide and 19m in length. This division contains anomaly 816 and may be archaeological or agricultural in origin.	✓	
816	Curvilinear high resistivity anomalies	628541.335,904514.425			✓		✓	Two compacted earth or stone curvilinear anomalies which intersect at their northern edge. With a separation of 3m these features are likely to be associated with anomaly 815.	✓	
817	Linear high resistivity anomaly	628552.446,904520.245	✓		✓		✓	Linear ditch or cut feature, c. 13m in length, extending from the northeastern side of anomaly 815 towards the field boundary.	✓	
818	Linear low resistivity anomaly	628550.965,904494.743	✓		✓		✓	Linear ditch or cut feature c. 13.6m in length this may be associated with anomaly 819 and could be archaeological in origin.	✓	

<b>Survey Methodology:</b>		<b>ER8 Resistivity</b>					<b>Townland:</b>		<b>Carnshannagh</b>		
<b>ITM Coordinate:</b>		628551,904492					<b>OD height of Survey Area</b>		74 m OD		
<b>Survey Weather Conditions:</b>		Light drizzle and warm dry weather					<b>Survey Date and Area (Ha):</b>		2/07/20 - 3/07/20 1.8 Ha		
<b>Heritage Constraint Ref:</b>		DG062-024 High resolution LiDAR revealed that the recorded monument might in fact be located within this survey area.									
<b>Site Description:</b>		Two pasture fields on a moderate to steep W-facing slope. There was a broad linear topographical expression in the northern part of the eastern field. A steep section in the middle of the western field could not be surveyed.									
<b>Figure No.:</b>		22 & 23									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment		Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils	Interference / Modern		Test Excavation	Geophysical Survey
819	Interconnecting low resistivity anomalies	628538.266,904485.007	✓		✓		✓		Series of interconnecting ditches or cut features which form a roughly rectangular division, c. 7m SW-NE and 25.7m NW-SE. Terminating at the break of slope these features could be agricultural or archaeological and may be associated with anomalies 820 & 821.	✓	
820	Curvilinear low resistivity anomaly	628540.806,904475.272	✓		✓		✓		Curvilinear possible ditches, c. 18m in length, which intersect with ditch 819 and may be agricultural in origin.	✓	
821	Amorphous zone of high resistivity	628545.780,904485.008			✓		✓		A small zone of compacted earth or stone, c. 4.8m x 5.43m in diameter, located between ditches 818, 819 and 820. This anomaly could be archaeological, agricultural or geological.	✓	
822	Linear low resistivity anomaly	628570.107,904516.357	✓		✓		✓		Possible ditch running from the central field boundary into anomaly 823. Measuring c. 13m in length this anomaly could be archaeological or agricultural.	✓	
823	Large zone of low resistivity	628595.028,904501.437			✓		✓		An amorphous area of low resistivity which spans across the eastern field. The amorphous nature of the anomaly indicates that it could be made up of multiple dug features which could be archaeological or geological in origin. Measuring c. 47m SW-NE and 30m NW-SE this feature appears to terminate or runs into anomaly 828 and may be associated.	✓	
824	Curvilinear low resistivity anomaly	628587.885,904497.469	✓		✓		✓		Possible ditch or cut feature, c. 48.5m in length, which runs roughly through the centre of zone 823 and into 828. This anomaly could be archaeological or agricultural.	✓	
825	Two isolated high resistivity responses	628572.488,904475.088 628586.139,904472.865			✓		✓		Two possible compacted earth or stone anomalies to the south of zone 823. These could represent archaeological deposits or be associated with near surface stone.	✓	
826	Linear low resistivity anomaly	628579.790,904476.357	✓		✓		✓		Wide linear ditch or cut feature, measuring c. 9.8m long and 2.3m wide. This anomaly crosses 823 and the two may be related.	✓	
827	Curvilinear high resistivity anomaly	628585.504,904483.818			✓		✓		Possible compacted earth or stone feature located within zone 823 and measuring c. 10.8m in length. This anomaly runs roughly parallel to 824 and may be related.	✓	

<b>Survey Methodology:</b>		<b>ER8 Resistivity</b>				<b>Townland:</b>		<b>Carnshannagh</b>		
<b>ITM Coordinate:</b>		628551,904492				<b>OD height of Survey Area</b>		74 m OD		
<b>Survey Weather Conditions:</b>		Light drizzle and warm dry weather				<b>Survey Date and Area (Ha):</b>		2/07/20 - 3/07/20 1.8 Ha		
<b>Heritage Constraint Ref:</b>		DG062-024 High resolution LiDAR revealed that the recorded monument might in fact be located within this survey area.								
<b>Site Description:</b>		Two pasture fields on a moderate to steep W-facing slope. There was a broad linear topographical expression in the northern part of the eastern field. A steep section in the middle of the western field could not be surveyed.								
<b>Figure No.:</b>		22 & 23								
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation
828	Large arcing band of low resistivity	628595.028,904523.659	✓	✓				A possible enclosure ditch or 'D-shaped' band of disturbed soil, spanning 40m N-S, 56.5m E-W and with a width of c.10m. The northern extent of this ditch appears to be more linear in formation and narrower. It is probable that this enclosure ditch is narrower than the associated geophysical signature. The ditch appears to surround a series of features (829-833) and extends beyond the survey area.	✓	
829	Four curvilinear high resistivity anomalies	628599.631,904528.897 628628.361,904515.405 628635.821,904539.532 628620.358,904550.25		✓				Four segments of a possible enclosing bank inside anomaly 828, covering an area 37m N-S and 39m E-W. Three gaps or possible entrances can be seen; to the northeast a 5m wide gap is visible alongside an eastern 3.7m gap and a 3.3m wide gap at southeast. It is likely that anomaly 829 is archaeological in origin and it may contain a number of compacted earth or stone anomalies along its western edge.	✓	
830	Zone of high resistivity	628606.933,904529.215		✓		✓		This high resistivity anomaly coincides with a broad linear topographical expression in the field and measures c. 26m in length and 8m in width. It is most likely a compacted earth or stone feature such as a bank, building remains or near surface geology. Within this zone there are a number of isolated stone anomalies and a crescent-shaped compacted earth feature, measuring c. 5m N-S and 6m E-W. All anomalies within 830 could be archaeological.	✓	
831	Multiple isolated high resistivity responses	628629.313,904518.580 628618.202,904529.215 Multiple locations		✓		✓		A number of isolated compacted earth or stone features were detected within the area enclosed by anomalies 828 and 829. These could relate to stone deposits and are likely to be associated with anomaly 830. In the centre a linear compacted earth or stone feature, 16m in length which could represent a boundary feature within the enclosure.	✓	
832	Curvilinear high resistivity anomaly within a zone of high resistivity	628624.234,904536.992		✓		✓		Curvilinear compacted earth or stone feature, c. 4.7m which may be associated with archaeological remains. This feature is located within a curvilinear linear zone of high resistivity which might be archaeological or geological in origin.	✓	

<b>Survey Methodology:</b>		<b>ER8 Resistivity</b>					<b>Townland:</b>		<b>Carnshannagh</b>		
<b>ITM Coordinate:</b>		628551,904492					<b>OD height of Survey Area</b>		74 m OD		
<b>Survey Weather Conditions:</b>		Light drizzle and warm dry weather					<b>Survey Date and Area (Ha):</b>		2/07/20 - 3/07/20 1.8 Ha		
<b>Heritage Constraint Ref:</b>		DG062-024 High resolution LiDAR revealed that the recorded monument might in fact be located within this survey area.									
<b>Site Description:</b>		Two pasture fields on a moderate to steep W-facing slope. There was a broad linear topographical expression in the northern part of the eastern field. A steep section in the middle of the western field could not be surveyed.									
<b>Figure No.:</b>		22 & 23									
No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment		Recommendation	
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils	Interference / Modern		Test Excavation	Geophysical Survey
833	Three curvilinear low resistivity anomalies	628620.742,904532.072 628632.012,904537.627 628630.107,904527.310	✓	✓	✓				Three curvilinear possible cut or ditched features, measuring between 11.3m and 29.3m in length. These features are likely to represent internal divisions within enclosure 829 and may be associated with the internal features within 832.	✓	
834	Linear low resistivity anomaly	628609.274,904488.461	✓	✓		✓			Linear possible ditch, c. 25.8m in length, possibly associated with agricultural boundaries which appear to respect the location of possible enclosure 828.	✓	
835	Curvilinear high resistivity anomaly	628617.131,904506.318		✓		✓			Possible compacted earth or stone feature which is located on the southern edge of possible enclosure (828 & 829). Measuring c. 7.2m in length this anomaly may relate to archaeological activity.	✓	
836	Four linear low resistivity anomalies	628636.179,904495.603 Multiple locations	✓	✓		✓			Four roughly parallel possible ditches or cut features, up to 27m in length and running in a NW-SE direction. These are likely to represent boundary features and a number appear to respect the location of possible enclosure 828.	✓	
837	Isolated high resistivity anomaly	628646.417,904501.556		✓		✓			Possible compacted earth or stone feature near the southeastern corner of the field. Contained within 838 this anomaly may be archaeological or geological in origin.	✓	
838	L-shaped low resistivity anomaly	628644.750,904508.699	✓	✓		✓			Possible ditch or cut feature, measuring c. 16m NW-SE and 8m NE-SW. this boundary intersects a portion of 836 and is likely to form a sub-boundary feature.	✓	
839	Two linear low resistivity anomalies	628655.226,904536.556 628648.798,904543.699	✓	✓		✓			Two possible ditches, c. 30.8m and 20m in length, located to the east of possible enclosure ditch 823. These features run parallel to anomaly 834 and are likely to be agricultural.	✓	
840	Curvilinear low resistivity anomaly	628620.358,904550.25	✓	✓		✓			Possible ditch, 24m in length this is located on the northern edge of 828. This anomaly could be archaeological, geological or agricultural in origin.	✓	
841	Linear high resistivity anomaly	628638.982,904572.772		✓		✓			Linear stone or compact earth feature, 21m in length. The location and orientation of this anomaly matches that of the adjacent field boundary and therefore the two are likely to be associated.	✓	

<b>Survey Methodology:</b>		<b>ER8 Resistivity</b>				<b>Townland:</b>		<b>Carnshannagh</b>			
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No.	Form of Anomaly	ITM (E,N)	Possible Source(s) of Anomaly					Comment	Recommendation		
			Ditch	Archaeology	Poss. Archaeology	Ferrous	Geology / Soils		Interference / Modern	Test Excavation	Geophysical Survey
842	Two curvilinear low resistivity anomalies	628622.748,904589.303	✓		✓		✓	Two ditches which appear to cross. Measuring 17m and 23m these anomalies could be archaeological, agricultural or geological in origin.	✓		
843	Curvilinear low resistivity anomaly	628609.859,904581.594	✓		✓		✓	Curvilinear possible ditch, 19m in length. This anomaly could be associated with 842 and may be archaeological, agricultural or geological in origin.	✓		
844	Zone of low resistivity	628596.431,904567.707	✓		✓		✓	Linear zone of low resistivity which is likely to be associated with disturbed or moisture rich soils. Measuring 40m in length and a maximum of 14m in width this could represent geological or agricultural activity and may be associated with 823.	✓		
845	Linear low resistivity anomaly	628576.415,904573.314	✓		✓		✓	Linear ditch, 26m in length which runs from the corner of the field into 844. This anomaly could be agricultural or archaeological in origin; matching the alignment of 841 and 846 these anomalies could be associated.	✓		
846	Linear high resistivity anomaly	628590.143,904555.374			✓		✓	Linear compacted earth or stone feature, 61.5m in length. This anomaly appears to cross 828 and is aligned with 841 suggesting that they both are agricultural in origin.	✓		
847	Curvilinear low resistivity anomaly	628589.651,904548.478	✓		✓		✓	Curvilinear possible ditch, 43m in length which may be archaeological, agricultural or geological in origin.	✓		
848	Curvilinear low resistivity anomaly	628589.651,904548.478	✓		✓		✓	Linear possible ditch, 20.6m in length. This anomaly may respect 847 and may represent an internal division within it. It could be associated with archaeological, agricultural or geological activity.	✓		
	Multiple parallel linear trends	Multiple locations					✓	✓	Possible cultivation furrows running in NW-SE direction in the western section of the survey area.		
	Zones of modern disturbance	Multiple locations						✓	A number of zones along the southern field boundary, the SW and NE corners and the central field boundary are caused by modern soil disturbance and fencing materials.		

## 4 Conclusion

### 4.1 Summary of Results

The geophysical surveys undertaken for this report have successfully revealed a series of previously unknown potential archaeological remains. The combined approach of resistivity and magnetometer surveys worked well in the majority of areas. As expected the magnetometer was impacted by the geological conditions, however a number of features were detected around the geological interference which has added to our understanding of the sites. The use of ground penetrating radar surveys within sites ER1 and ER7 greatly added to the amount of anomalies that were detected and therefore our understanding of the characterisation and complexity of these sites.

The surveys undertaken at ER1 revealed a complex archaeological landscape. A multi-ditched enclosure was identified in the southern portion of the survey area. This is likely to represent the remains recorded in RMP DG078-005 as the 'Site of' Drumboe Abbey. It comprises of an oval double ditched feature, 76m in diameter which may be surrounded by an external bank containing circular stone deposits. The monastic complex then may be surrounded by a larger single ditched feature, c.108m in diameter.

Contained within the double ditched enclosure a large number of pits, internal division, burnt remains and possible graves were detected. In addition the remains of a structure was identified which contains some stone remains as well as two probable pits. The orientation and formation of the structure indicates that it is likely to be religious in formation, possibly associated with the so called Drumboe Abbey. Evidence for structural remains, pits or graves and a possible entranceway were detected on the outside of the enclosure.

To the north further archaeological activity can be seen with the detection of possible sub-circular ditches, pits, boundary ditches and zones of disturbed soil. Evidence of agricultural processes and geology were also noted within ER1.

Surveys undertaken at ER2 detected an arcing ditch which might be associated with the potential enclosure identified during the route selection process. One possible pit was also detected along with boundary ditches and field divisions.

The survey undertaken at ER3 revealed a number of potential stone and ditch features. The majority of these are likely to be associated with agricultural processes or the pitch and putt course / bike track which were previously on the site. Two arcing possible ditches on the northern edge of the survey area may be archaeological in origin. However due to the very disturbed nature of the site any features within this landscape are very difficult to categorise, while others may have been masked. No features potentially associated with the adjacent recorded ringfort could be seen.

ER4 revealed the presence of numerous possible pits, stone deposits and four possible archaeological ditches. The land to the west has been extensively ploughed making it difficult to ascertain if these anomalies, especially the stone deposits, are archaeological or natural in origin. Within the eastern field a number of zones of high and low resistivity were detected which might be geological in origin or associated with the flax mill and related water management systems once present on site. Surveys undertaken at ER5 revealed numerous features which are likely to be geological and agricultural in origin. A number of curvilinear anomalies were detected on the western edge of the site while the majority of these are likely to be geological in nature one possible archaeological double ditches feature was detected.

The surveys undertaken at ER6 revealed a series of possible archaeological features within the eastern field. These comprise of possible pits and stone deposits which may be associated with an arcing ditch which appears to enclose the base of a natural topographical rise. Alternatively the features may be associated with a standing stone purported to have once existed within the field. Further features were detected in the eastern field and while these could also be archaeological, a geological or agricultural explanation is perhaps more likely.

ER7 revealed the presence of a possible double ditched enclosure. This enclosure appears to contain a number of internal divisions, zones of compact earth or stone and possible cut features. The enclosure appears to be situated on a slight topographical rise and contains a souterrain within its southern extent. This souterrain appears to contain an eastwards passageway as well as the beehive chamber revealed during ploughing. External to the enclosure further possible archaeological evidence was detected through possible pits, a possible pit lined enclosure and relict field boundaries.

Within ER8 the remains of numerous possible agricultural features were detected as well as a zone of compact earth or stone which might be archaeological in origin. A large enclosure ditch was detected in the eastern field. This appears to surround a possible bank, which itself surrounds a number of stone deposits and ditches. The enclosure is approximately 60m in diameter and appears to have remained standing within the landscape for a considerable time as the surrounding detected relict field divisions respect the monuments location. Two large areas of disturbed soil extends from this enclosure which could relate to further archaeological activity.

## 4.2 Dissemination

The results of this survey were submitted to Donegal County Council. Additional copies will be distributed in accordance with the Consent to use a Detection Device (see Appendix 2).

## 5 Acknowledgements

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<b>Donegal County Council:</b>	Aine McHugh Peadar Kelly

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## 7 Figures

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- Figure 39: Combined ground penetrating radar interpretation – Medium Depth Anomalies
- Figure 40: Combined ground penetrating radar interpretation – Deep Depth Anomalies

## Technical Appendix

### Appendix 1: Anomaly Classifications

#### Electromagnetic Apparent Electrical Resistivity

Electromagnetic instruments transmit an alternating current which induces a primary and subsequently a secondary electromagnetic field which interacts with the underlying soils. One of the subsequent responses is the Apparent Electrical Conductivity of the soil, which are subsequently calculated via automated software to Apparent Electrical Resistivity ( $ER_a$ ).

#### Anomaly classification used to interpret $ER_a$ data

After Gaffney & Gater (2003) and Gaffney *et al.* (2000).

**A known archaeological feature type e.g. Ditch / Wall / Structure etc:** An anomaly with a  $ER_a$  that contrasts strongly with the surrounding sub-soil, where the presence of a type of archaeological feature is known from supporting evidence.

**Archaeology:** A linear, curvilinear or isolated anomaly with an  $ER_a$  that contrasts strongly with the surrounding sub-soil, without any supporting evidence from another source.

- **Ditch / Wall:** A discrete linear, curvilinear, annular or penannular anomaly with an  $ER_a$  that contrasts strongly with the surrounding sub-soil. A low  $ER_a$  suggests a ditch; a high  $ER_a$  suggests a stone-filled ditch or wall.
- **Mound of Stones:** A discrete horseshoe or ovoid shaped anomaly with a higher  $ER_a$  than the surrounding sub-soil.
- **Pit:** A small isolated area (>1-2m diameter) of  $ER_a$  that contrasts with the surrounding sub-soil, judged to be caused by a pit-type feature.
- **Cultivation:** Parallel linear responses of high or low  $ER_a$ .
- **Disturbed Soil:** A broad area of moderate  $ER_a$  change that contrasts with the surrounding sub-soil. May represent cultural noise associated with soil disturbance, judged to be of archaeological origin.

#### High $ER_a$ Anomalies

Soils comprised of materials of a higher  $ER_a$  than the surrounding soil will exhibit anomalies of 'higher resistivity'. These are likely to include stone walls, masonry, rubble, cobbled or gravel surfaces, as well as near surface geology.

#### Low $ER_a$ Anomalies

Soils that are comprised of materials of a lower  $ER_a$  than the surrounding soil will exhibit anomalies of 'lower resistivity'. These are likely to include ditches, drainage ditches and pits, as well as palaeochannels, drained soils, a high water table, deep topsoil, springs, boggy areas, areas adjacent to rivers and clay soils.

**Modern Disturbance:** Area where the ground has been disturbed in the recent past. Characterised by very large  $ER_a$  gradients and a high level of noise.

**Modern Pipe:** Straight, linear anomaly with an  $ER_a$  contrast.

**Geology:** Anomalies of possible geomorphological origin.

#### Absence of Anomalies

It is also possible that archaeological features exist that exhibit no resistivity contrast and hence cannot be identified by Apparent Electrical Resistivity survey.

## Magnetometer

Magnetometer surveys are undertaken using magnetic gradiometers which measure the magnetic content of the underlying soils. Measurements are gained using sensors which calculate the difference between the geological / pedological background and anthropogenic remains associated with archaeological activity.

### Positive Magnetic Anomalies

Burnt features, particularly kilns, but also hearths, furnaces and burnt (specifically 'burnt', not 'heated') mounds of stone will create a strongly magnetic anomaly due to thermoremanence. Cut features, such as pits, ditches or wooden postholes will create anomalies that will vary in shape and magnetic intensity depending on which material they were backfilled by (Fassbinder 2015). For cut features backfilled (or 'refilled') by

- magnetically enhanced topsoil – the refill will generate a positive magnetic anomaly
- homogeneous topsoil – the refill will generate an anomaly proportional to the size and volume of the archaeological feature.

The magnetic anomaly shape and intensity will also be determined by concentrations of pottery, ash or burned material, solid rocks or other material.

### Negative Magnetic Anomalies

Negative magnetic anomalies have a number of causes (Fassbinder 2015):

- The material remains of the archaeological feature may have a lower magnetic susceptibility (MS) than the adjacent topsoil. In some cases the MS of a ditch may appear as both a positive and negative anomaly, reflecting the variable MS of the refill material. Some stone foundations can also appear as weakly magnetic or negative magnetic anomalies.
- If a cut feature is immediately refilled by the same material e.g. a grave cut excavated before a funeral is (almost) immediately refilled by the human body and the same (unaltered) sediment that was excavated before.
- Geochemical processes (see Fassbinder 2015) can alter the magnetic response, e.g. an archaeological feature identified by a positive anomaly can convert to a negative anomaly due to the combination of stagnant moisture and a changing groundwater table.

### Dipolar Anomalies

A dipolar anomaly is a response to buried ferrous objects, often in the topsoil. Iron spikes generally are not removed in geophysical data; although often modern in origin (iron agricultural implements, rubbish), they can be indicative of archaeological material.

### Absence of Anomalies

It is also possible that archaeological features exist that exhibit no magnetic contrast and hence cannot be identified by magnetometer survey.

## Anomaly classification used to interpret Magnetometer data

After Gaffney & Gater (2003) and Gaffney *et al.* (2000).

**A known archaeological feature type e.g. Ditch / Wall / Structure etc:** An anomaly with a magnetic gradient that contrasts strongly with the surrounding sub-soil, where the presence of a type of archaeological feature is known from supporting evidence.

**Archaeology:** A linear, curvilinear or isolated anomaly with a magnetic gradient that contrasts strongly with the surrounding sub-soil, without any supporting evidence from another source.

- **Ditch / Wall:** A linear, curvilinear, annular or penannular anomaly with a magnetic gradient that contrasts strongly with the surrounding sub-soil. A positive polarity suggests a ditch; a negative polarity suggests a stone-filled ditch or wall.
- **Burnt Mound / Spread:** A horseshoe or ovoid shaped anomaly with a positive magnetic gradient that contrasts strongly with the surrounding sub-soil. An associated trough may be observed as a positive/negative anomaly, a hearth may also be expected nearby. Isolated responses in the vicinity could represent spreads of (or ploughed out) heat shattered stones.
- **Hearth:** A small isolated area (<2m diameter) of higher magnetic gradient than the surrounding sub-soil (typically >6nT).
- **Pit:** A small isolated area (>1-2m diameter) of moderate to high magnetic gradient, judged to be caused by a pit-type feature with a fill more magnetic than the surrounding soil.

**Industrial:** An isolated anomaly with a strong positive gradient (>30nT), judged not to be surface iron. This type of anomaly is typically caused by the remains of kilns or furnaces.

**Magnetic Enhancement:** A broad area of moderate positive magnetic gradient that contrasts with the surrounding sub-soil. May represent cultural noise associated with occupation or soil disturbance, judged to be of archaeological origin.

**Ferrous:** Dipolar anomalies indicating ferrous responses, judged to be in the near-surface.

**Cultivation:** Parallel linear responses of positive or negative polarity. Strong responses may indicate added magnetic material (e.g. burnt deposits) as fertiliser. Lower magnetic gradient anomalies 'beneath' the furrow overprint may be obscured. Higher magnetic gradient anomalies may be visualised *in situ* or ploughed out 'beneath' the furrow overprint.

**?Archaeology:** A linear, curvilinear or isolated anomaly with a magnetic gradient that contrasts weakly with the surrounding sub-soil, without any supporting evidence from another source. Such categories may represent possible archaeological or geological sources.

**Modern Disturbance:** Area where the ground has been disturbed in the recent past. Characterised by very large magnetic gradients and a high level of noise often accompanied by concentrations of dipolar, near-surface ferrous responses. This category also represents anomalies whose source may lie beyond the survey area, such as fencelines, vehicles or modern buildings.

**Modern Pipe:** Straight, linear anomaly with very large magnetic gradients alternating regularly between positive and negative polarity.

**Previous Excavation?:** Area of uniform magnetic signal contained within a well-defined boundary in regions otherwise densely covered with archaeological anomalies.

**Geology:** Anomalies of possible geomorphological origin.

## Ground Penetrating Radar

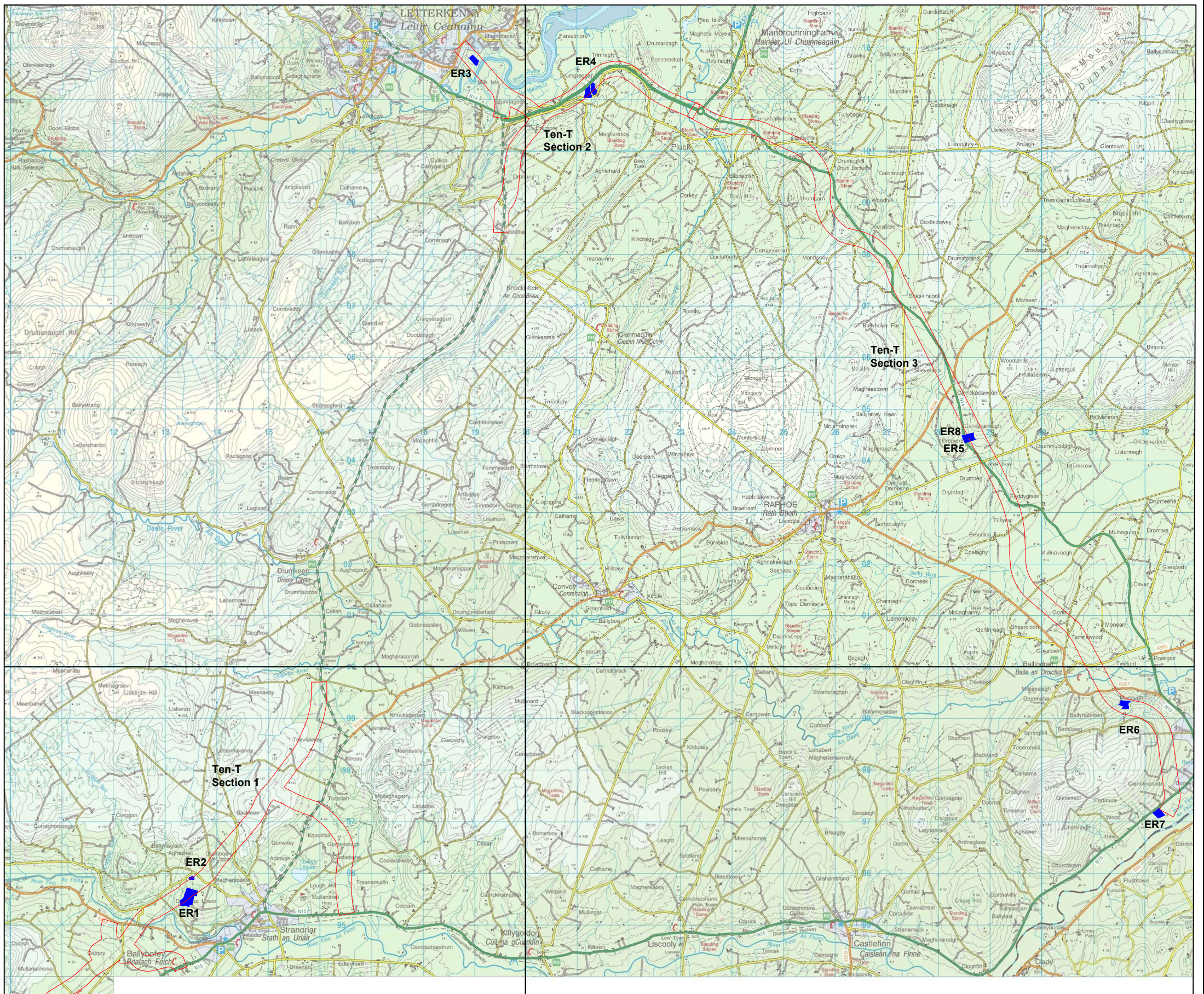
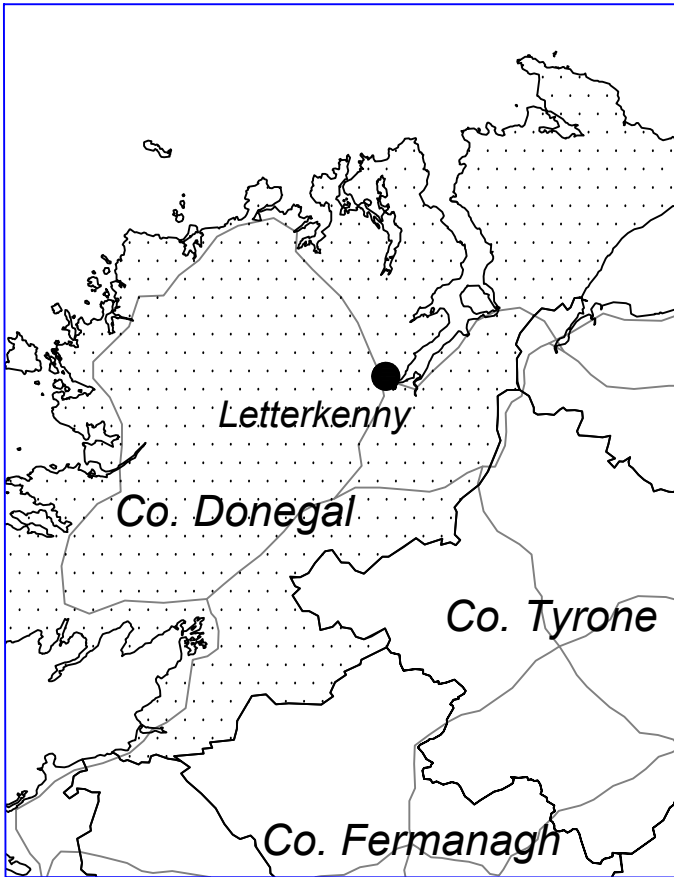
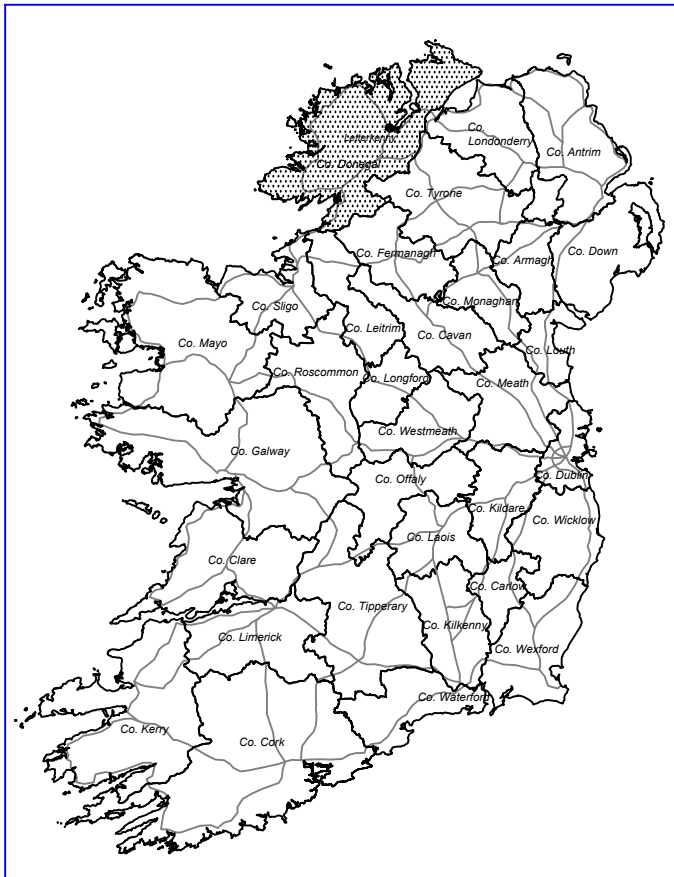
Ground Penetrating Radar (GPR) surveys transmit electromagnetic pulses from a surface antenna into the ground. These radar waves reflect off each interface within the subsoil allowing the detection of buried archaeological features.

**Stone Feature:** Soils comprised of materials of a higher amplitude than the surrounding soil. These are likely to include stone walls, masonry, rubble, cobbled or gravel surfaces, as well as near surface geology.

**Possible Archaeology:** A linear, curvilinear or isolated anomaly that contrasts with the surrounding sub-soil, without any supporting evidence from another source. Such categories may represent possible archaeological or geological sources.

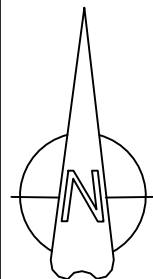
## Appendix 2: Geophysical Archive

- Copies of the archive are held by Earthsound Geophysics Ltd., at separate locations to ensure preservation against accidental damage or theft.
- The Client, Donegal County Council, holds further copies of the report.
- A hard copy and a soft copy will be deposited with the Archaeological Licensing Section, National Monuments Service, Department of Culture, Heritage and the Gaeltacht, Room G50, Custom House, Dublin 1.
- A hard copy will be deposited with the National Museum of Ireland, Kildare Street, Dublin 2.



**Legend**

- Geophysical Survey Area
- Indicative Route Corridor



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: OSI

Date: 09/07/20

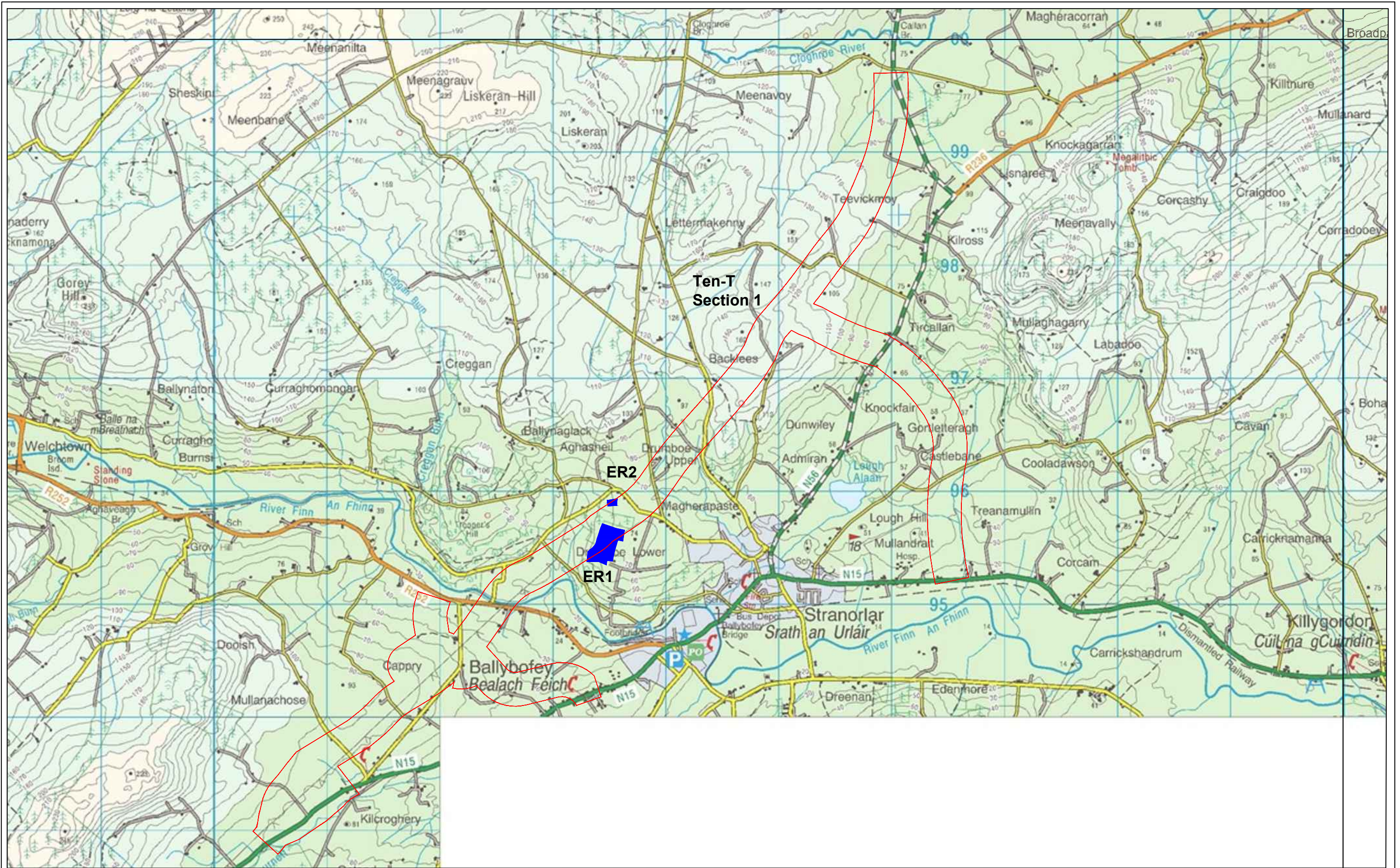
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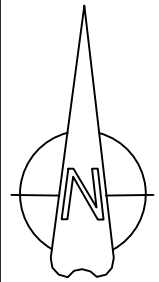
**Figure No. 1: Location Map**





**Legend**

- Geophysical Survey Area
- Indicative Route Corridor

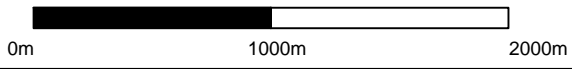


Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: OSI Date: 03/06/20 Drawing No.: 20-022/02

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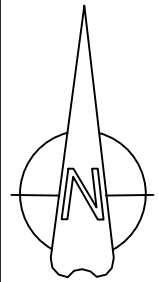
**Figure No. 2: Detailed Location Map - Section 1 Survey Areas**





**Legend**

- Geophysical Survey Area
- Indicative Route Corridor

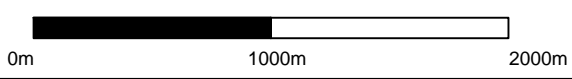


Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: OSI Date: 03/06/20 Drawing No.: 20-022/03

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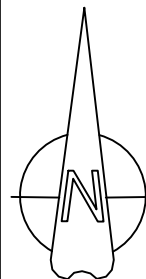
**Figure No. 3: Detailed Location Map - Section 2 Survey Areas**





**Legend**

- Geophysical Survey Area
- Indicative Route Corridor



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: OSI

Date: 03/06/20

Drawing No.: 20-022/04

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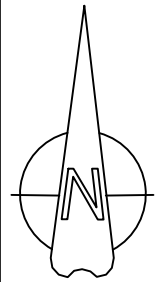
**Figure No. 4: Detailed Location Map - Section 3 Survey Areas**





**Legend**

- Basemap
  - Geophysical Survey Area
  - Indicative Route Corridor
  - XXXX Unsurveyable Area
  - Topographic Feature
  - + Record Monument or Potential Monument detected during route selection
- mS/m
- 130 175



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI Date: 19/06/20 Drawing No.: 20-022/05

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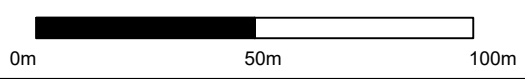
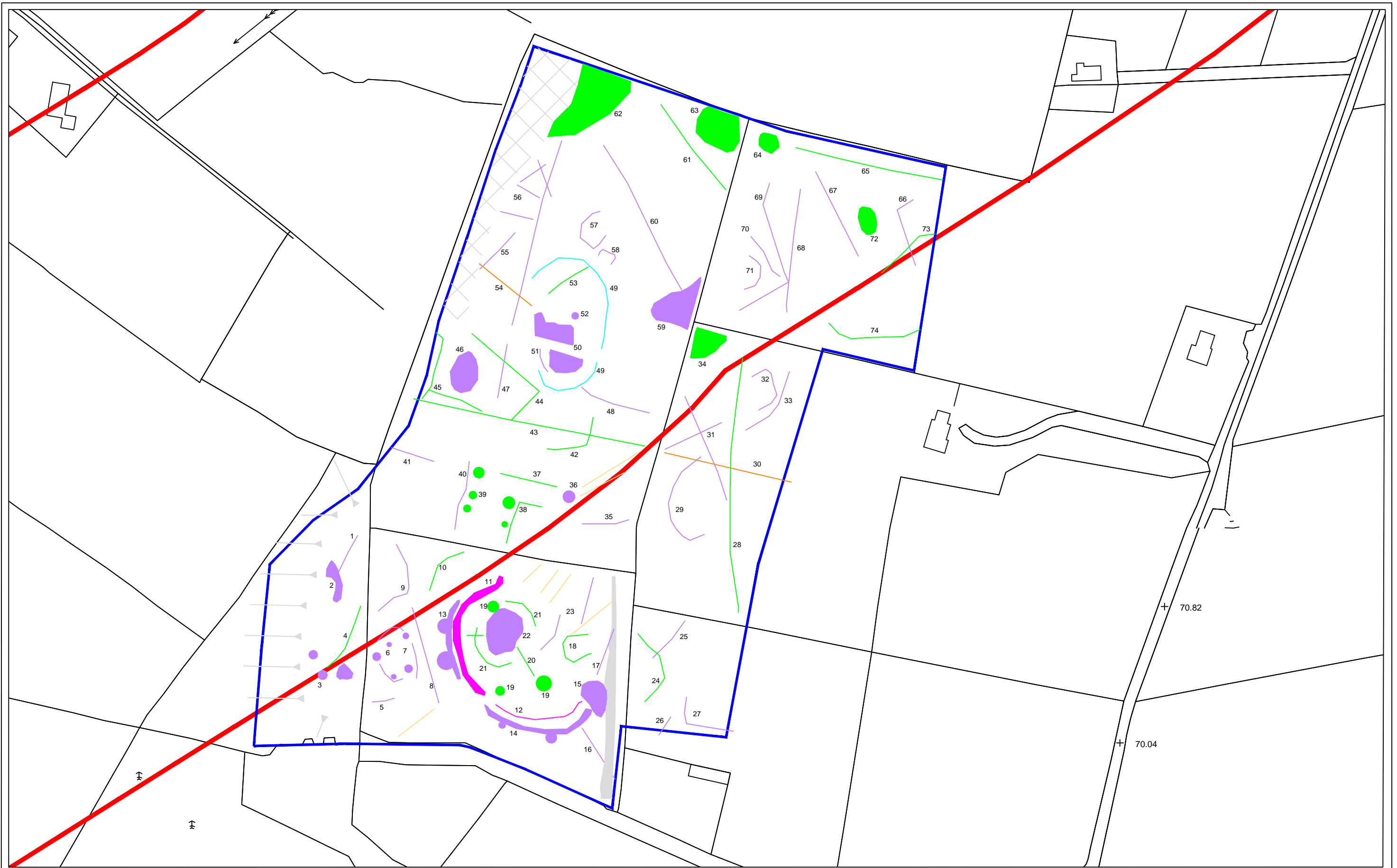


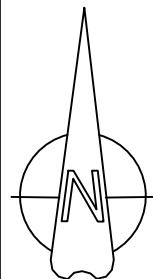
Figure No. 5: Resistivity Data - ER1





**Legend**

- |                             |                           |                          |
|-----------------------------|---------------------------|--------------------------|
| — Basemap                   | █ Archaeology             | █ Cultivation            |
| — Geophysical Survey Area   | █ Possible Archaeology    | █ Modern Disturbance     |
| — Indicative Route Corridor | █ Low Resistance Anomaly  | █ Modern Pipe            |
| ▨ Unsurveyable Area         | █ High Resistance Anomaly | █ Geology                |
| → Topographic Feature       |                           | █ Feature on Historic OS |



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 23/06/20

Drawing No.: 20-022/06

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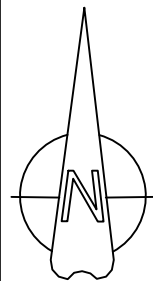
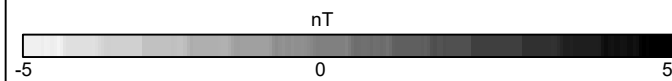
**Figure No. 6: Resistivity Interpretation - ER1**





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature
- XXXX Unsurveyable Area



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 18/06/20

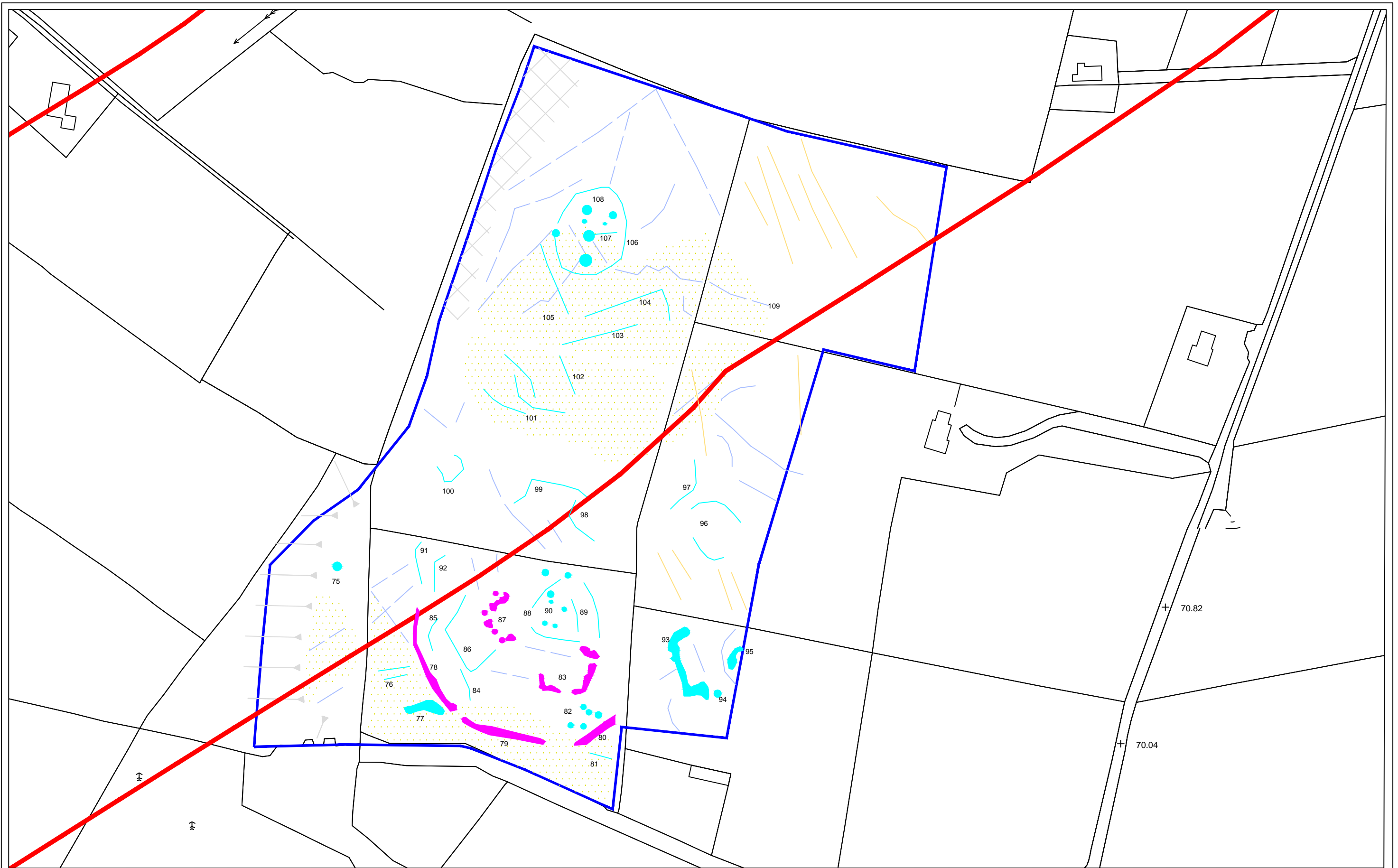
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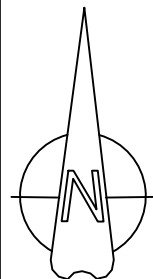
**Figure No. 7: Magnetometer Data - ER1**





**Legend**

- |                             |                        |                          |
|-----------------------------|------------------------|--------------------------|
| — Basemap                   | █ Archaeology          | █ Cultivation            |
| — Geophysical Survey Area   | █ Possible Archaeology | █ Modern Disturbance     |
| — Indicative Route Corridor | █ Industrial           | █ Modern Pipe            |
| — Topographic Feature       | █ Magnetic Enhancement | █ Geology                |
| XXXXX Unsurveyable Area     | █ Trend                | █ Feature on Historic OS |



Project: TEN-T Priority Route Improvement Project, County Donegal

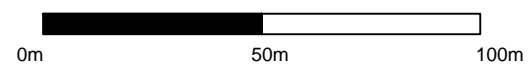
Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 22/06/20

Drawing No.: 20-022/08

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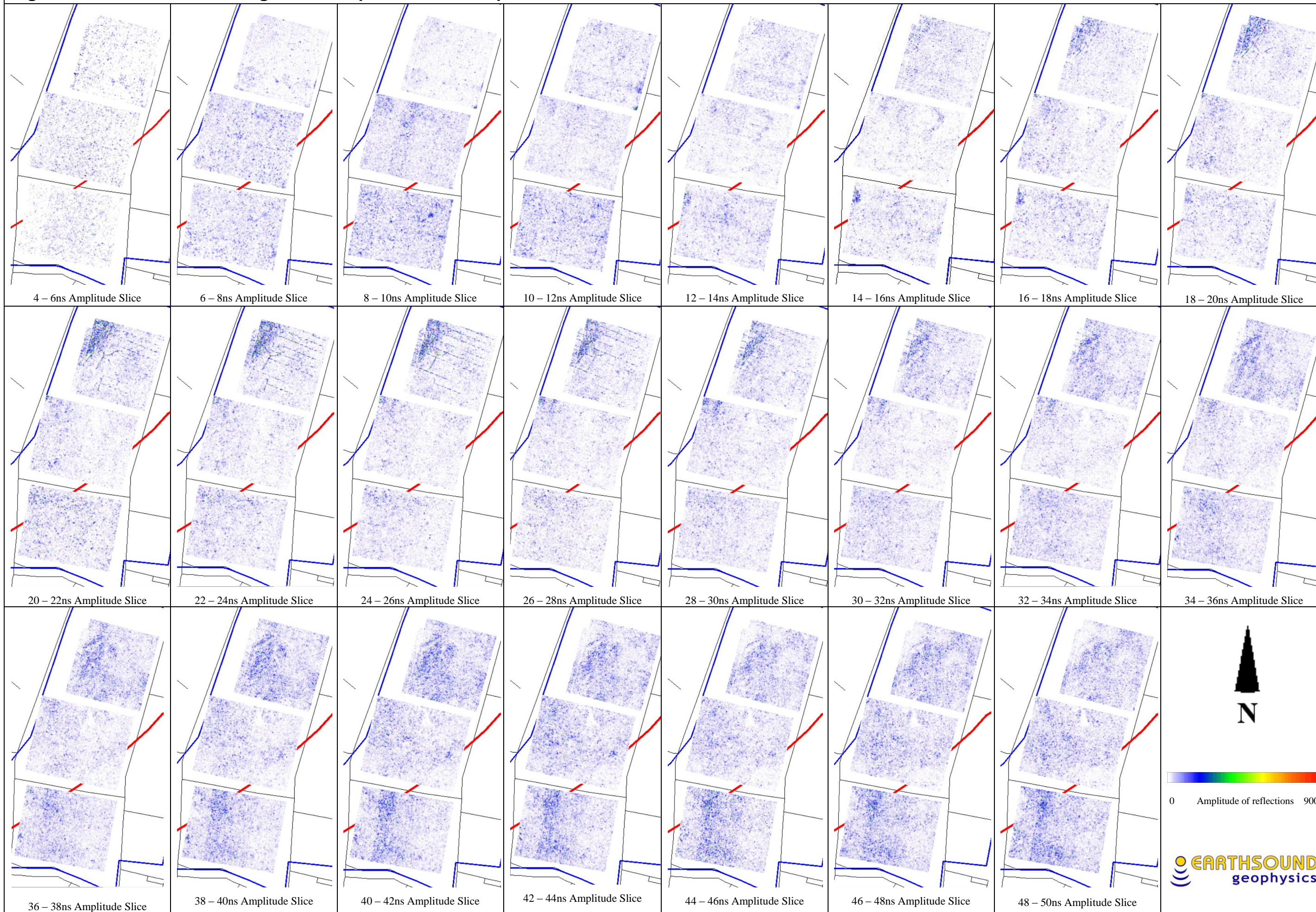


**Figure No. 8: Magnetometer Intepretation - ER1**



# TEN-T Priority Route Improvement Project, County Donegal

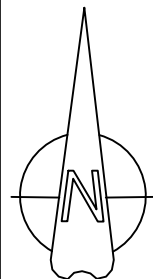
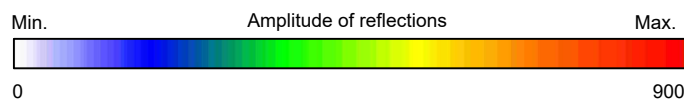
## Figure 09: Ground Penetrating Radar Amplitude Slice-maps – ER1





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 6/07/20

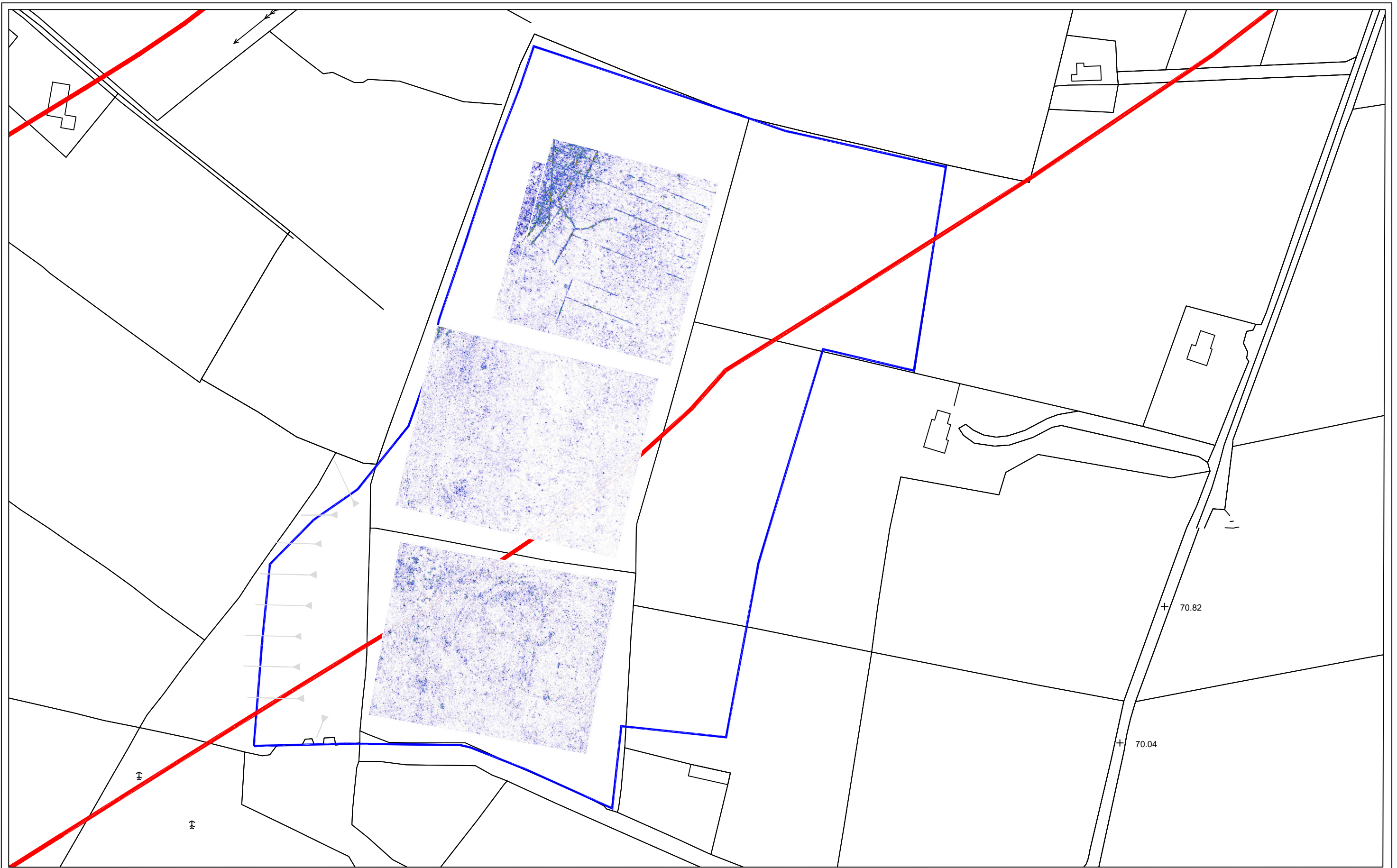
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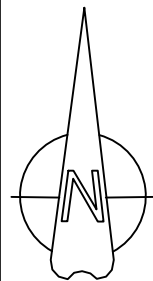
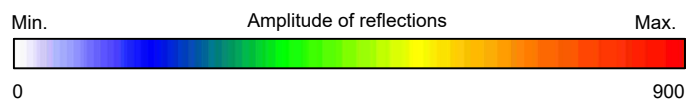
**Figure No. 10: Ground Penetrating Radar Data - ER1 - 16 - 18ns Amplitude Slice**





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature



Project: TEN-T Priority Route Improvement Project, County Donegal

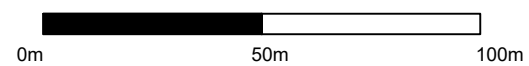
Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 06/07/20

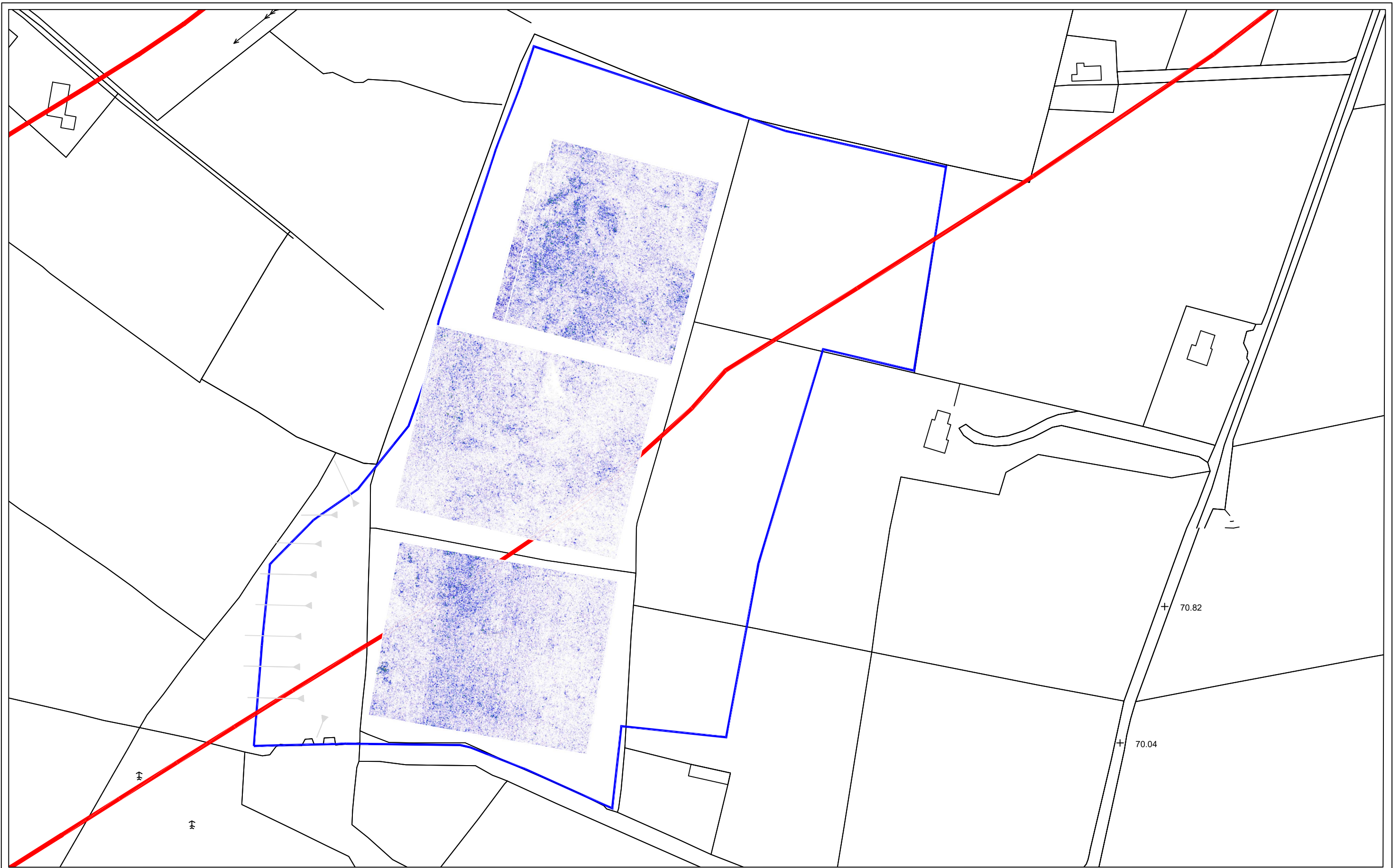
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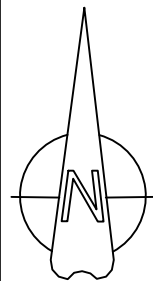
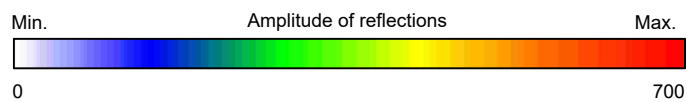
**Figure No. 11: Ground Penetrating Radar Data - ER1 - 20 - 22ns Amplitude Slice**





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature



Project: TEN-T Priority Route Improvement Project, County Donegal

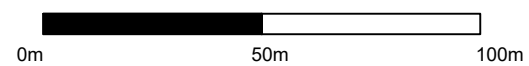
Client: Donegal County Council

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Date: 06/07/20

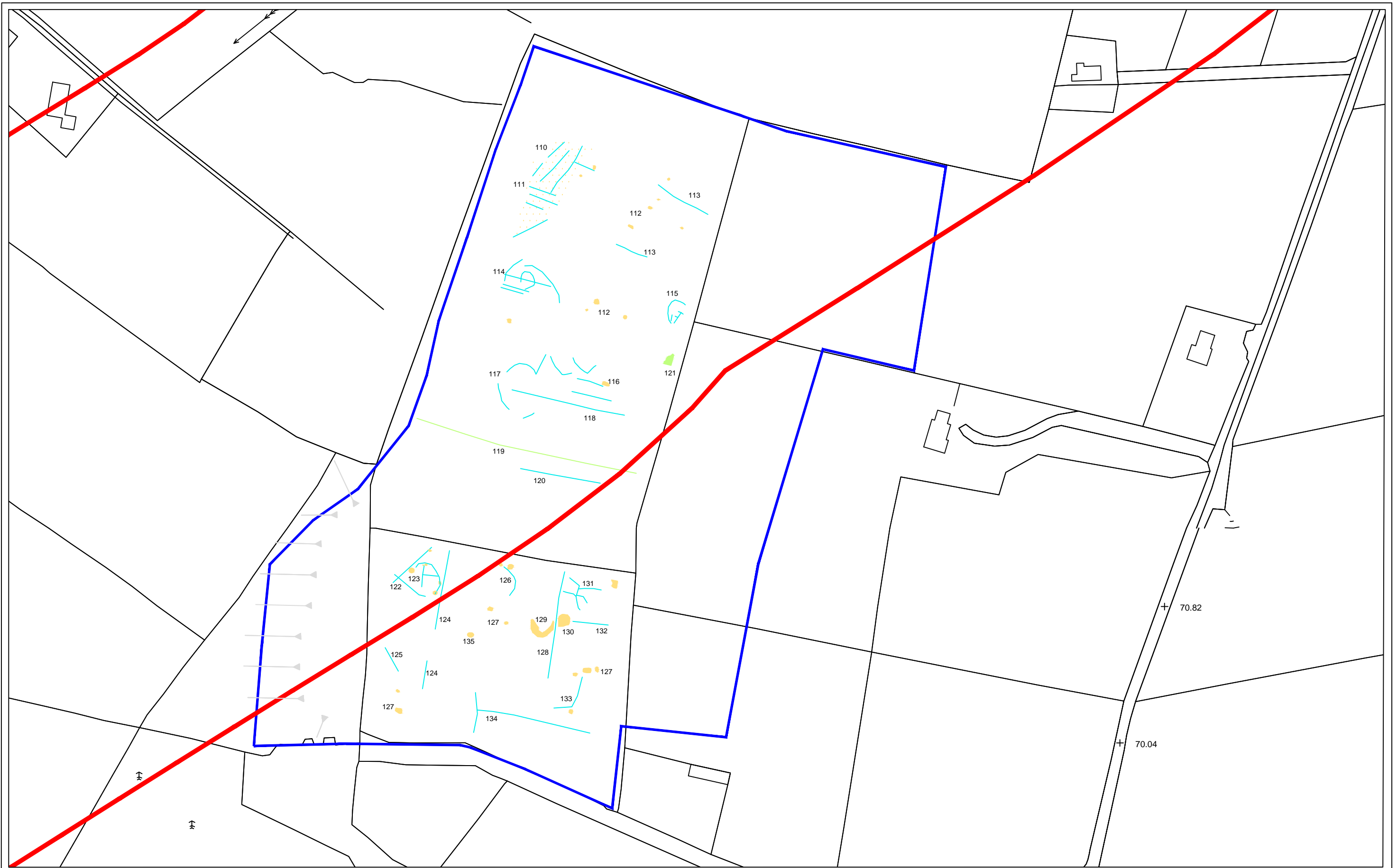
Drawing No.: 20-022/12

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**Figure No. 12: Ground Penetrating Radar Data - ER1 - 38 - 40ns Amplitude Slice**

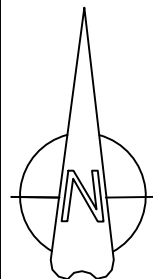




**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature

- Shallow Depth - Ditch or Cut Feature
- Shallow Depth - Disturbed Ground
- Shallow Depth - Hard or Compact Feature



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 14/07/20

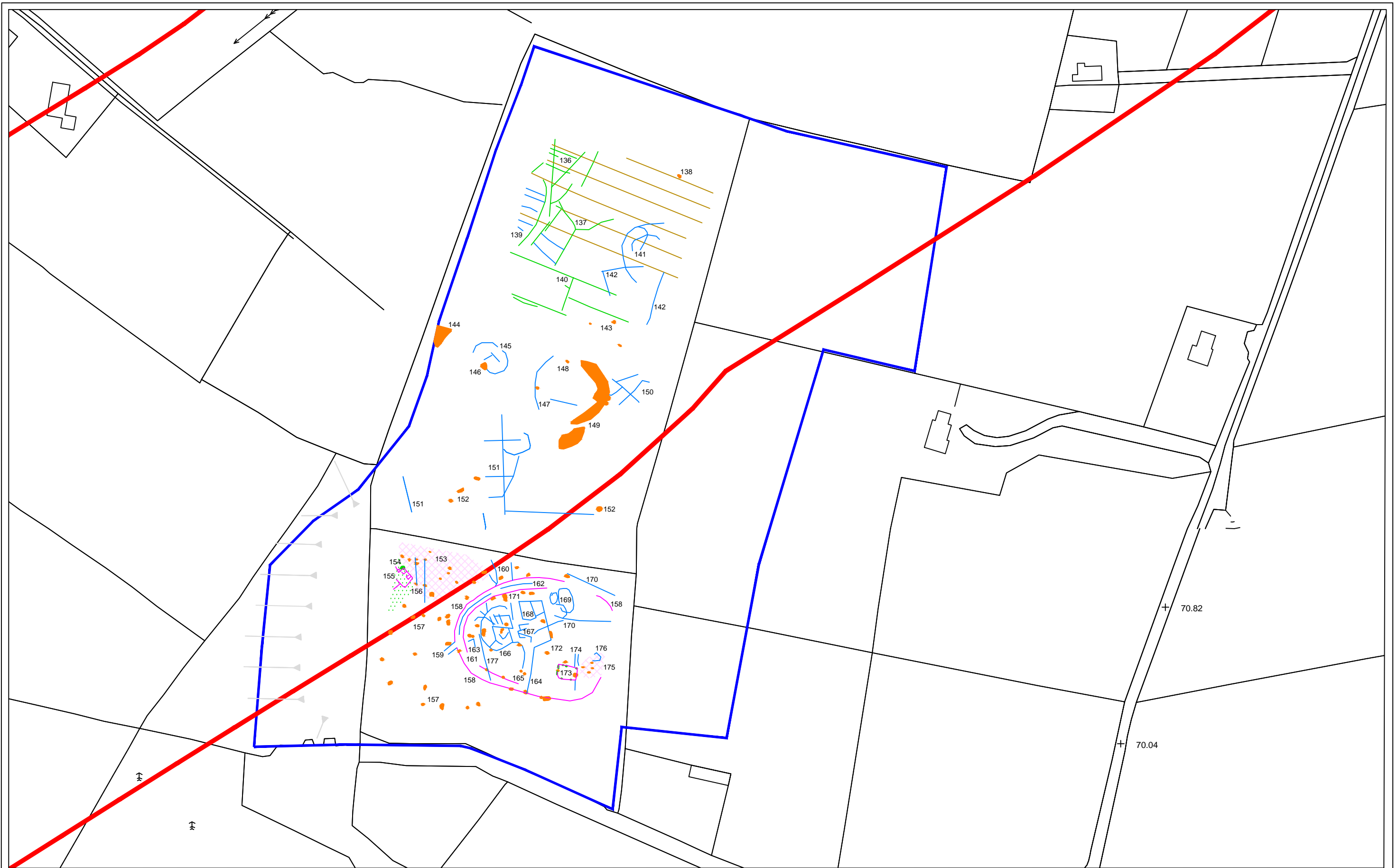
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**Figure No. 13: Combined Ground Penetrating Radar Interpretation - Shallow Depth Anomalies**

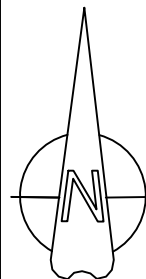




**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature

- Medium Depth - Probable Archaeology
- Medium Depth - Possible Archaeological Zone
- Medium Depth - Ditch or Cut Feature
- Medium Depth - Disturbed Ground
- Medium Depth - Hard or Compact Feature
- Medium Depth - Land Drains



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 14/07/20

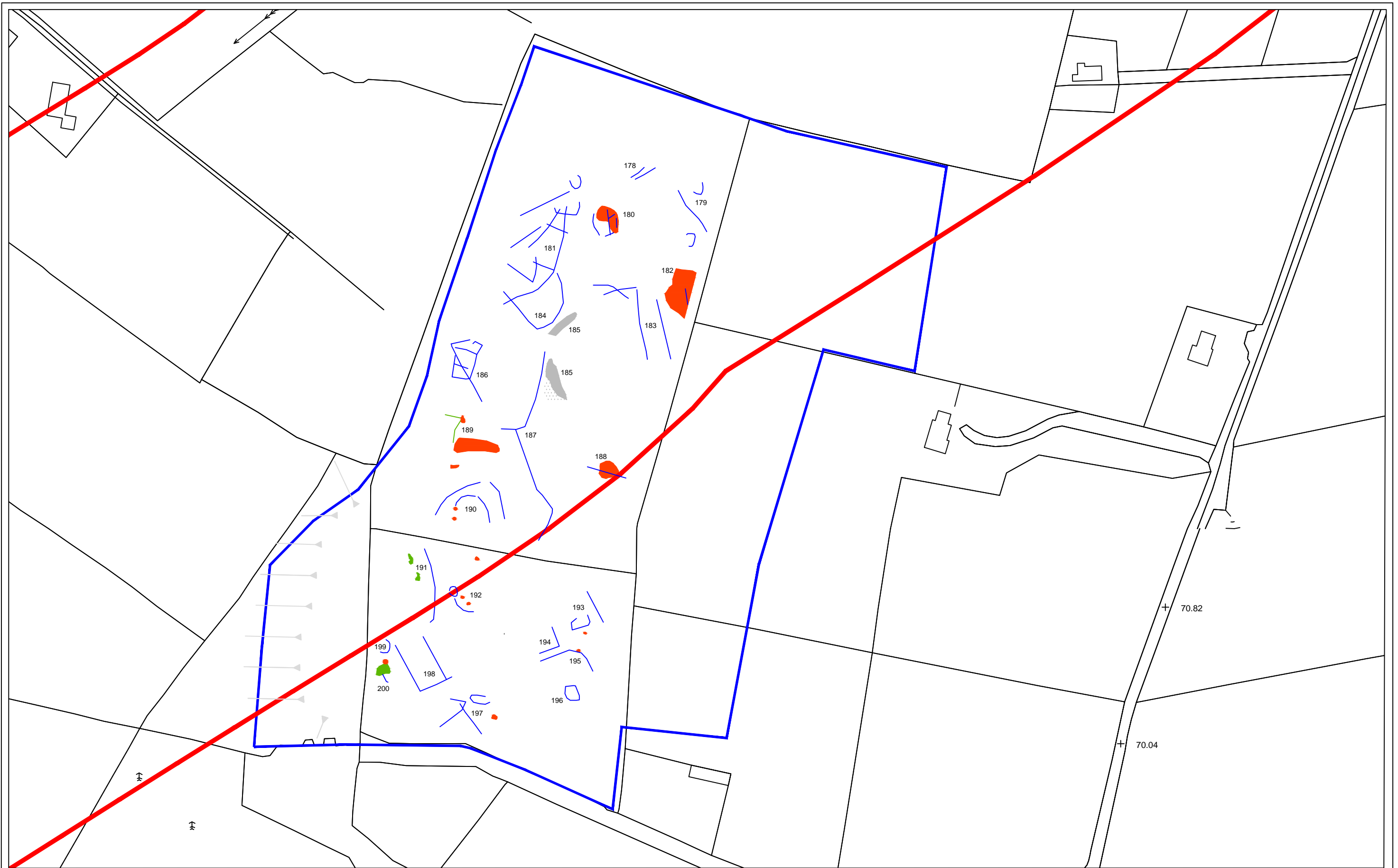
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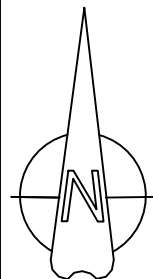
**Figure No. 14: Combined Ground Penetrating Radar Interpretation - Medium Depth Anomalies**





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature
- Deep Depth - Ditch or Cut Feature
- Deep Depth - Disturbed Ground
- Deep Depth - Hard or Compact Feature
- Deep Depth - Quiet Amplitude Area - Possible Clay deposits



Project: TEN-T Priority Route Improvement Project, County Donegal

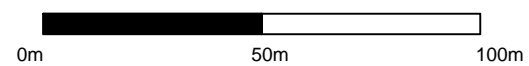
Client: Donegal County Council

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Date: 14/07/20

Drawing No.: 20-022/15

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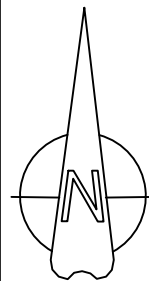
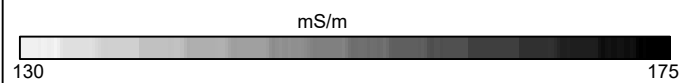
**Figure No. 15: Combined Ground Penetrating Radar Interpretation - Deep Depth Anomalies**





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Record Monument or Potential Monument detected during route selection

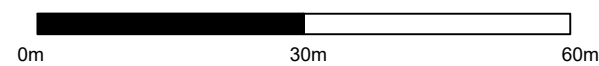


Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

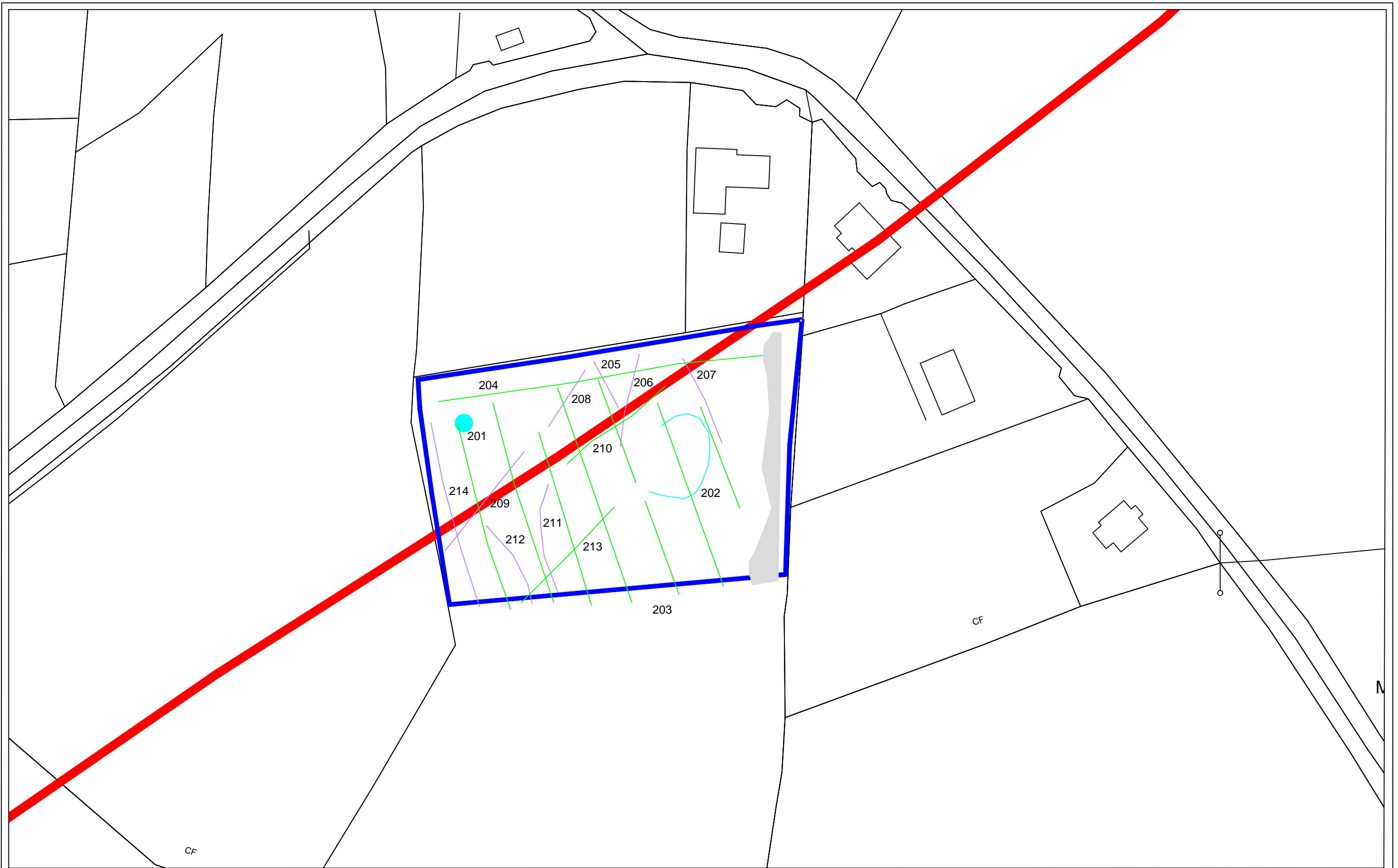
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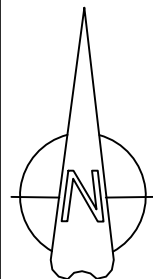
**Figure No. 16: Resistivity Data - ER2**





**Legend**

- |                             |                           |                          |
|-----------------------------|---------------------------|--------------------------|
| — Basemap                   | █ Archaeology             | █ Cultivation            |
| — Geophysical Survey Area   | █ Possible Archaeology    | █ Modern Disturbance     |
| — Indicative Route Corridor | █ Low Resistance Anomaly  | █ Modern Pipe            |
|                             | █ High Resistance Anomaly | █ Geology                |
|                             |                           | █ Feature on Historic OS |

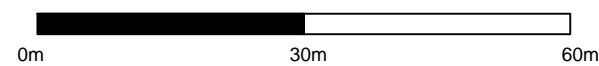


Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI      Date: 23/06/20      Drawing No.: 20-022/17

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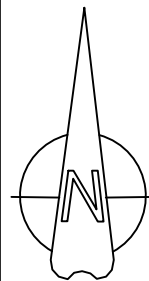
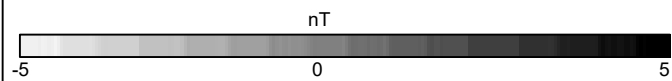
**Figure No. 17: Resistivity Interpretation - ER2**





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor



Project: TEN-T Priority Route Improvement Project, County Donegal

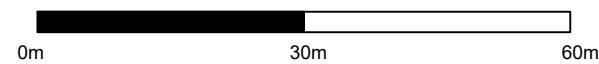
Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 24/06/20

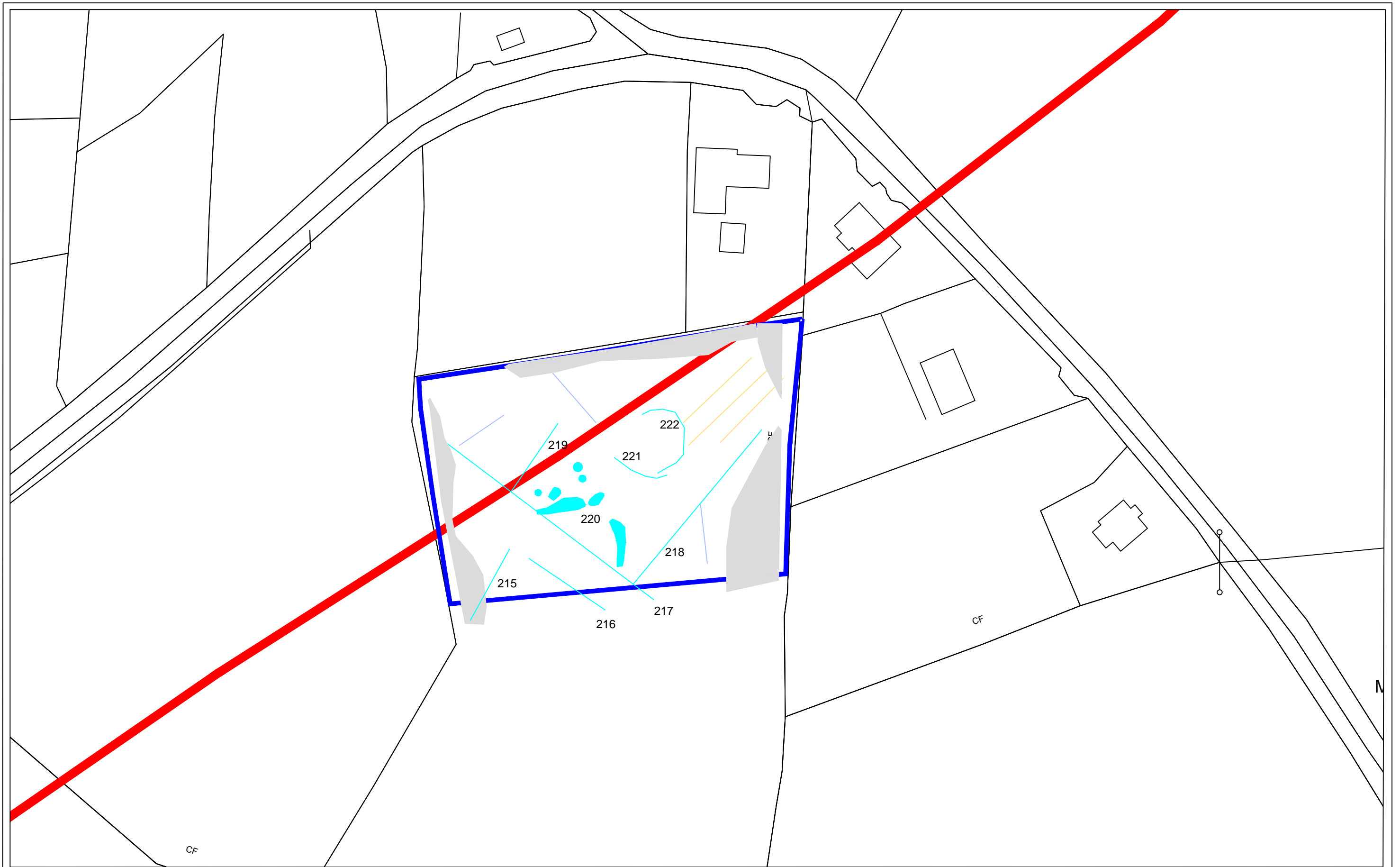
Drawing No.: 20-022/18

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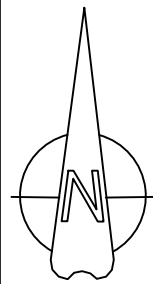
**Figure No. 18: Magnetometer Data - ER2**





**Legend**

- |                             |                      |                        |
|-----------------------------|----------------------|------------------------|
| — Basemap                   | Archaeology          | Cultivation            |
| — Geophysical Survey Area   | ? Archaeology        | Modern Disturbance     |
| — Indicative Route Corridor | Industrial           | Modern Pipe            |
|                             | Magnetic Enhancement | Geology                |
|                             | Trend                | Feature on Historic OS |
- nT
- 5 0 5



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 22/06/20

Drawing No.: 20-022/19

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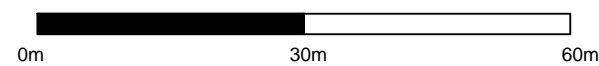


Figure No. 19: Magnetometer Interpretation - ER2



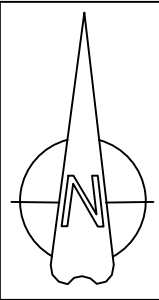


**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- XXXX Unsurveyable Area
- + Record Monument or Potential Monument detected during route selection

mS/m

130 175



Project: TEN-T Priority Route Improvement Project, County Donegal

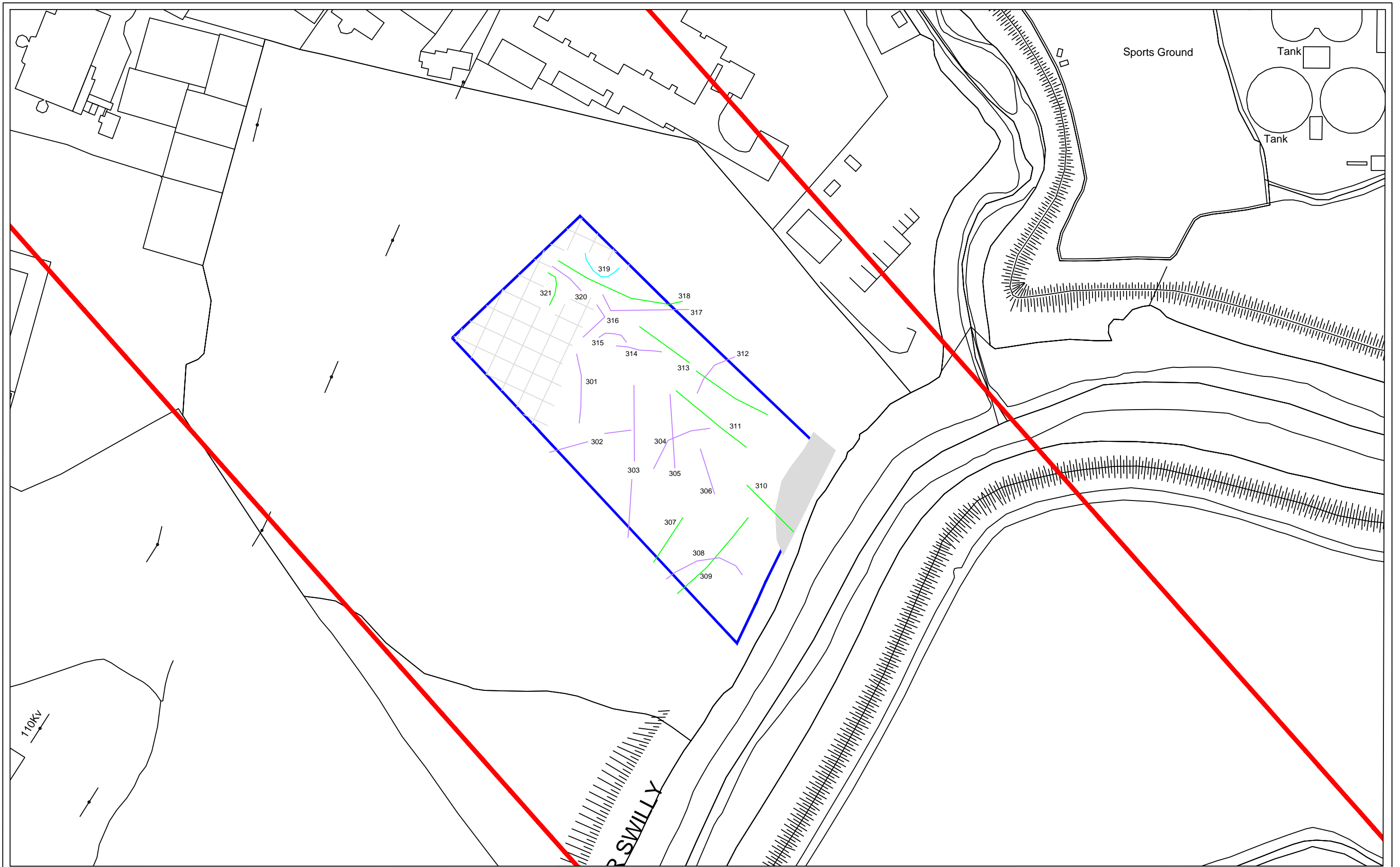
Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI      Date: 19/06/20      Drawing No.: 20-022/20

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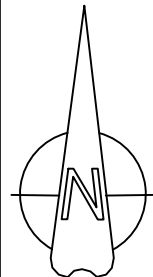
0m 50m 100m

**Figure No. 20: Resistivity Data - ER3**



**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- XXXX Unsurveyable Area
- Archaeology
- Possible Archaeology
- Low Resistance Anomaly
- High Resistance Anomaly
- Cultivation
- Modern Disturbance
- Modern Pipe
- Geology
- Feature on Historic OS



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 23/06/20

Drawing No.: 20-022/21

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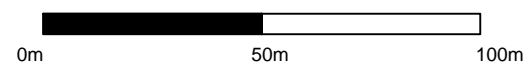
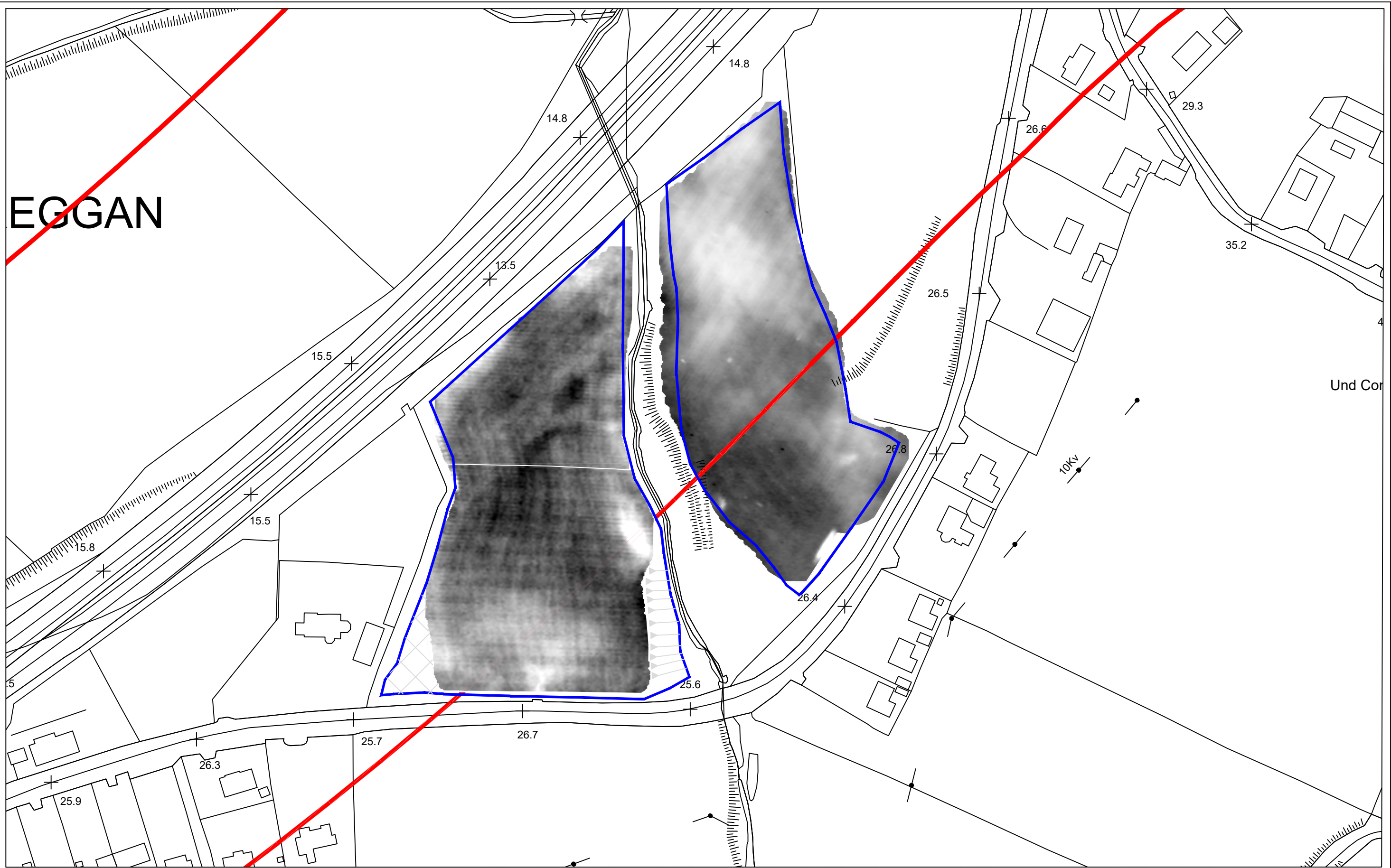


Figure No. 21: Resistivity Interpretation - ER3



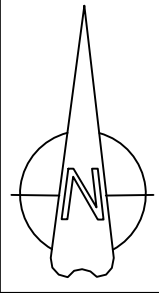


**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature
- XXXX Unsurveyable Area
- + Record Monument or Potential Monument detected during route selection

mS/m

130 175



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

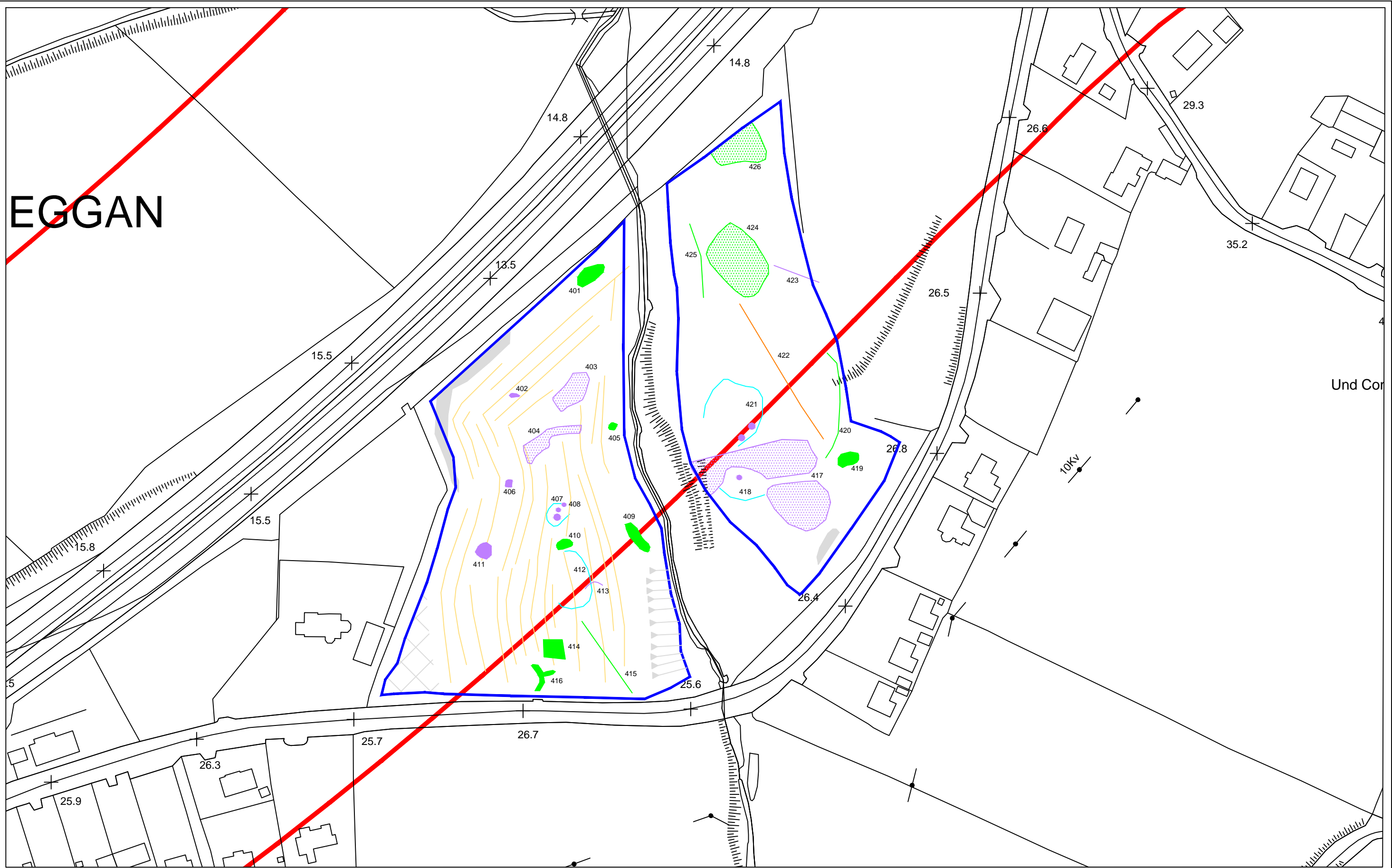
Drawing Courtesy of: Donegal Coco / OSI      Date: 19/06/20      Drawing No.: 20-022/22

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0m 50m 100m

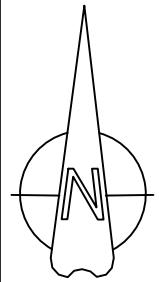
**Figure No. 22: Resistivity Data - ER4**

# EGGAN



**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature
- XXXX Unsurveyable Area
- Archaeology
- Possible Archaeology
- Low Resistance Anomaly
- High Resistance Anomaly
- Cultivation
- Modern Disturbance
- Modern Pipe
- Geology
- Feature on Historic OS



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

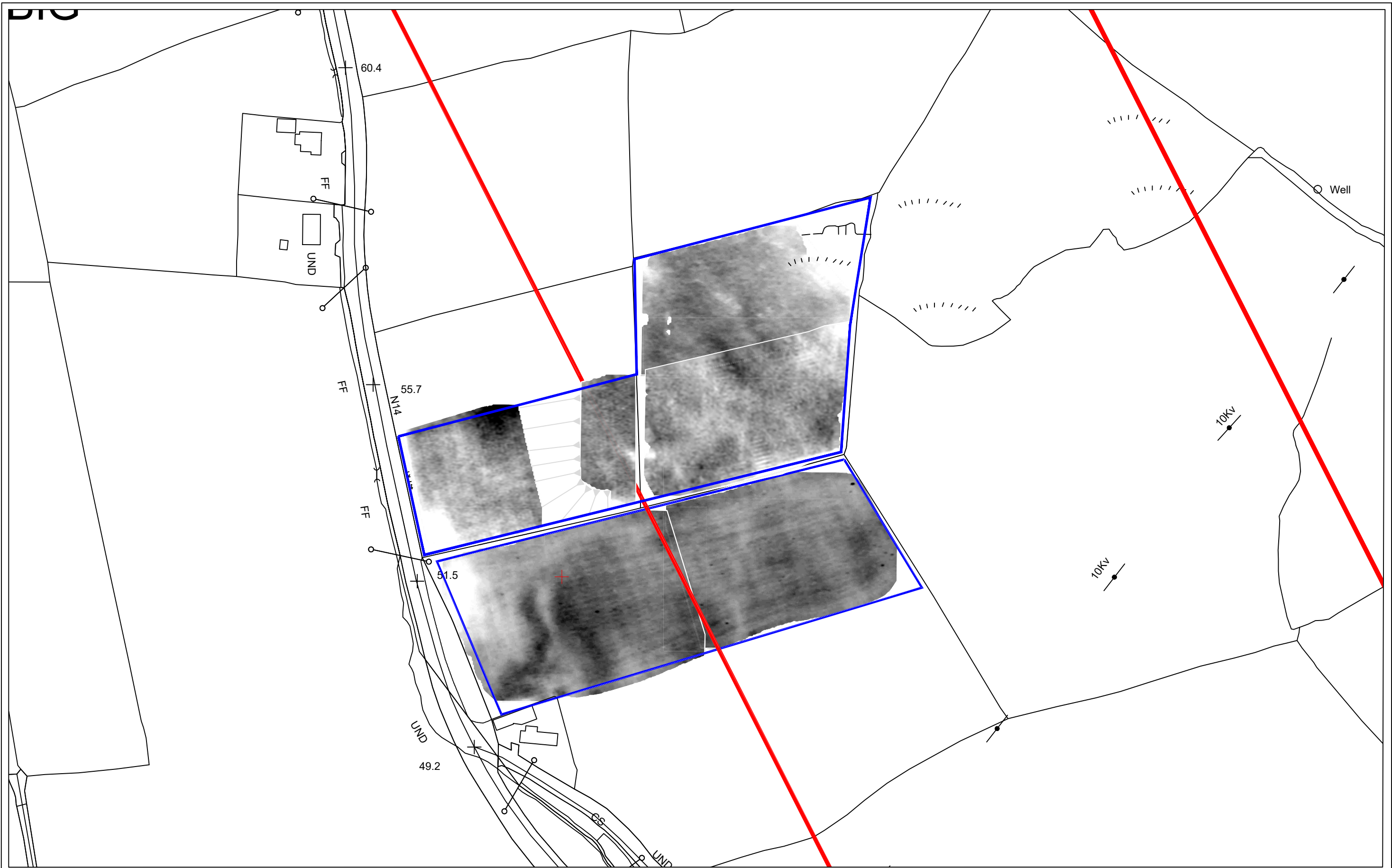
Drawing Courtesy of: Donegal Coco / OSI      Date: 14/08/20      Drawing No.: 20-022/23

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**Figure No. 23: Resistivity Interpretation - ER4**



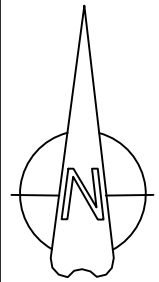


**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature
- + Record Monument or Potential Monument detected during route selection

mS/m

130 175



Project: TEN-T Priority Route Improvement Project, County Donegal

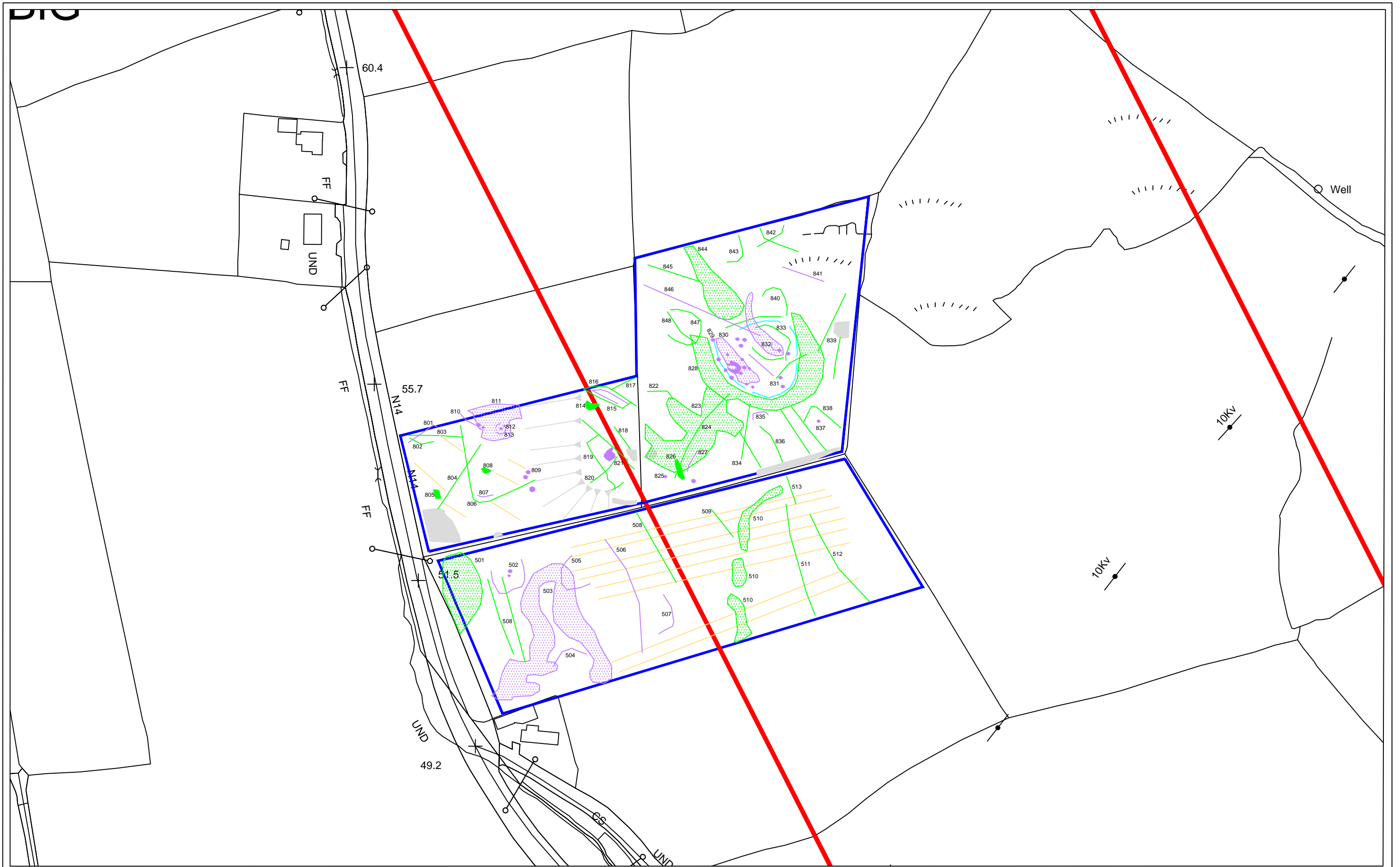
Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI      Date: 19/06/20      Drawing No.: 20-022/24

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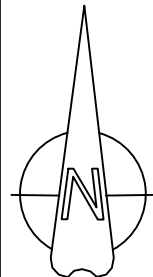
0m 50m 100m

**Figure No. 24: Resistivity Data - ER5 & ER8**



**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Topographic Feature
- Archaeology
- Possible Archaeology
- Low Resistance Anomaly
- High Resistance Anomaly
- Cultivation
- Modern Disturbance
- Modern Pipe
- Geology
- Feature on Historic OS



Project: TEN-T Priority Route Improvement Project, County Donegal

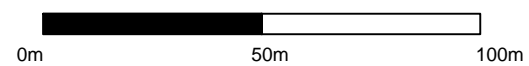
Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 23/06/20

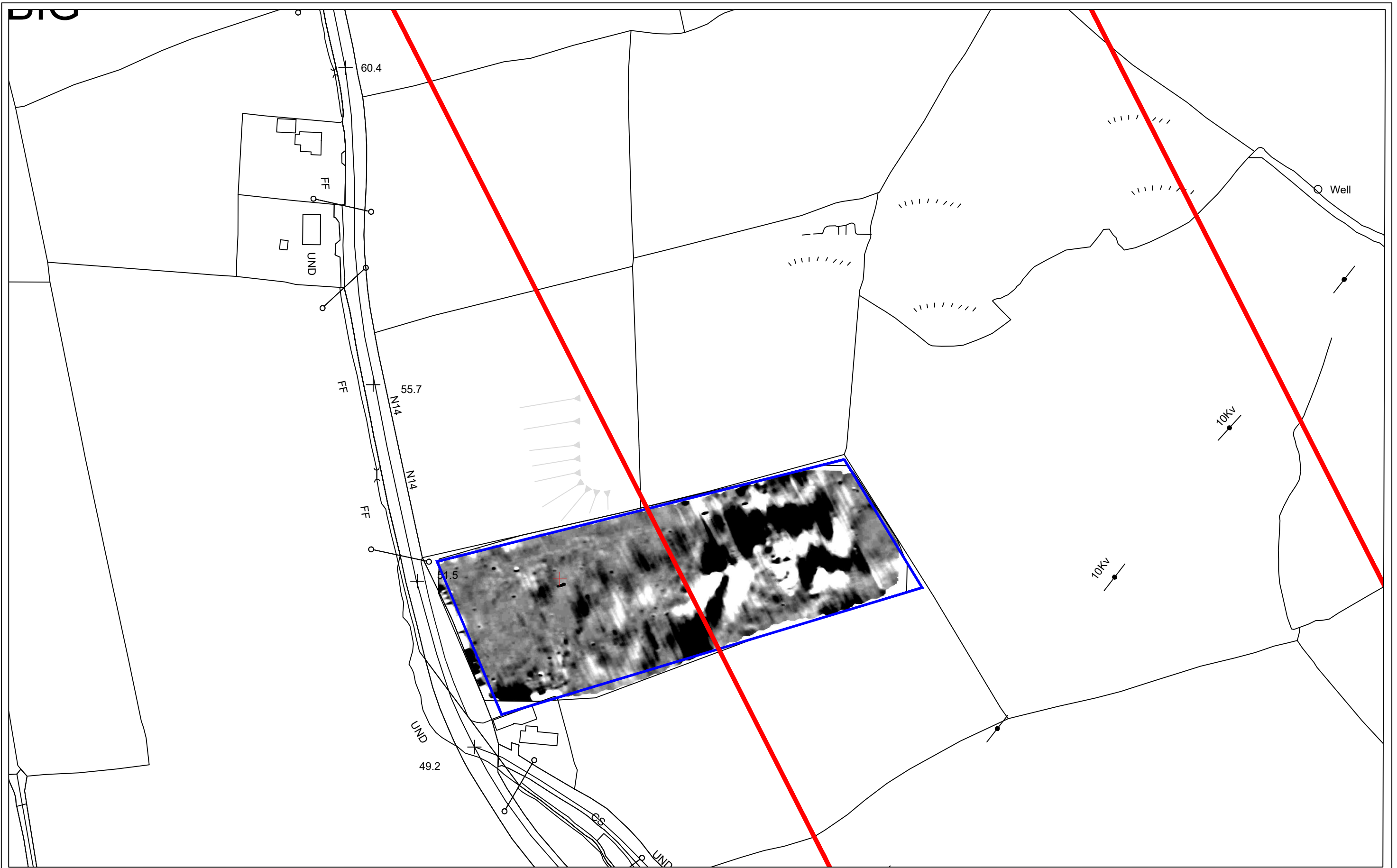
Drawing No.: 20-022/25

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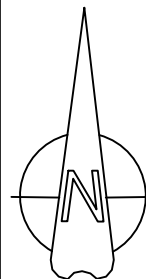
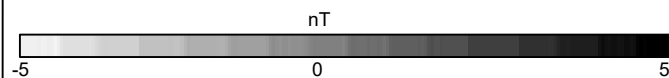


**Figure No. 25: Resistivity Interpretation - ER5 & ER8**





- Legend**
- Basemap
  - Geophysical Survey Area
  - Indicative Route Corridor
  - Topographic Feature



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 12/08/20

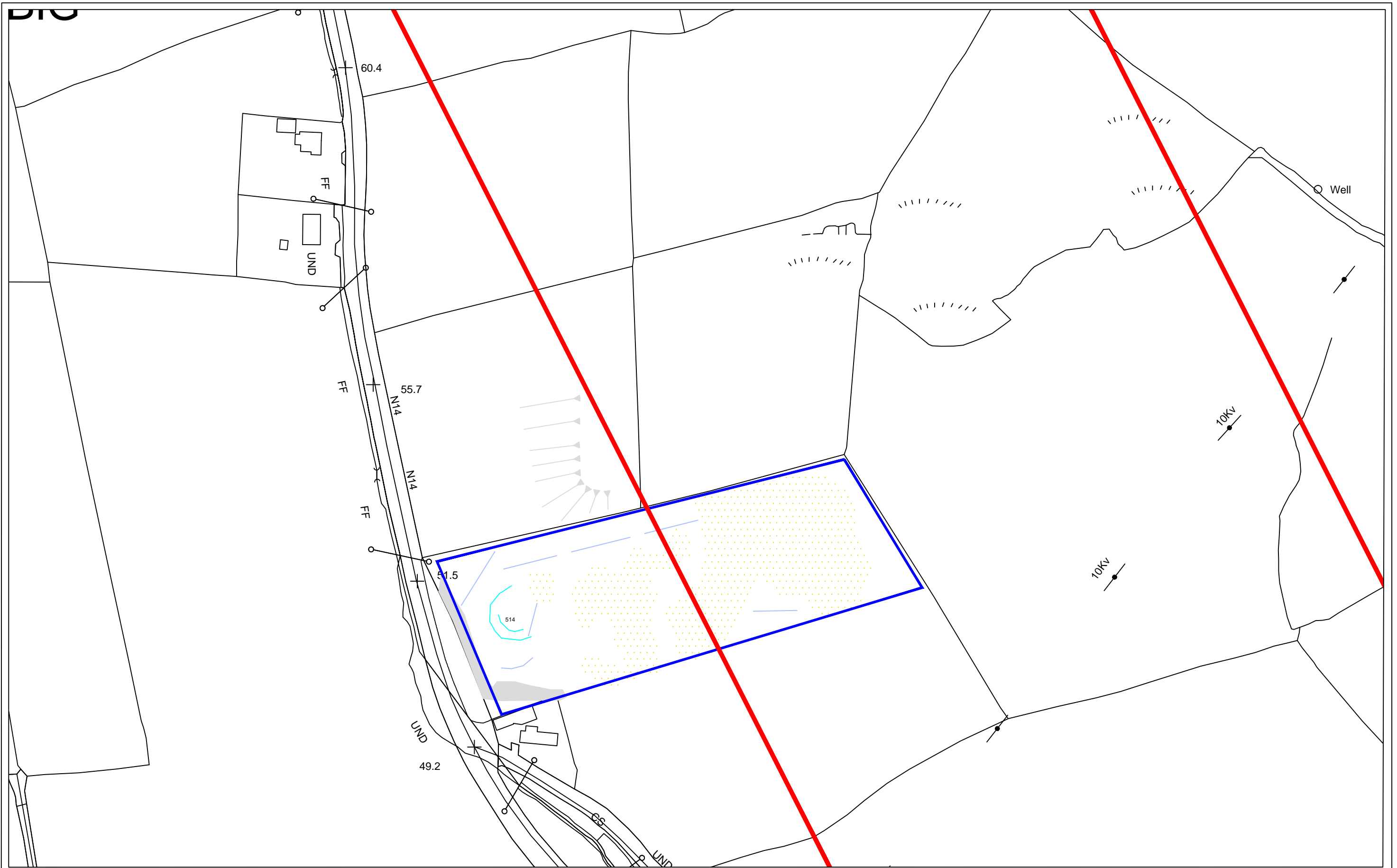
Drawing No.: 20-022/26

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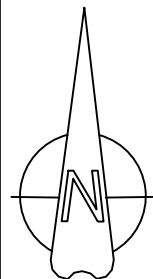
Figure No. 26: Magnetometer Data - ER5





**Legend**

- |                             |                      |                        |
|-----------------------------|----------------------|------------------------|
| — Basemap                   | Archaeology          | Cultivation            |
| — Geophysical Survey Area   | Possible Archaeology | Modern Disturbance     |
| — Indicative Route Corridor | Industrial           | Modern Pipe            |
| — Topographic Feature       | Magnetic Enhancement | Geology                |
|                             | Trend                | Feature on Historic OS |



Project: TEN-T Priority Route Improvement Project, County Donegal

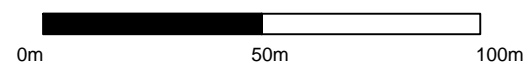
Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 13/08/20

Drawing No.: 20-022/27

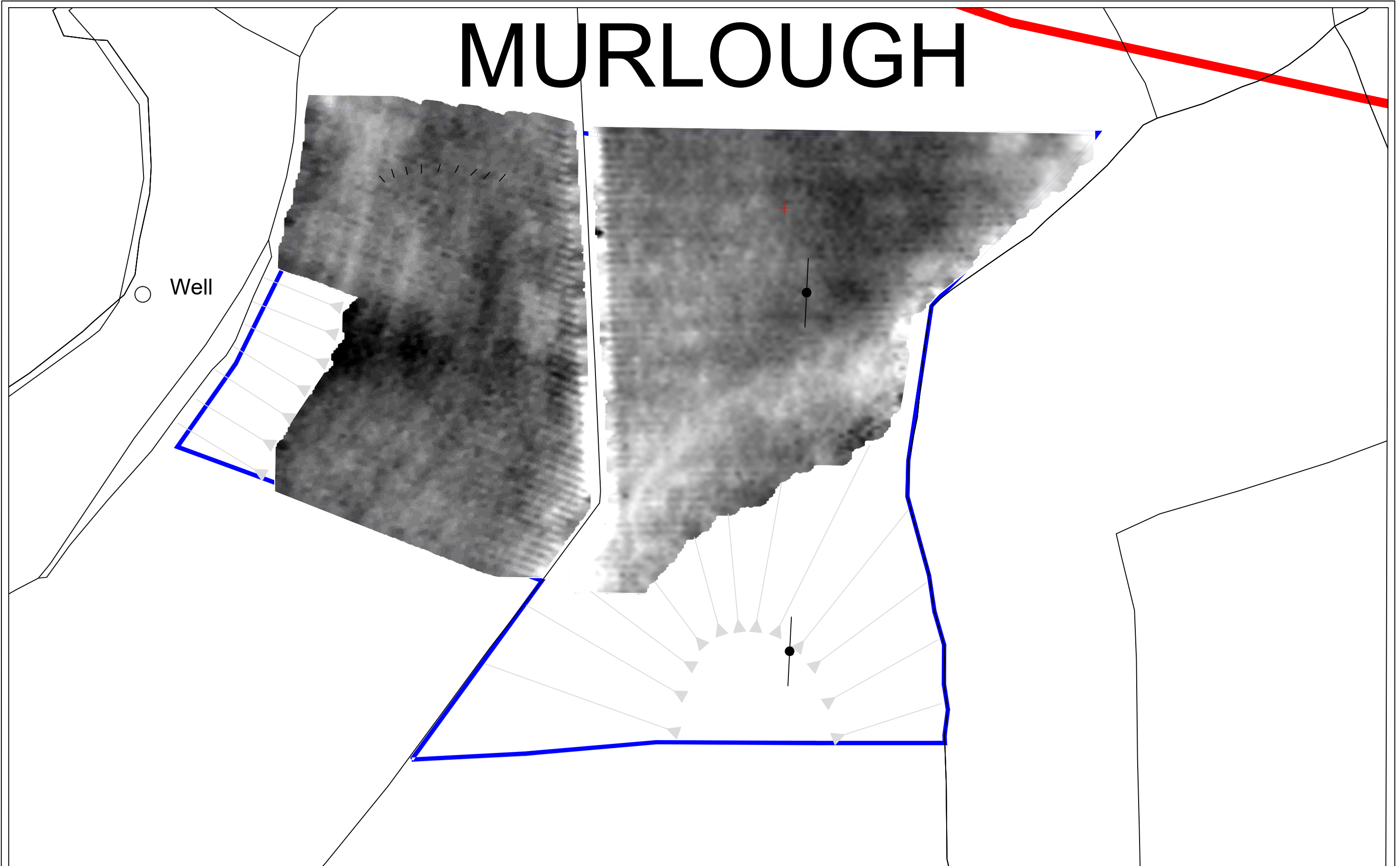
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**Figure No. 27: Magnetometer Interpretation - ER5**



# MURLOUGH

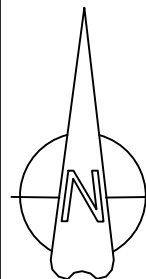


## Legend

-  Basemap
-  Geophysical Survey Area
-  Indicative Route Corridor
-  Topographic Feature
-  Unsurveyable Area
-  Record Monument or Potential Monument detected during route selection

mS/m

130 175



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 19/06/20

Drawing No.: 20-022/28

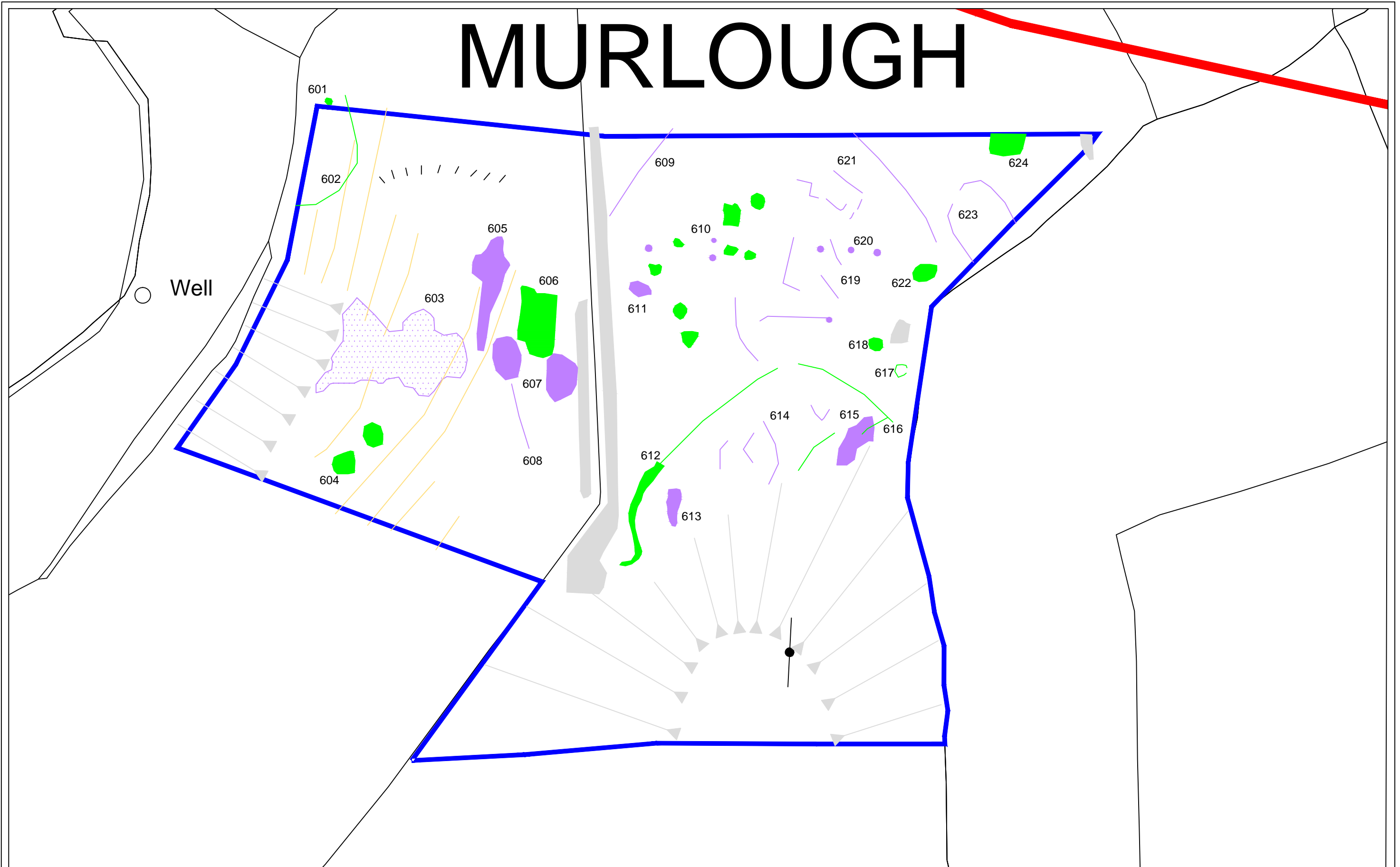
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0m 30m 60m

Figure No. 28: Resistivity Data - ER6

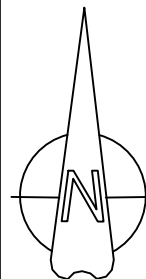


# MURLLOUGH



## Legend

- |                             |                         |                        |
|-----------------------------|-------------------------|------------------------|
| — Basemap                   | Archaeology             | Cultivation            |
| — Geophysical Survey Area   | Possible Archaeology    | Modern Disturbance     |
| — Indicative Route Corridor | Low Resistance Anomaly  | Modern Pipe            |
| — Topographic Feature       | High Resistance Anomaly | Geology                |
|                             |                         | Feature on Historic OS |



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 23/06/20

Drawing No.: 20-022/29

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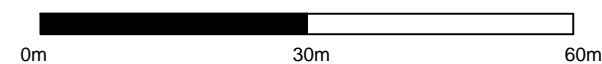
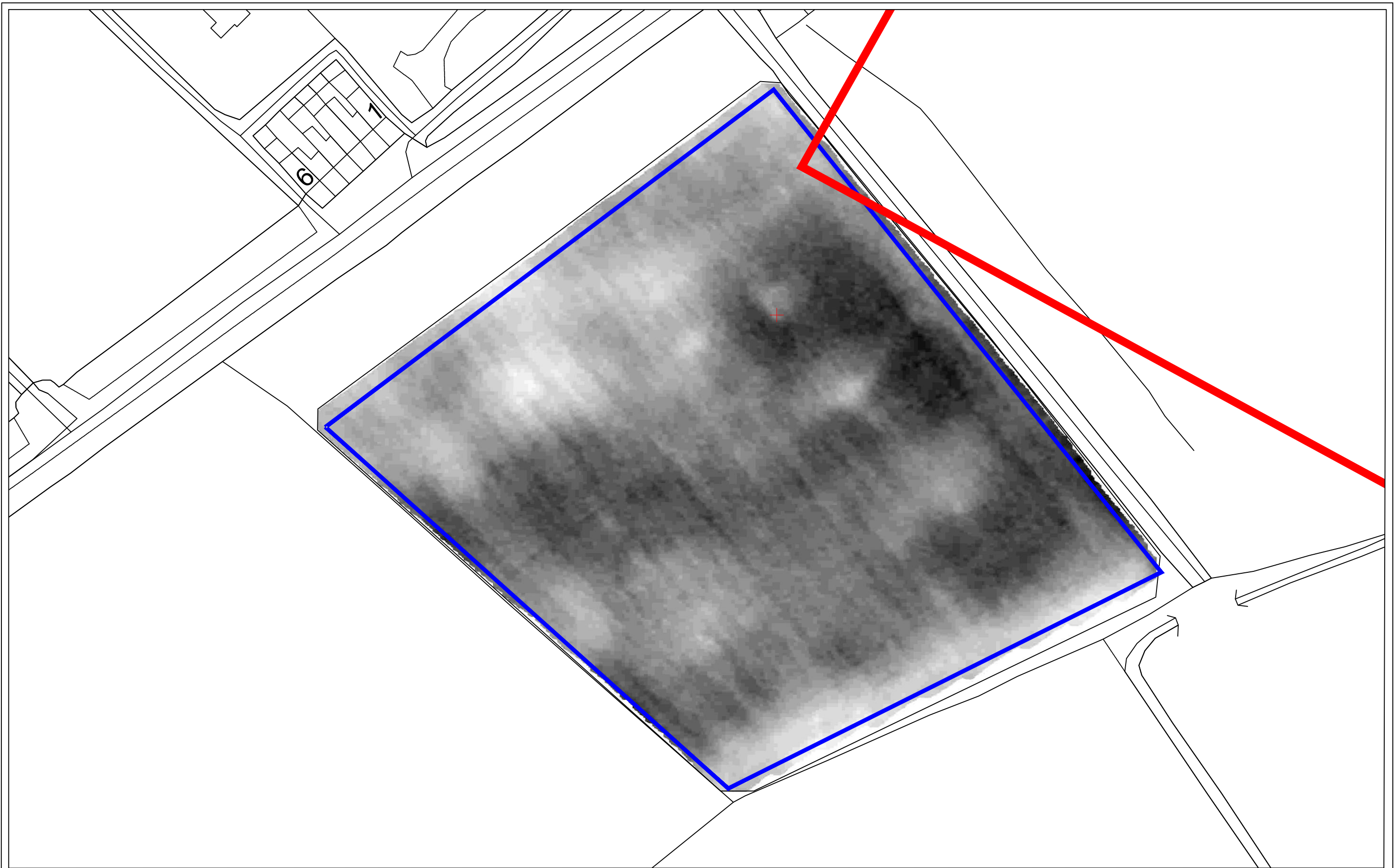


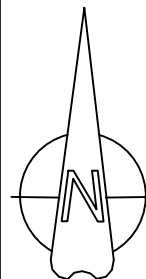
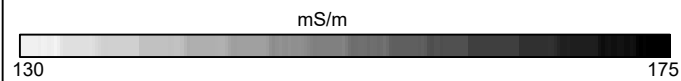
Figure No. 29: Resistivity Interpretation - ER6





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- + Record Monument or Potential Monument detected during route selection



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI      Date: 19/06/20      Drawing No.: 20-022/30

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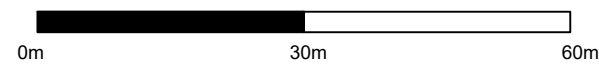
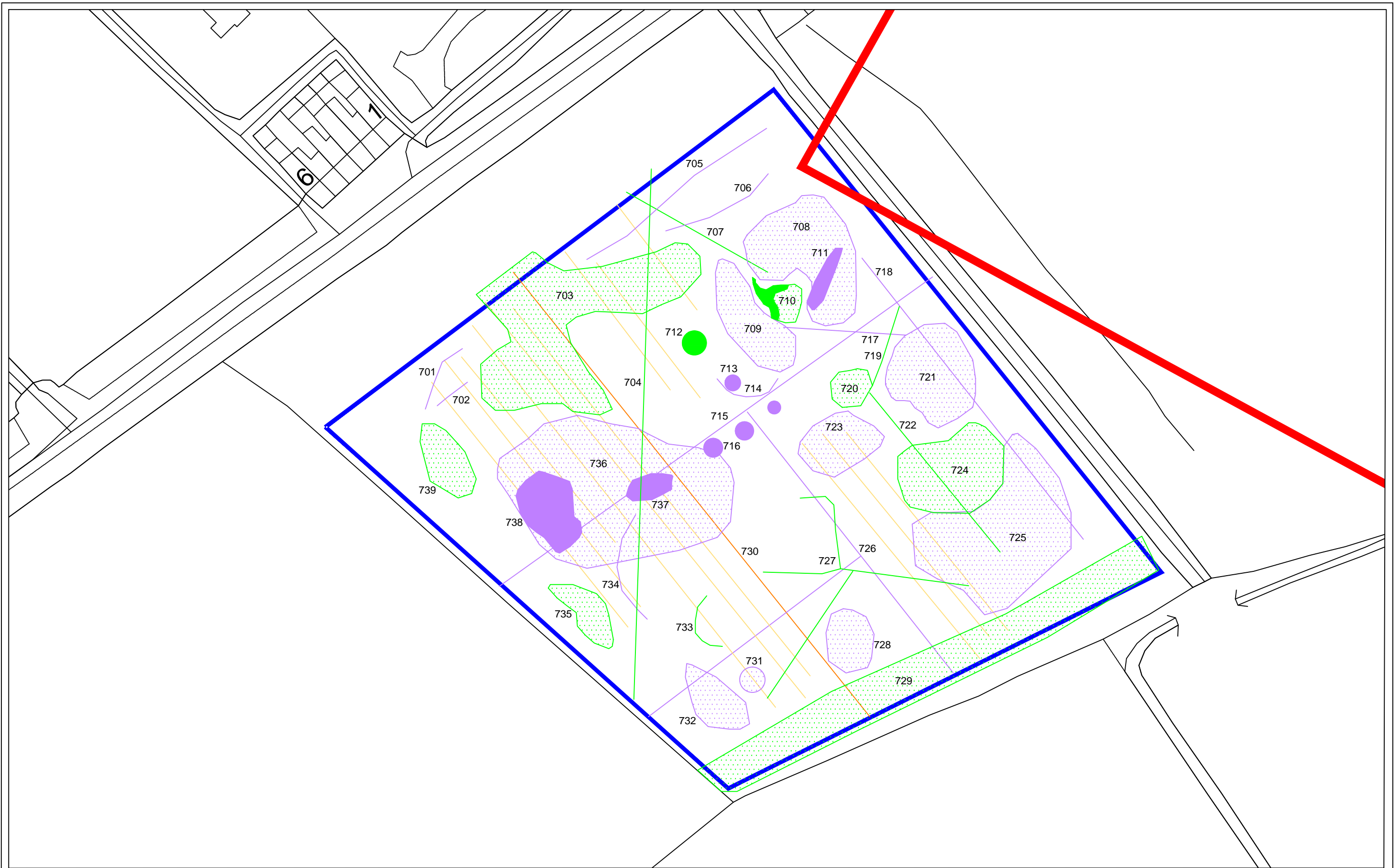


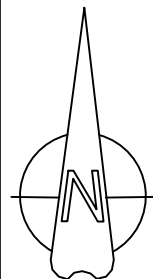
Figure No. 30: Resistivity Data - ER7





**Legend**

- |                             |                         |                        |
|-----------------------------|-------------------------|------------------------|
| — Basemap                   | Archaeology             | Cultivation            |
| — Geophysical Survey Area   | Possible Archaeology    | Modern Disturbance     |
| — Indicative Route Corridor | Low Resistance Anomaly  | Modern Pipe            |
| XXXXX Unsurveyable Area     | High Resistance Anomaly | Geology                |
|                             |                         | Feature on Historic OS |



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 23/06/20

Drawing No.: 20-022/31

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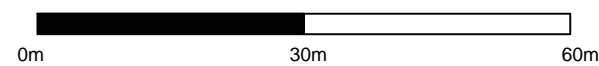
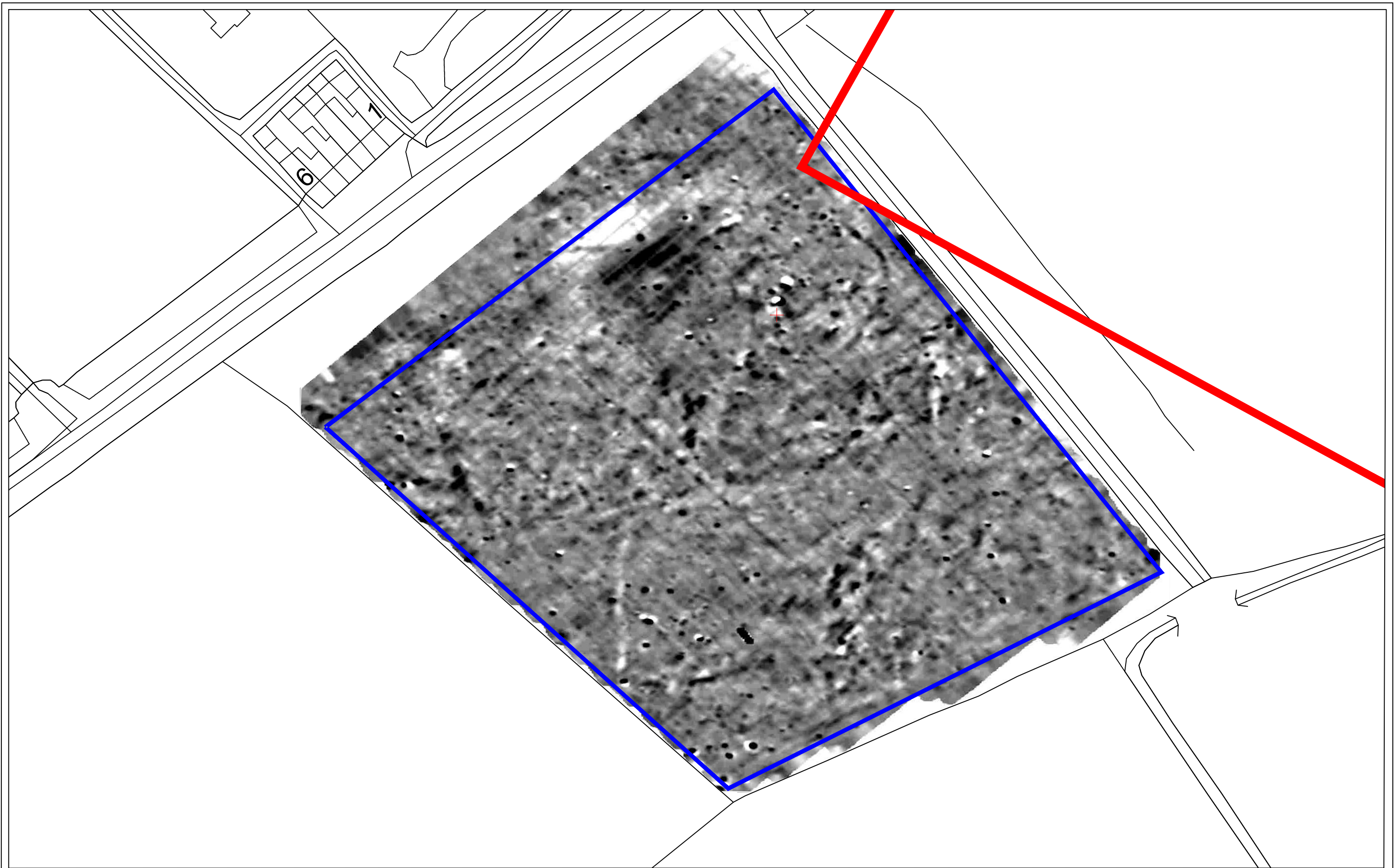





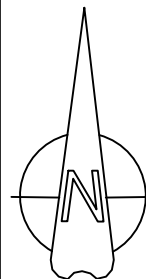
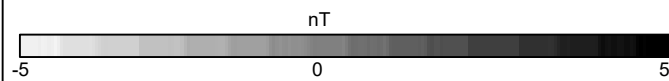
Figure No. 31: Resistivity Interpretation - ER7





**Legend**

-  Basemap
-  Geophysical Survey Area
-  Indicative Route Corridor



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 30/09/20

Drawing No.: 20-022/32

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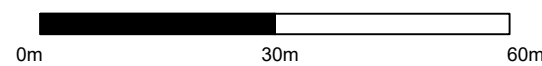
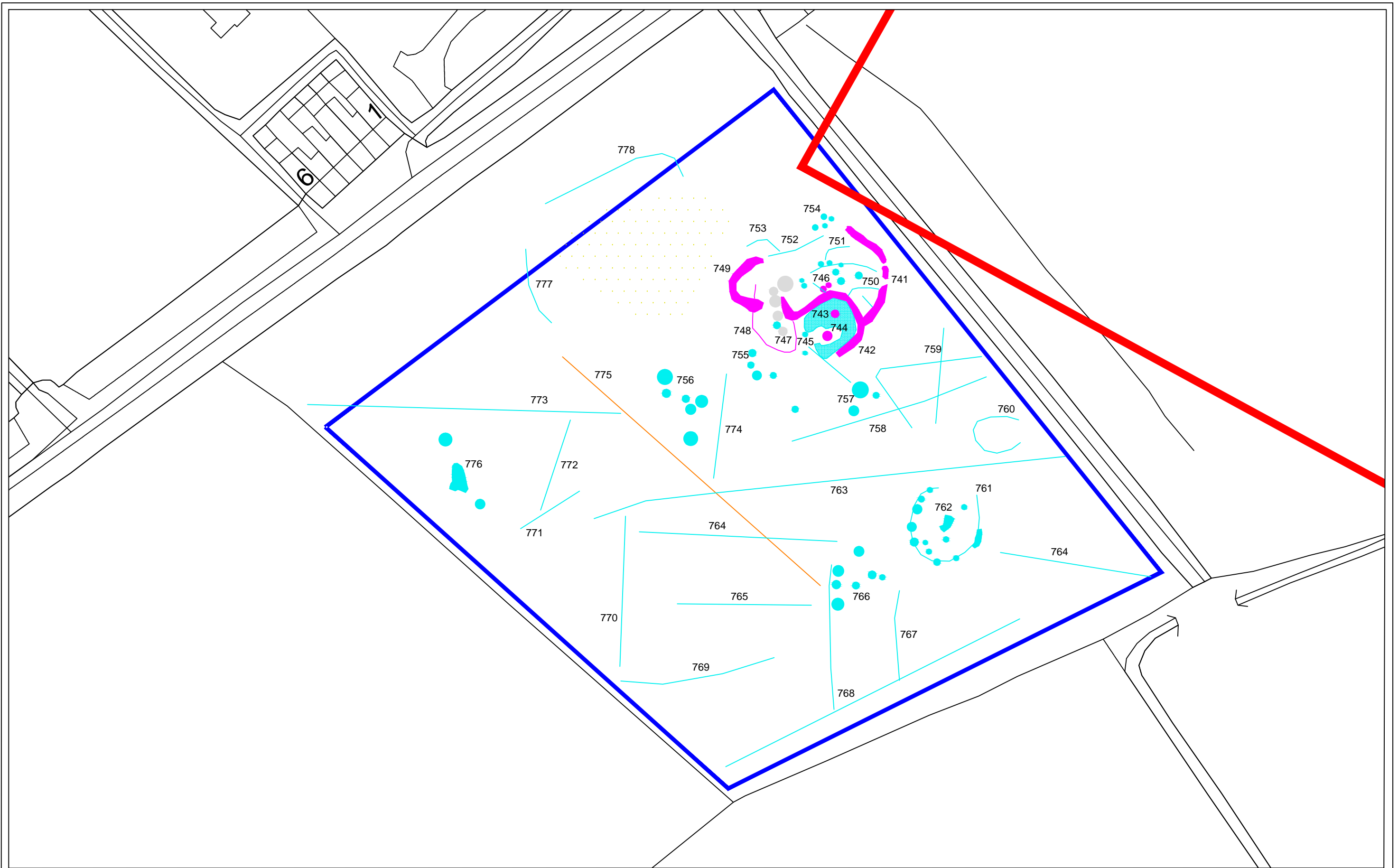


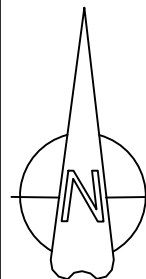
Figure No. 32: Magnetometer Data - ER7





**Legend**

- |                             |                      |                        |
|-----------------------------|----------------------|------------------------|
| — Basemap                   | Archaeology          | Cultivation            |
| — Geophysical Survey Area   | Possible Archaeology | Modern Disturbance     |
| — Indicative Route Corridor | Industrial           | Modern Pipe            |
|                             | Magnetic Enhancement | Geology                |
|                             | Trend                | Feature on Historic OS |



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 03/06/20

Drawing No.: 20-022/33

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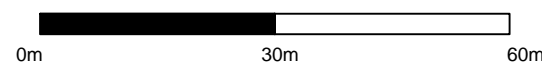
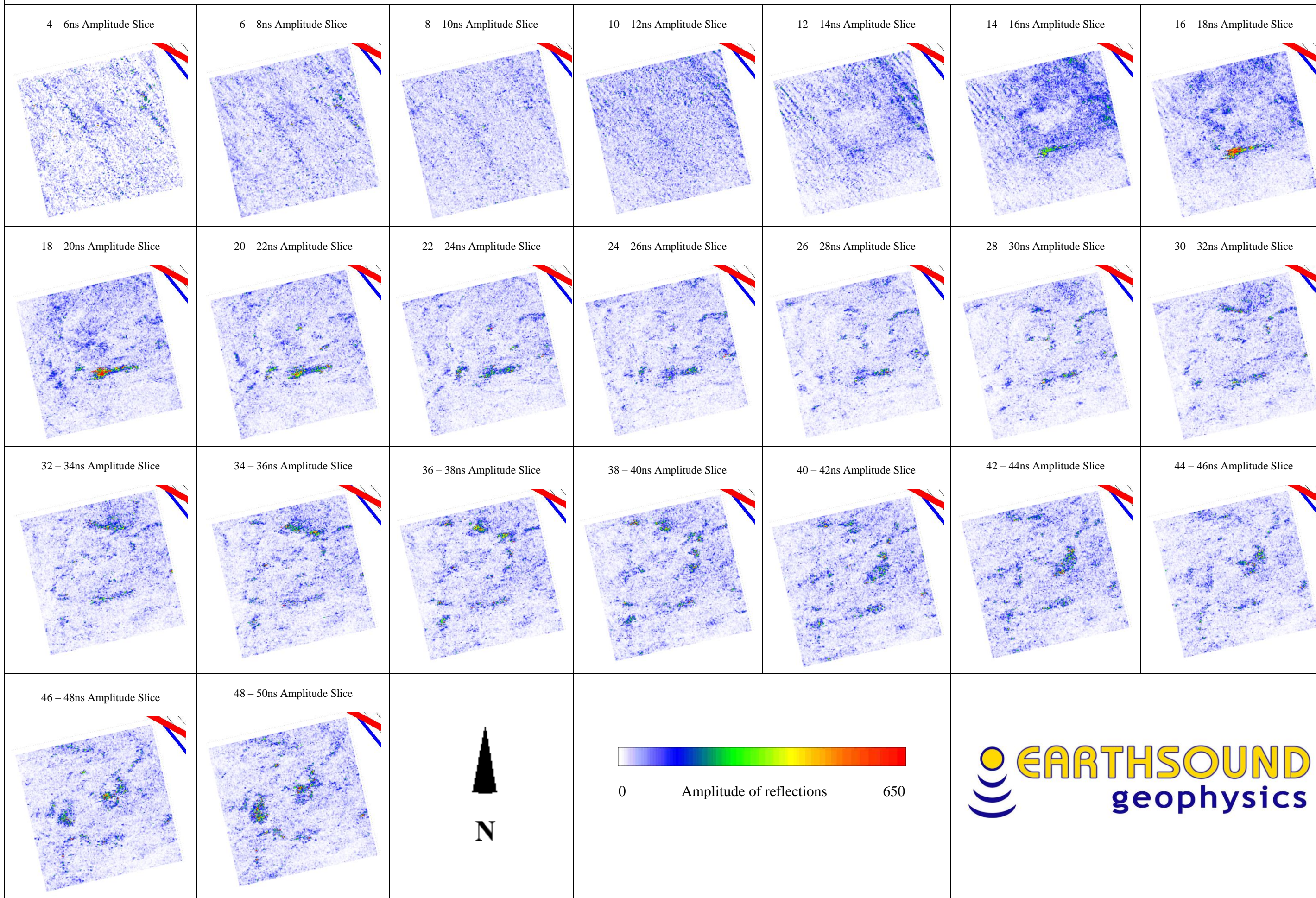
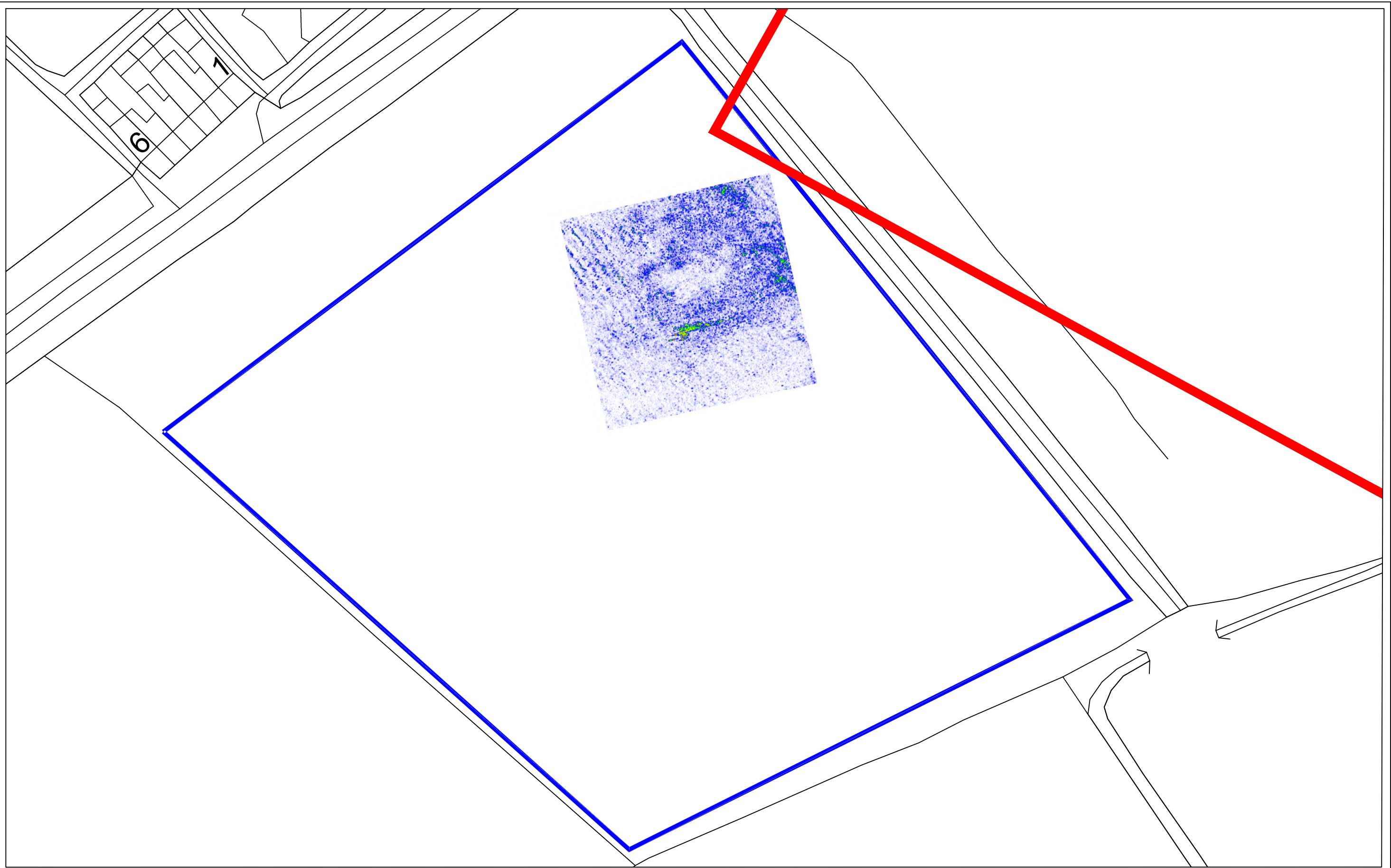


Figure No. 33: Magnetometer Interpretation - ER7



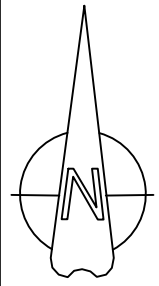
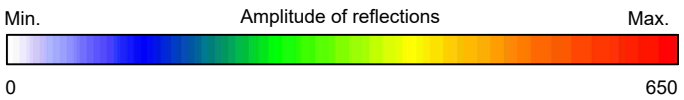
**TEN-T Priority Route Improvement Project, County Donegal**  
**Figure 34: Ground Penetrating Radar Amplitude Slice-maps – ER7**





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor

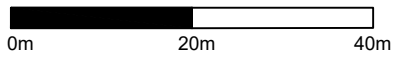


Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

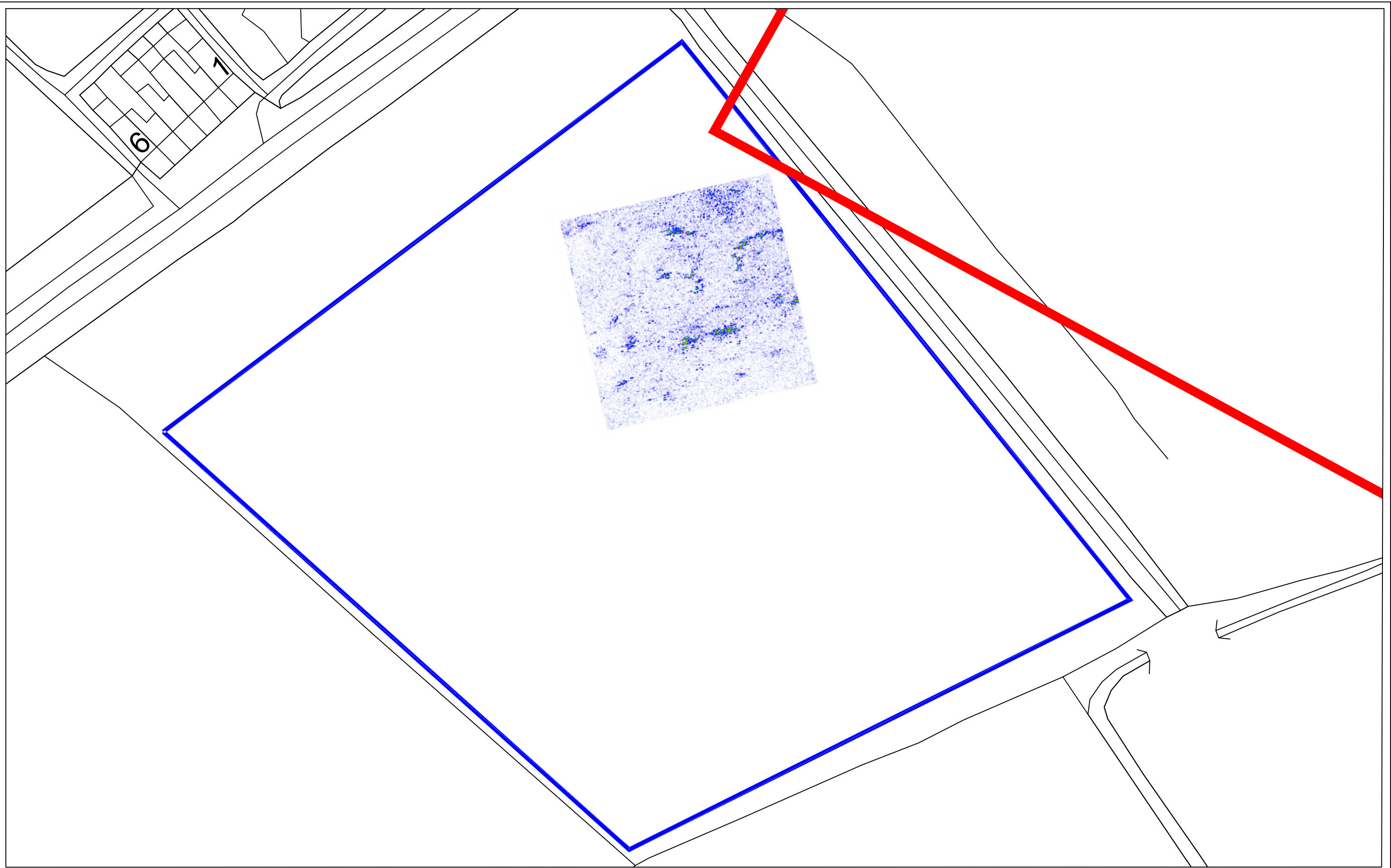
Drawing Courtesy of: Donegal Coco / OSI      Date: 19/10/20      Drawing No.: 20-022/35

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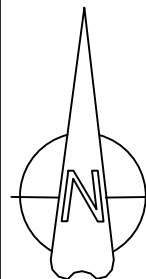
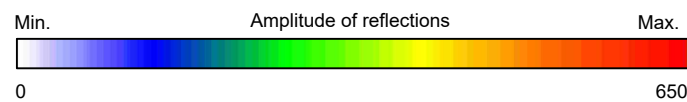
**Figure No. 35: Ground Penetrating Radar Data - ER7 - 14 - 16ns Amplitude Slice**





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 19/10/20

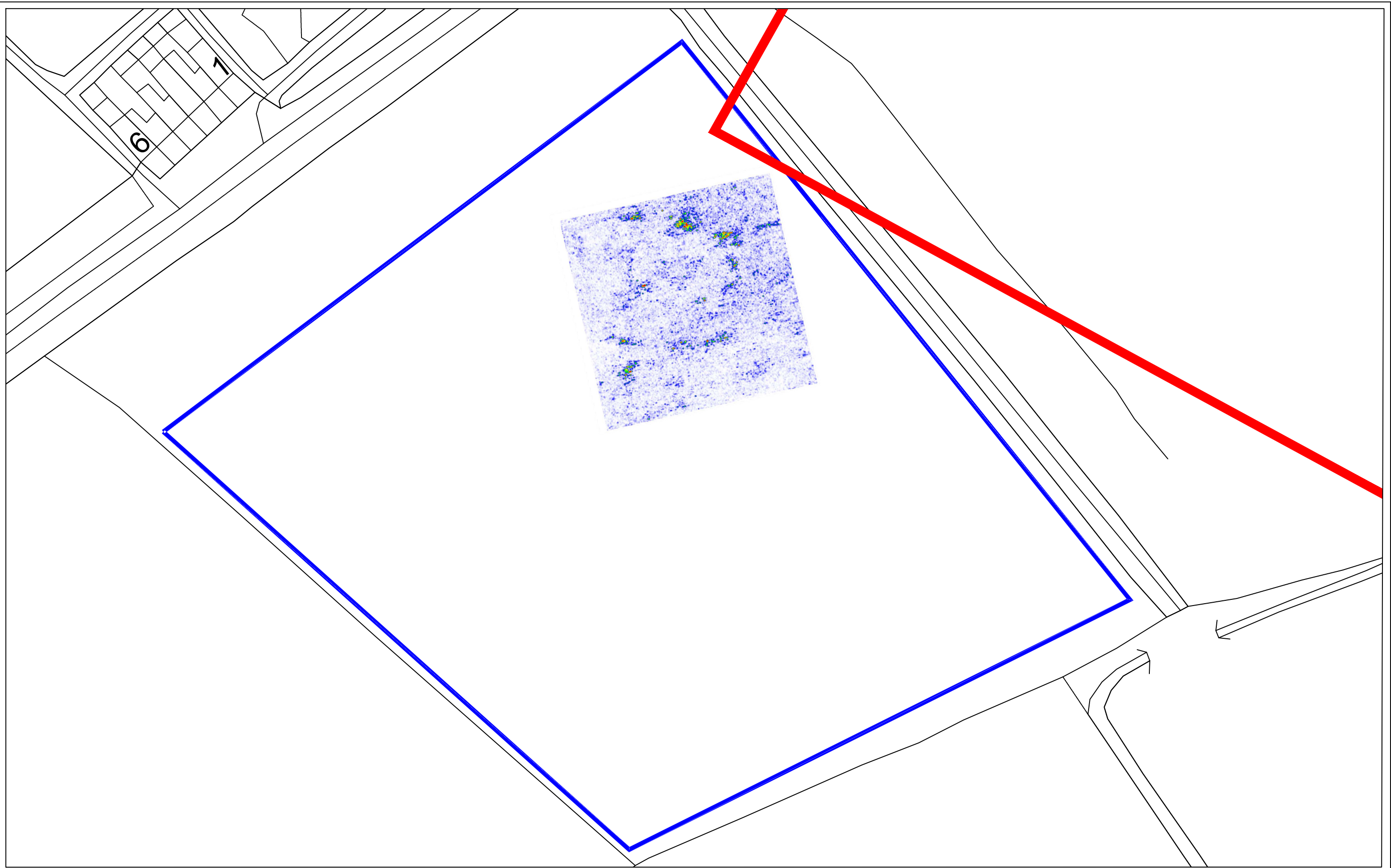
Drawing No.: 20-022/36

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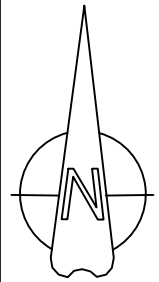
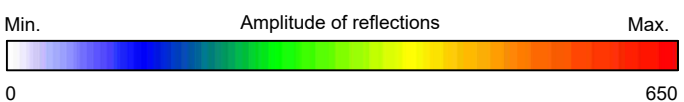
**Figure No. 36: Ground Penetrating Radar Data - ER7 - 28 - 30ns Amplitude Slice**





**Legend**

-  Basemap
-  Geophysical Survey Area
-  Indicative Route Corridor

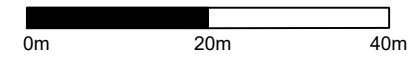


Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

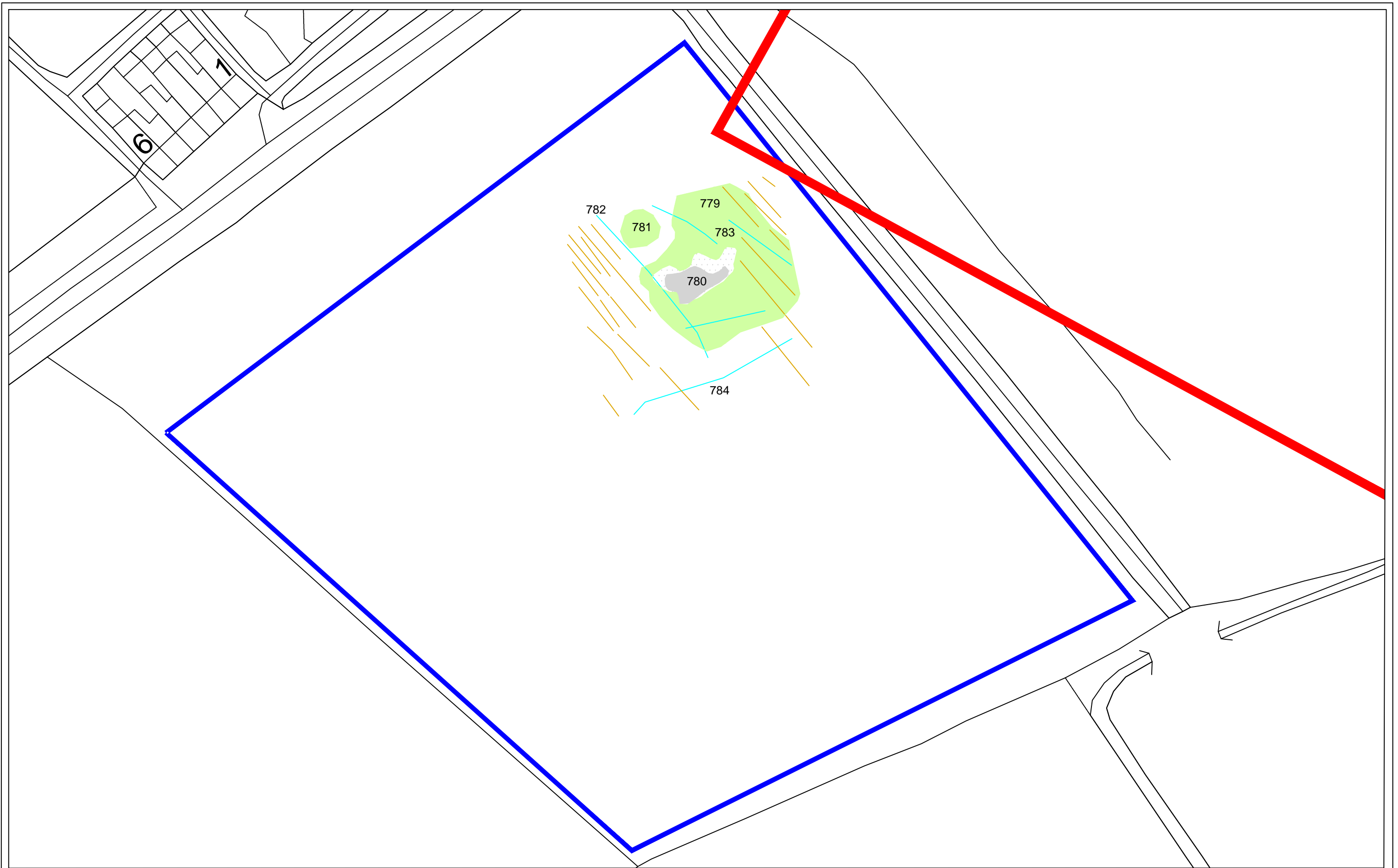
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**Figure No. 37: Ground Penetrating Radar Data - ER7 - 36 - 38ns Amplitude Slice**

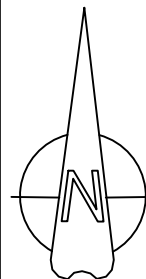




**Legend**

-  Basemap
-  Geophysical Survey Area
-  Indicative Route Corridor

-  Shallow Depth - Ditch or Cut Feature
-  Shallow Depth - Quiet Zone - Possible Clay deposits
-  Shallow Depth - Hard or Compact Feature
-  Shallow Depth - Cultivation Furrows



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 19/10/20

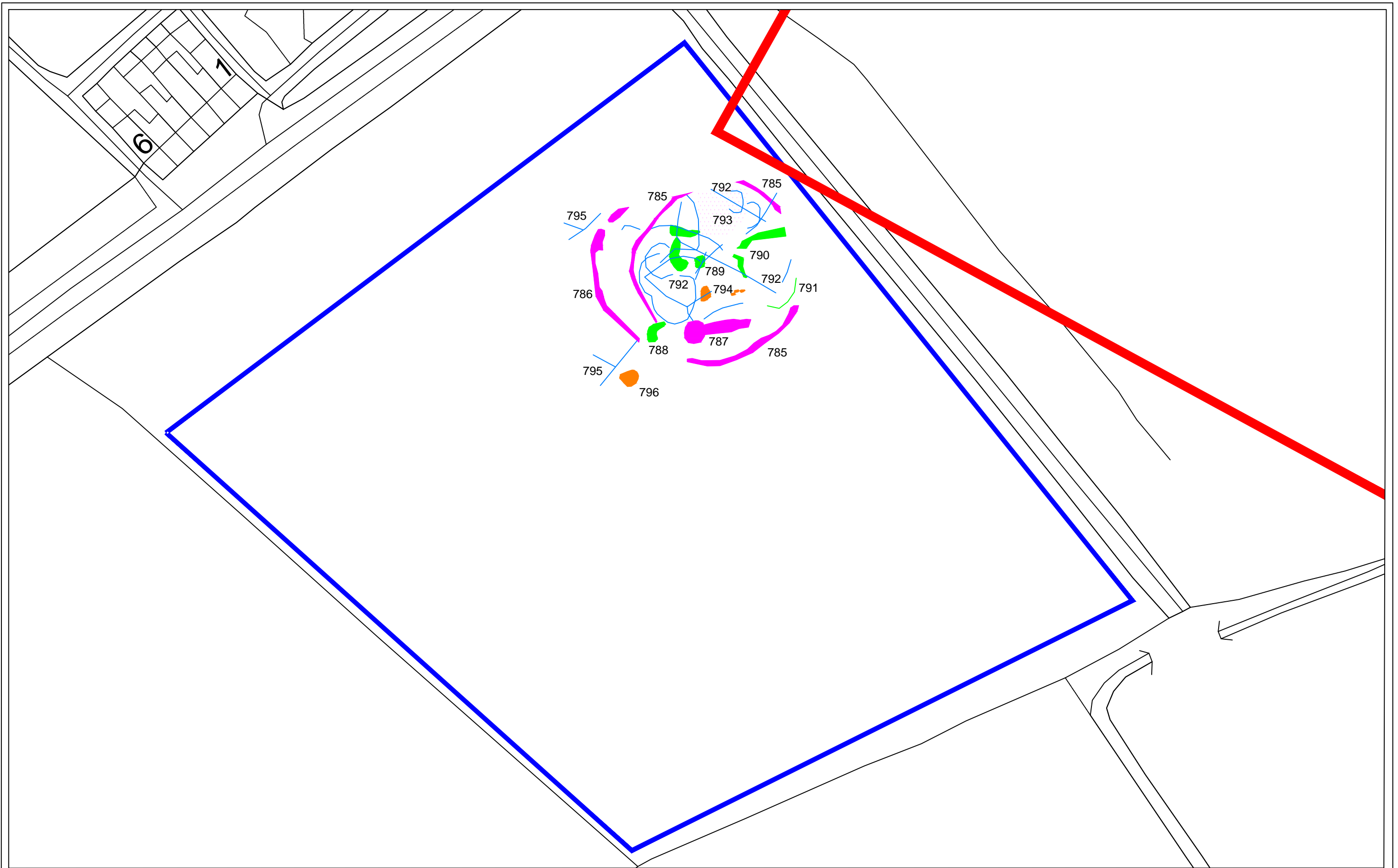
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**Figure No. 38: Ground Penetrating Radar Interpretation - ER7 - Shallow Depth Anomalies**

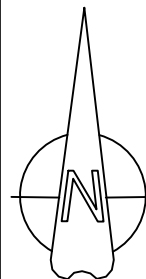




**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor

- Medium Depth - Probable Archaeology
- Medium Depth - Possible Archaeological Zone
- Medium Depth - Ditch or Cut Feature
- Medium Depth - Disturbed Ground
- Medium Depth - Hard or Compact Feature



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI

Date: 19/10/20

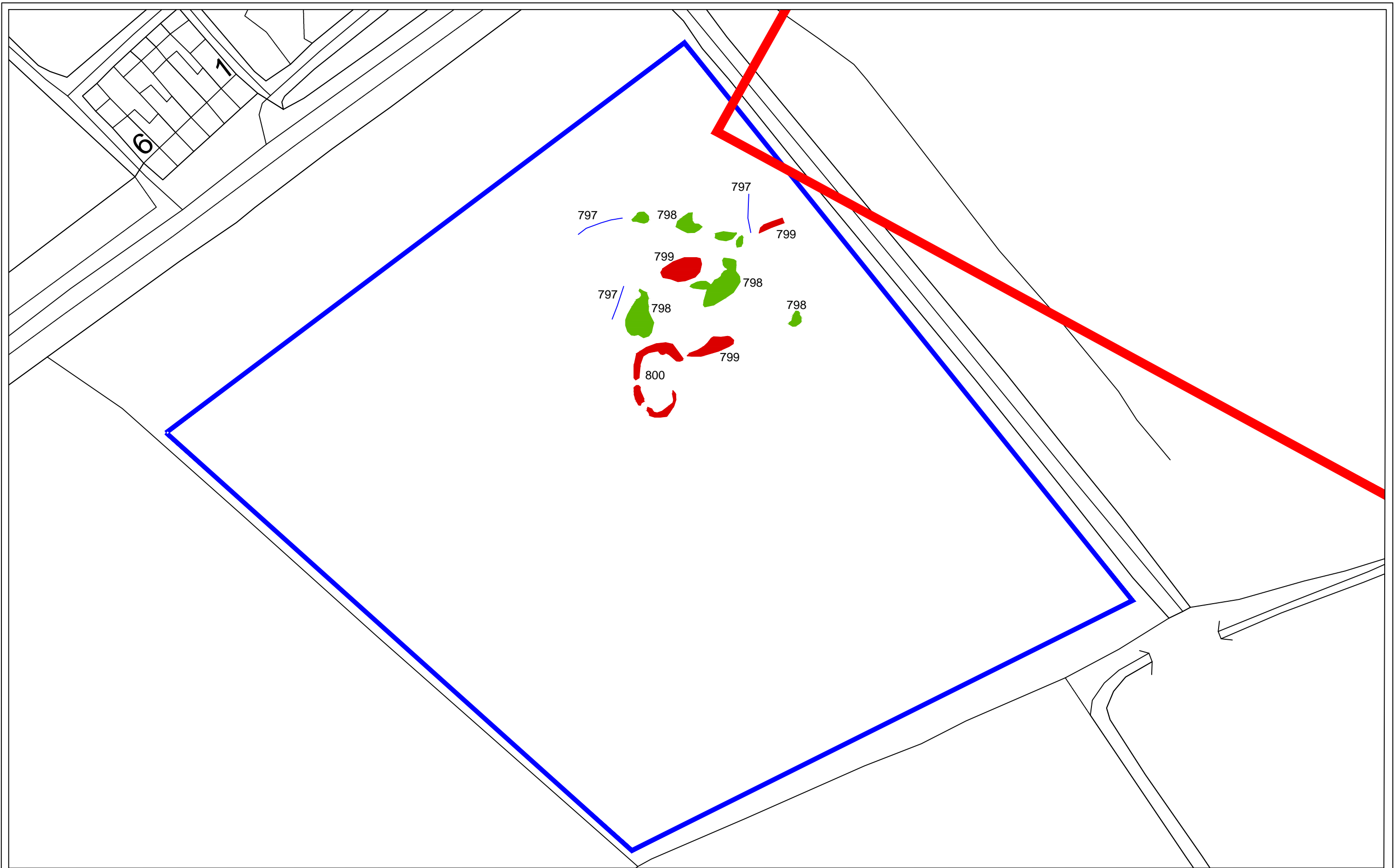
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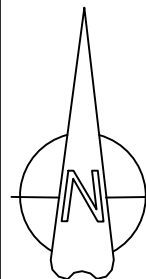
**Figure No. 39: Ground Penetrating Radar Interpretation - ER7 - Medium Depth Anomalies**





**Legend**

- Basemap
- Geophysical Survey Area
- Indicative Route Corridor
- Deep Depth - Ditch or Cut Feature
- Deep Depth - Disturbed Ground
- Deep Depth - Hard or Compact Feature



Project: TEN-T Priority Route Improvement Project, County Donegal

Client: Donegal County Council

Drawing Courtesy of: Donegal Coco / OSI      Date: 19/10/20      Drawing No.: 20-022/40

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**Figure No. 40: Ground Penetrating Radar Interpretation - ER7 - Deep Depth Anomalies**

