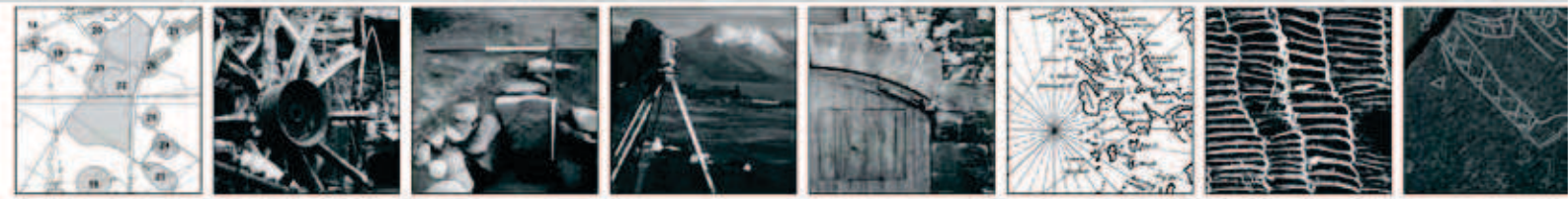


BRKW13/001



BARVILLE FARM WIND TURBINE  
TILMANSTONE  
KENT

*Geophysical Survey*

*July 2013*

# Barville Farm Wind Turbine, Tilmanstone, Kent

## Geophysical Survey 201

Prepared by S.Mayes

### CONTENTS

---

1	INTRODUCTION	1
2	OBJECTIVES OF THE SURVEY	1
3	GEOLOGICAL BACKGROUND	1
4	ARCHAEOLOGICAL BACKGROUND	1
5	SURVEY PROCEDURE	2
5.1	<i>Magnetometer survey</i>	2
6	RESULTS	2
	REFERENCES	3

#### **Abstract**

*A Magnetometer survey was undertaken over the proposed site for a wind turbine at Barville farm, Tilmanstone, to establish whether there are likely to be any issues regarding heritage assets which might have to be dealt with during the planning process.*

*The Barville farm site produced responses related to a scatter of ferrous objects and previous indication of cultivation. The density of the magnetic anomalies suggests that rubbish has been spread across the site at some point in the past and are evident on the ground. These responses are not at a higher level than would usually be expected. There is also a further concentration of magnetic anomalies possibly associated with the present structures within the survey area.*

*No features of archaeological significance are apparent in the study area.*

## **1. Introduction**

This report describes a geophysical survey undertaken on a site selected for a proposed wind turbine at Tilmanstone, Kent.

The survey was carried out by Headland Archaeology (UK) Ltd, Specialists in Archaeogeophysics in conjunction with Bartlett Clark Consultancy of Oxford in 2013.

The proposed area of development is within an area of farmland surrounding Barville Farm (NGR 629506, 150408). It is currently used as small grass paddocks for horses. The Inner Study Area comprises arable farmland with some shelter belts and plantations. The village of Tilmanstone lies to on the north edge of the site and the former Tilmanstone colliery towards its west.

## **2. Objectives of the Survey**

The general aim of the geophysical survey was to identify the extent and character of any archaeological remains capable of producing a magnetic response; these can include ditches, large pits, kilns, ovens etc...

## **3. Geological Background**

No drift geology or superficial deposits are recorded for the site. The bedrock geology is formed from a Margate Chalk Member, this sedimentary bedrock was formed approximately 71 to 86 million years ago in the Cretaceous Period, indicating the local environment was previously dominated by warm chalk seas (BGS).

## **4. Archaeological Background**

The registered records from Kent HER indicate areas of cropmark ring ditches and ditched boundaries within close proximity of the site. These probably reflect the presence of Bronze Age or later prehistoric fields / enclosures.

There is therefore high potential for further similar sub-surface remains of Bronze Age or Iron Age date within the Site, not currently registered as cropmarks.

Within the general area stray finds spanning the Prehistoric period, Bronze Age, Iron age and Roman period indicate the potential for sub-surface archaeological remains reflecting continued agricultural land use within the study area.

The Site is likely to have been agricultural land in the medieval period and the potential for structural features of this period is considered to be low, although there may be evidence of field divisions within the Site.

## 5. Survey Procedure

The procedure used for the investigation was a recorded magnetometer survey carried out across the shaded areas on Illustration 1.

### 5.1 Magnetometer survey

A survey grid of 100m by 100m (1Ha) was set out and tied to the OS grid using a GPS system with Omnistar correction to provide 0.1m or greater accuracy. The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans.

The magnetometer readings were collected along transects 1m apart using Bartington 1m fluxgate gradiometers, and are plotted at 25cm intervals along each transect. The results of the survey are presented as grey scale plots (Illustrations 2-3), and as graphical (x-y trace) plots in Illustrations 4-5 (all at 1:1250 scale). Inclusion of both types of presentation allows the detected magnetic anomalies to be examined in plan and profile respectively.

The graphical (x-y) plots represent minimally pre-processed magnetometer readings, as recommended for initial presentation of survey data in the 2008 English Heritage geophysical guidelines document (English Heritage 2008). Adjustments are made for irregularities in line spacing caused by variations in the instrument zero setting (as is required for legibility in gradiometer data), but no further filtering or other process which could affect the anomaly profiles or influence the interpretation of the data has been applied. A weak additional 2D low pass filter has been applied to the grey scale plot to reduce background noise levels.

An interpretation of the findings is shown in illustrations 3 and 4. Colour coding has been used in the interpretation to distinguish different interpretations and anomaly types.

## 6. Results

The result of the magnetometer survey within the area of proposed development identified a series of parallel linear anomalies and a scattering of ferrous magnetic anomalies.

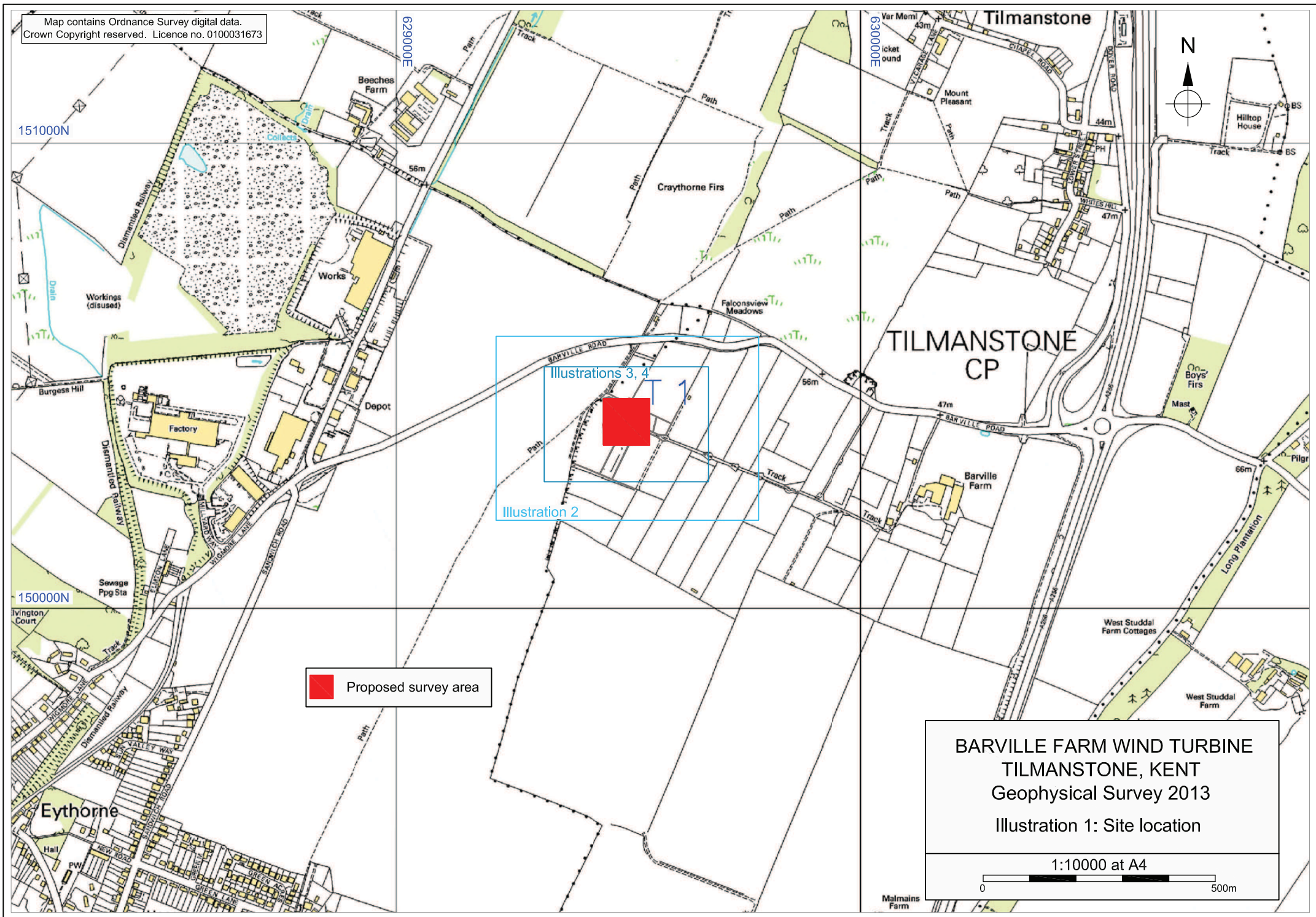
The series of parallel magnetic responses were aligned east-west possibly indicating cultivation lines, the magnetic responses were noted to correspond with visible evidence for ridge and furrow within the proposed development area.


Further results identified a series of strong ferrous responses that were generally scattered across the whole site. While a second scatter of concentrated magnetic anomalies appear to correspond to the locations of the existing agricultural buildings surrounding the gravelled surface and towards the edges of the marked field boundaries (See Illus 3 and 4).

These types scattered ferrous responses are not uncommon within agricultural land and may relate to general debris associated with agricultural activities being spread across the area

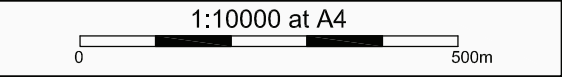
No features relating to historic activity have been identified within the proposed area of development.

Map contains Ordnance Survey digital data.  
Crown Copyright reserved. Licence no. 0100031673



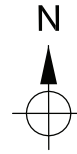
 Proposed survey area

**BARVILLE FARM WIND TURBINE**  
**TILMANSTONE, KENT**  
**Geophysical Survey 2013**  
**Illustration 1: Site location**

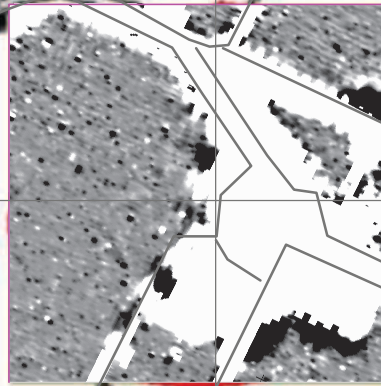
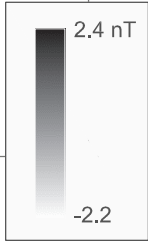


Map contains Ordnance Survey digital data.  
Crown Copyright reserved. Licence no. 0100031673

BARVILLE ROAD

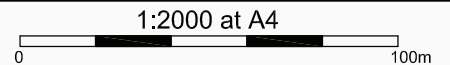


T 1








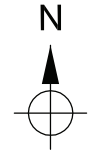
Path

BARVILLE FARM WIND TURBINE  
TILMANSTONE, KENT  
Geophysical Survey 2013  
Illustration 2: Magnetometer survey  
(grey scale plot)

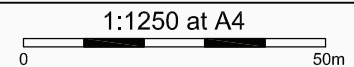


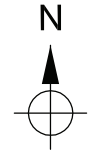
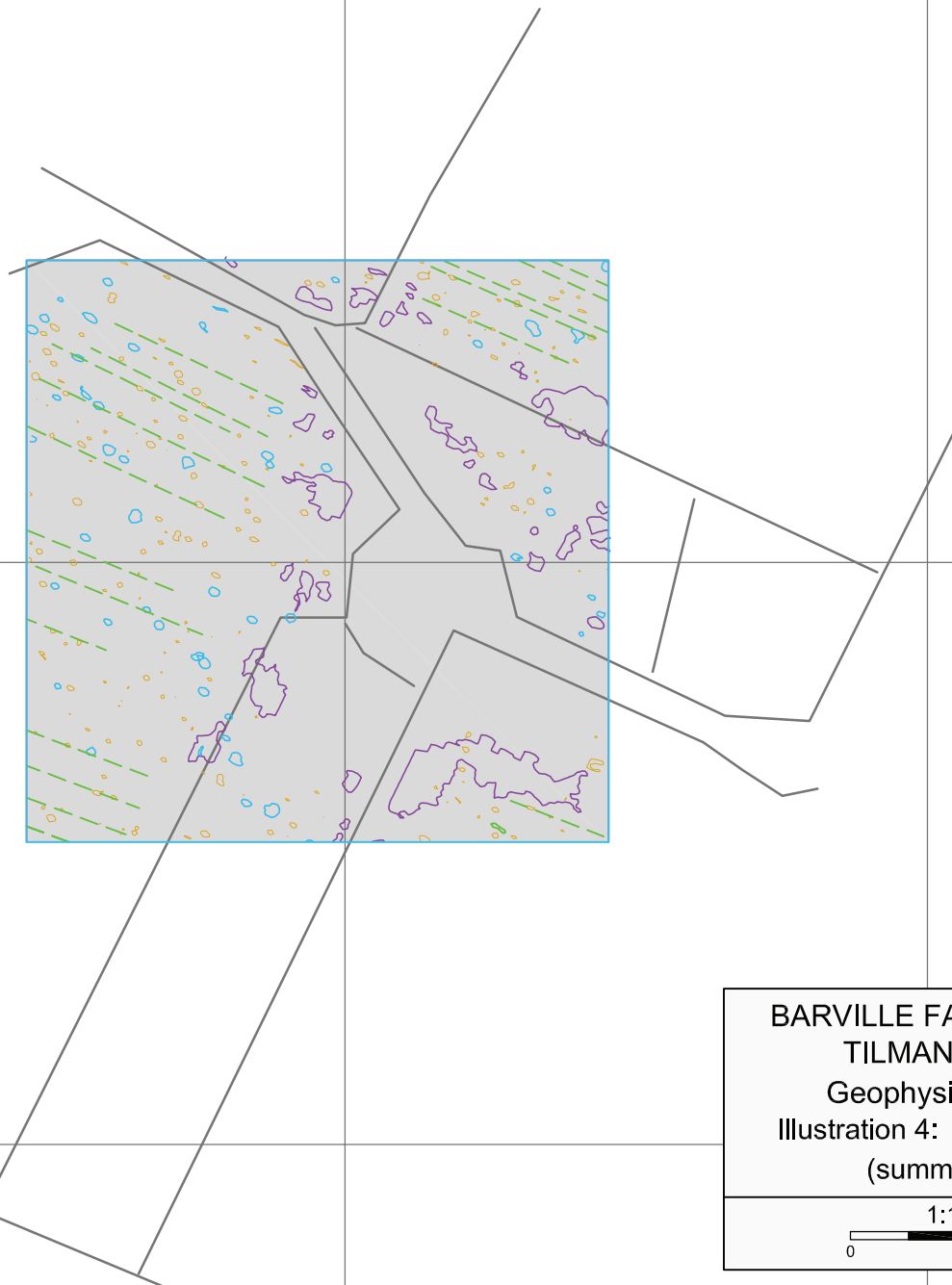
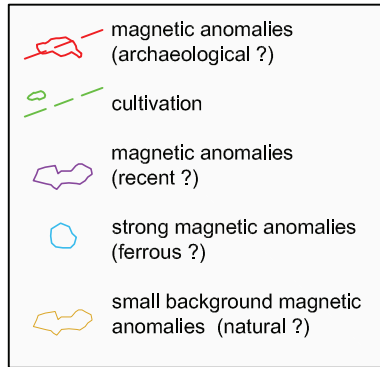
Map contains Ordnance Survey digital data.  
Crown Copyright reserved. Licence no. 0100031673

-  magnetic anomalies  
(archaeological ?)
-  cultivation
-  magnetic anomalies  
(recent ?)
-  strong magnetic anomalies  
(ferrous ?)
-  small background magnetic  
anomalies (natural ?)



BARVILLE FARM WIND TURBINE  
TILMANSTONE, KENT  
Geophysical Survey 2013  
Illustration 3: Magnetometer survey  
(grey scale plot)





BARVILLE FARM WIND TURBINE  
TILMANSTONE, KENT  
Geophysical Survey 2013  
Illustration 4: Magnetometer survey  
(summary of findings)

1:1250 at A4

0 50m



## References

Bell, F G 1975 'Site Investigations in Areas of Mining Subsidence', Newnes-Butterwoths (Table 42; p 78).

English Heritage 2008a *Geophysical Survey in Archaeological Field Evaluation* [online facsimile] (English Heritage: Swindon, 2008), English Heritage Research

English Heritage 2008b *Professional Services Guideline no. 1, 2nd edn* English Heritage Research.

Gaffney, C, Gater, J & Ovenden, S 2002 'The Use of Geophysical Techniques in Archaeological Evaluations', *Institute of Field Archaeologists Paper*, no. 6 [online paper] (published online June 2002) <[http://www.archaeologists.net/sites/default/files/node-files/ifa\\_paper\\_6.pdf](http://www.archaeologists.net/sites/default/files/node-files/ifa_paper_6.pdf)> accessed July 2013.

Schmidt, A & Ernenwein, E 2011 *Guide to Good Practice: Geophysical Data in Archaeology, 2nd edn* [online facsimile] Guides to Good Practice <[http://guides.archaeologydataservice.ac.uk/g2gp/Geophysics\\_Toc#section-Geophysics\\_Toc- Guide To Good PracticeGeophysicalDataInArchaeology](http://guides.archaeologydataservice.ac.uk/g2gp/Geophysics_Toc#section-Geophysics_Toc-Guide%20To%20Good%20PracticeGeophysicalDataInArchaeology)> accessed July 2013.