

**SWW TORBAY MARINE SCHEME  
AN ARCHAEOLOGICAL EVALUATION  
AT BROKENBURY QUARRY,  
CHURSTON FERRERS**

**by**

**S.J. Reed and P.J. Weddell**

**Exeter Museums Archaeological Field Unit**

**Report No. 93.77**

**December 1993**

## Contents

1.	Introduction	1
	1.1 Background: previous assessment and fieldwork	1
	1.2 Archaeological background	2
	1.3 Evaluation strategy	2
	1.4 The site	2
2.	Excavation results	2
	2.1 Trench 1	3
	2.2 Trench 2	3
	2.3 Trench 3	3
	2.4 Trial pits	3
	2.5 Interpretation	4
	2.6 Finds	4
3.	Conclusions	5
	3.1 Confidence rating	5
4.	Recommendations	6
	4.1 Preservation	6
	4.2 Further archaeological investigation	6
	4.3 Watching brief	6
	4.4 Fieldwalking	6
	Acknowledgements	6
	Bibliography	7

## List of illustrations

- Fig. 1 Location of site (1:25,000).  
Fig. 2 Location of proposed sewage treatment works (1:10,000).  
Fig. 3 Location of evaluation trenches.  
Fig. 4 Trench 1, section and plan of solution features.  
Fig. 5 Magnetometer (gradiometer) survey, shade plot (Oxford Archaeotechnics report, Fig. 6).
- Pl. 1 The site before excavation (looking south-west).  
Pl. 2 Trench 1 (looking north-west).  
Pl. 3 Oval solution feature in Trench 1 (looking north-west).  
Pl. 4 Solution feature in north face of quarry (looking north).  
Pl. 5 Linear feature in Trench 1 before excavation (looking north-east).  
Pl. 6 Linear feature in Trench 1, partially excavated (looking south).

## 1. INTRODUCTION

This report summarises the results of an archaeological evaluation carried out at Brokenbury Quarry, Churston Ferrers, near Brixham. The evaluation was commissioned by South West Water (SWW) through their Marine Design Centre at Plympton. The site lies within the area of a proposed sewage treatment works (STW) which will be constructed as part of SWW's Torbay Marine Scheme. This is a major project which is aimed at improving the sewage treatment facilities in the Torbay area. A planning application for the Brokenbury Quarry STW will be submitted to Torbay Borough Council in the near future. The work was carried out with the kind permission of the landowner and tenant farmer. The excavations were undertaken by Exeter Museums Archaeological Field Unit (EMAFU) between 17 and 24 November 1993.

### 1.1 Background: previous assessment and fieldwork

In March 1993 EMAFU were requested by Travers Morgan South West (terrestrial environmental consultants to SWW) to undertake an archaeological assessment of two potential sites for a new STW for Torbay. A report describing the results of the assessment, which at this stage was a desktop study only, was produced in April 1993 (Turton and Weddell 1993). The report identified the archaeological potential of the Brokenbury Quarry site which lay in an area where prehistoric flintwork had been recovered and adjoining a known cropmark enclosure site. It was therefore recommended that, if this site were chosen, further archaeological evaluation would be required. The Brokenbury site was subsequently chosen by SWW as the preferred location for the new Torbay STW.

After discussions between EMAFU, Devon County Council's archaeological officers, SWW and Travers Morgan it was agreed that a staged approach to the archaeological evaluation of the site should be adopted. The first stage was to commission a geophysical survey of the site in order to attempt to clarify the archaeological potential. The geophysical survey was undertaken by Oxford Archaeotechnics (OA) in September 1993 and the results were outlined in their report to SWW entitled *Brokenbury Quarry Churston Ferrers near Brixham, Devon. Magnetic Susceptibility and Magnetometer Survey* (Survey Ref. 020993/BRO/SWW). The survey drew attention to the high archaeological potential of the field to the north of the quarry (OS parcel No. 8339) where extremely high magnetic susceptibility readings were recorded. The report concluded that the proposed development area lay outside the main focus of archaeological activity and was peripheral to it (Ch 4.7). However the gradiometer survey identified some curvilinear and linear features within the proposed site which were thought to be of archaeological origin. There was also a profusion of signals from geological features which were closely intermingled with the others and it was therefore impossible to characterise and identify them at this stage. It was therefore concluded that assessment of their archaeological significance could only be achieved through selective test-pitting or trial trenching. This approach was therefore pursued by SWW and evaluation excavations were subsequently commissioned. The procedures which SWW have followed in assessing the archaeological implications of the scheme are all in accordance with the guidelines set out in the Department of Environment's Planning Policy Guidance Note 16 *Archaeology and Planning* (Nov. 1990).

## 1.2 Archaeological background

The assessment identified two areas of archaeological significance in the vicinity of Brokenbury Quarry (Turton and Weddell 1993). A scatter of flints has been reported from fieldwalking within the survey area (Pearson 1981, 18), and part of a curvilinear cropmark which may represent a prehistoric enclosure/settlement site, has been plotted from air photographs some 100m north of the quarry, within OS field parcel 8339 (centred at SX 89815645; SMR SX85NE/62). The *bury* element in the placename often refers to ancient earthworks and is suggestive in this context, although there are no extant earthworks visible today. Other finds of prehistoric material from the vicinity, notably from intensive fieldwalking and minimal test-pitting at Churston Court Farm, a distance of *c.* 1km east of the quarry, indicate prehistoric activity spanning the Neolithic to Bronze Age periods (Pearson 1981) and highlight the archaeological potential of the area.

## 1.3 Evaluation strategy

The strategy for archaeological evaluation was devised with reference to the geophysical survey results in particular Figs 6 and 7 (gradiometer survey) in the OA report (see Fig. 5). It was intended chiefly to assess the character of the linear features which were suspected to be of an archaeological nature and to establish their likely depth and state of preservation. The likely density and distribution of lithic finds was also to be assessed.

It was proposed to excavate three trenches, the main one (Trench 1) of 50m length across the area where the linear features were identified. Two smaller trenches, Trenches 2 and 3, were to be excavated at strategic points to address specific archaeological questions. Four small trial pits were proposed for the northern part of the site which produced largely negative results in the geophysical survey. At a very late stage the evaluation strategy had to be curtailed due to access problems. Trench 1 was limited by the extent of arable crop to 37m in length. Trench 2 was abandoned entirely and only two trial pits were excavated. However, as the results described below will testify, it is felt that these limitations have not diminished the value of the overall conclusions or affected the interpretation of the archaeological evidence.

## 1.4 The site (Figs 1, 2)

The area to be evaluated lay in a field immediately to the south-east of the abandoned Brokenbury Quarry and adjoining the A3022 road to Brixham (NGR: SX 89705625; OS parcel No. 7818). It lies within the civil administrative district of Torbay and in the ecclesiastical parish of Churston Ferrers. The underlying geology is Middle Devonian Limestone (BGS Sheet 350, Torquay), with shallow, loamy and well-drained soil of the Crwbin series (Soil Survey of England and Wales). The field was partly under arable crops with slight growth and partly under stubble from the previous season's crop. Excavation was limited to the uncultivated area which immediately adjoined the quarry (Fig. 3; Pl. 1).

## 2. EXCAVATION RESULTS (Fig. 4)

The trenches (T1 and T3) were first excavated using a wheeled digger to remove topsoil and

stubble root, and were then hand-cleaned to the level of the underlying bedrock. Any finds were retrieved from the topsoil at this stage. No positive features were noted above the bedrock and no archaeological stratification was preserved in this zone.

### 2.1 Trench 1 (Fig. 4; Pls 1-3, 4-6)

This was intended to locate continuations of features E and D and other linear marks in the OA geophysical survey report, Fig. 5, and was 37m in length and 1.5m wide. It contained an average depth of 0.2-0.3m of brown clayey loam (Munsell 7.5YR 4/2 Brown/Dark Brown) over weathered limestone bedrock, the stubble and root being some 0.07m thick. The bedrock was heavily fissured and bedded, the grain running approximately N/S and E/W. After cleaning by hand five clay-filled negative features were identified within the exposed limestone platform. Three of these were oval or circular in shape between 0.4-0.75m in diameter and tapering down to a point. They were filled with a very clean dark-red silty clay loam (Munsell 2.5YR 3/6).

The other two features consisted of one linear depression running across the width of the trench and another only partly exposed in the western edge of the trench. The former ran across the trench at *c.* 45° and was some 1.6m wide. Both features also contained the same very clean dark-red 2.5YR 3/6 silty clay loam. The linear feature also contained limestone rubble which became more dense below 0.8m. The rubble was contained within the silty clay loam matrix.

### 2.2 Trench 2

Not excavated.

### 2.3 Trench 3

Although located outside the proposed development area this was positioned at a strategic point where features C, D and E converged (OA report, Fig. 5). It was approximately 4m square in extent and contained only 0.25m of topsoil. Within the trench heavily fissured and pitted limestone bedrock was exposed. The alignment of the fissures was as above in Trench 1. A single circular feature, 0.4m in diameter and 0.5m deep, was located. It was filled with dark-red clay loam as above. Feature C in the OA report was not readily identifiable in this trench.

### 2.4 Trial pits

The sequence of deposition was as follows:

<i>No. 1</i>	Surface - 0.2m	silty clay loam 7.5YR 4/2 Brown/Dark Brown
	0.2 - 0.7m	silty clay 5YR 5/8 Yellowish Red
	at 0.7m	limestone bedrock
<i>No. 2</i>	Surface - 0.2m	silty clay loam
	0.2 - 0.7m	silty clay 5YR 4/6 Yellowish red
	at 0.7m	bedded weathering limestone and shale bedrock

No features were revealed within these pits.

## 2.5 Interpretation

The features exposed in Trenches 1 and 3 are interpreted as geological in nature rather than archaeological (i.e. man-made), for the following reasons:

- (i) all the features coincided with fissures or fractures in the bedrock and followed the same alignment as these;
- (ii) the clay fill within them was examined very closely and contained no impurities whatsoever, which might have indicated nearby human activity;
- (iii) the nature of the fill suggests that it developed as a result of water action and natural agencies with no evidence of tipping or dumping;
- (iv) the sides of the linear features were vertical and in places undercut where the rock had fallen away. This is most likely to be a result of natural erosion agencies rather than human digging activities.

These hollows and depressions are probably therefore solution features created by the dissolution of the limestone along bedding planes and fractures. The most likely contexts for their development is in the Permian geological period, at which time this area experienced very high rainfall (Durrance and Laming 1982 9, 12; Ch. 2). Similar features were observed in the exposed faces of Brokenbury Quarry (Pl. 4). The highly fractured and fissured nature of the limestone is very evident here.

## 2.6 Finds

The following finds were recovered:

- 1 lithic find, a burnt waste flake
- 1 sherd Totnes ware
- 1 tile fragment - burnt
- 1 sherd North Devon ware
- 1 sherd china
- 1 sherd South Somerset coarse ware

The pottery and tile are all later than 1700. The recovery method for these included sieving all the soil removed from the test-pits.

### *Previous finds*

The flints and other material which have been collected by Mr Fish from this area and around Churston Court Farm are deposited in the RAM Museum, Exeter (Accession No. 1/1985). Three finds of Mesolithic date are on display in the museum, and at least one of these (a microlith) is said by Mr Fish to have been found in the field under investigation. It is not certain how much of the other prehistoric lithic material in the collection came from the field, although it is not thought to have contained a high concentration. The method of retrieval was fairly random and non-intensive; Mr Fish has found some of these whilst driving his tractor. There is still potential

therefore for retrieving lithic finds from this field and there may well be further Mesolithic finds which are generally very small and less obvious to the casual finder.

#### *Palaeolithic finds from limestone areas*

Important Palaeolithic (Old Stone Age) finds have been made from limestone cave systems in this region, notably at Kent's Cavern, Torquay as well as the Windmill Cave, Brixham (Roe 1981), Ash Hole and Bench Bone Caves, Brixham (Pengelly 1870) and Three Holes Cave, Torbryan (Rosenfield 1964).

The Brixham caves have produced important collections of bone, including reindeer and hyena, although no artefact collections such as those from Kent's Cavern, have been reported. Similar finds have been made from limestone quarries at Oreston near Plymouth (Pengelly 1872). It is thought that some of this material has been preserved through incorporation into the dense matrix of clays infilling the fissures. At Brokenbury therefore it is possible that similar material (e.g. human or animal bones and stone tools) may have been incorporated into the limestone fissures probably at some depth below the surface.

### 3. CONCLUSIONS

- (i) The evaluation excavations have clarified the origin, character and form of the features identified in the geophysical survey. It is likely that the linear marks identified in that survey are almost entirely of a geological nature. No significant concentrations of finds were recovered; this again may be seen as a negative indicator of archaeological activity.
- (ii) The geophysical survey has highlighted the archaeological potential of the field to the north-east of the quarry where the most significant readings were obtained and where the cropmark has been recorded. The evaluation does not alter the interpretation of the archaeology in this area. The proposed treatment site lies on the periphery of this area. It is likely that any surviving archaeological material here will be restricted to the topsoil and overburden (with the important exception of palaeolithic material - see below). Any stratification which may have been present above the bedrock will have been destroyed by agricultural activity.
- (iii) The Devonian limestone was extremely fissured and fractured in character and this is likely to have occurred at a very early period. It is possible that early Palaeolithic (Old Stone Age) material (e.g. animal bones, stone tools) may be found within the limestone.

#### 3.1 Confidence rating

It is considered that the evaluation excavations were of sufficient scope to demonstrate the archaeological potential of the area to the east of Brokenbury Quarry. The results can be seen as being representative of the remainder of the site which was not evaluated. They should not however be used to assess other areas around the quarry site and do not diminish the potential importance of the north-eastern field.

## 4. RECOMMENDATIONS

### 4.1 Preservation

No features requiring preservation have been identified within the proposed treatment site. However it is recommended that incursion into the field to the north-east of the quarry (OS parcel No. 8339) should be avoided, in view of the archaeological importance of this area.

### 4.2 Further archaeological investigation

In view of the results of the evaluation excavations no further formal archaeological investigations are recommended for these scheme proposals (but see 4.3, 4.4 below). Any amendments to the area of the proposed scheme may however require further assessment.

### 4.3 Watching brief

It is recommended that an archaeological watching brief is undertaken during construction works with the following aims:

- (i) to recover chance finds from topsoil stripping;
- (ii) to recover possible finds from limestone fissures;
- (iii) to record any unexpected archaeological features which may come to light at this stage.

Procedures for carrying out the watching brief will need to be agreed in advance between SWW, their site contractors and the archaeological organisation carrying out the watching brief. This will take into account health and safety guidelines and construction requirements.

### 4.4 Fieldwalking

If the proposed site and the remainder of the field is available for cultivation for another season, it is recommended that the area is systematically fieldwalked to recover surface finds, in particular lithic material. This will allow for a realistic assessment of the finds distribution.

## ACKNOWLEDGEMENTS

The evaluation excavations were commissioned by South West Water Services Ltd and administered by D. Sanders of the Marine Design Centre. We are grateful to the owners of the site and the adjoining field through which access was obtained, and to Mr Fish the tenant farmer for this helpful co-operation. P. Scott of Acer Consultants also provided valuable support on the site. Thanks are due to Oxford Archaeotechnics for permission to use Fig. 6 of their report, and to Tony Johnson (their Fieldwork Director) for discussing the results of the evaluation and survey. The excavations were administered at EMAFU by P.J. Weddell and supervised by S.J. Reed, with the assistance of N. Goodwin who has also prepared the illustrations. Thanks are due to J.P. Allan of RAM Museum for providing access to the Churston Court finds collection and to



B. Meloy (also of RAMM) for information regarding the geology.

BIBLIOGRAPHY

Durrance, E.M. & Laming, D.J.C. 1982 *The Geology of Devon*.

Pearson, M.P. 1981 'A Neolithic and Late Bronze Age Site at Churston, South Devon' *Proc. Devon Archaeol. Soc.* **39**, 17-26.

Pengelly, W. 1870 'The Ash Hole and Bench Bone caves at Brixham, South Devon', *Rep. Trans. Devonshire Ass.* **4**, 73-80.

----- 1872 'The Literature of the Oreston Caverns near Plymouth', *Rep. Trans. Devonshire Ass.* **5**, 249-316.

Roe, D.A. 1981 *The Lower and Middle Palaeolithic Periods in Britain*.

Rosenfield, A. 1964 'Excavations in the Torbryan Caves Devonshire II. Three Holes Cave', *Proc Devon Archaeol. Soc.* **22**, 3-26.

SMR *Devon County Sites and Monuments Register*, County Hall, Exeter.

Turton, S.D. & Weddell, P.J. 1993 *Preliminary Archaeological Assessment of SWW Torbay Marine Scheme*, EMAFU Report No. **93.26**.

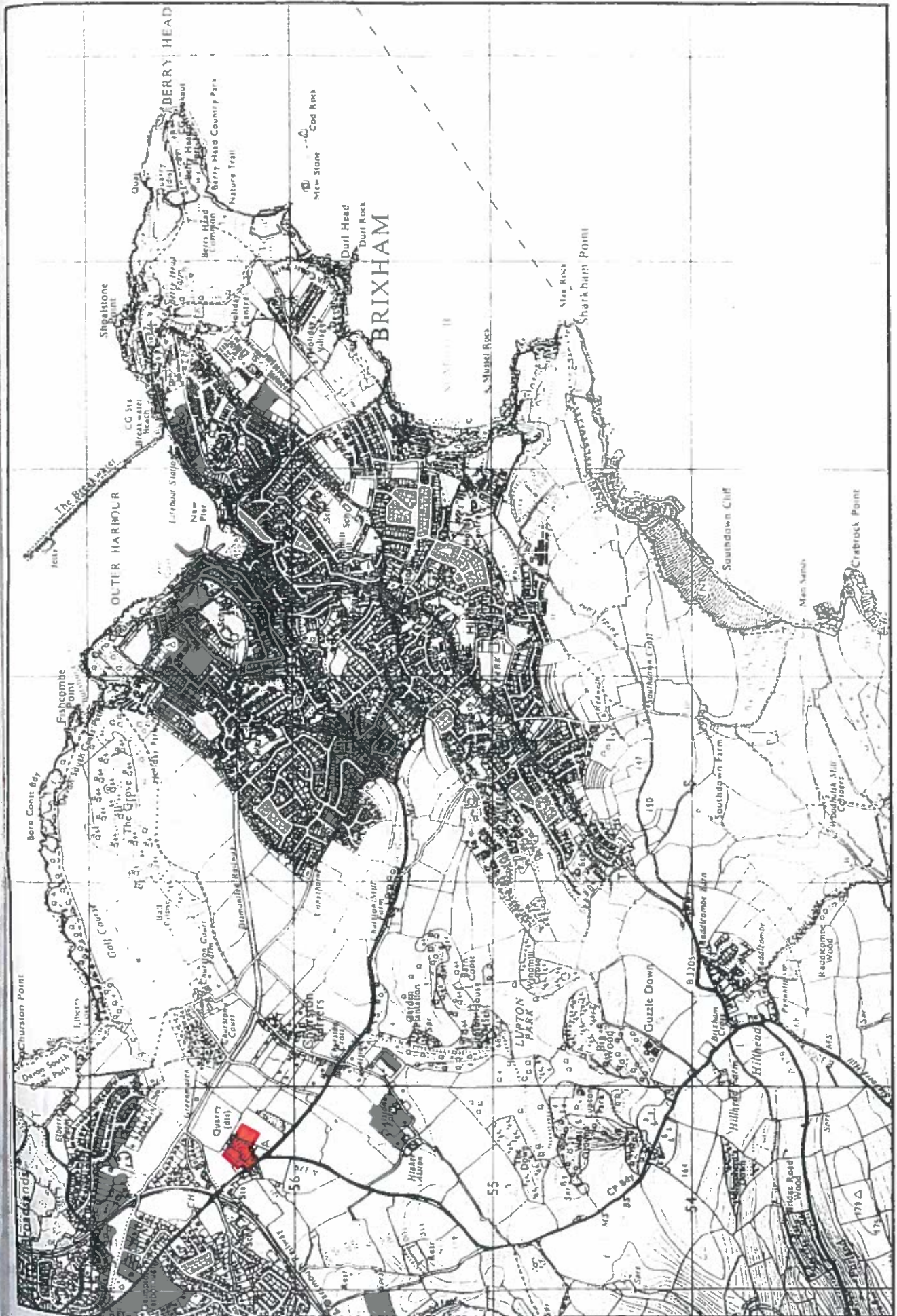


Fig. 1 Location of site (1:25,000)

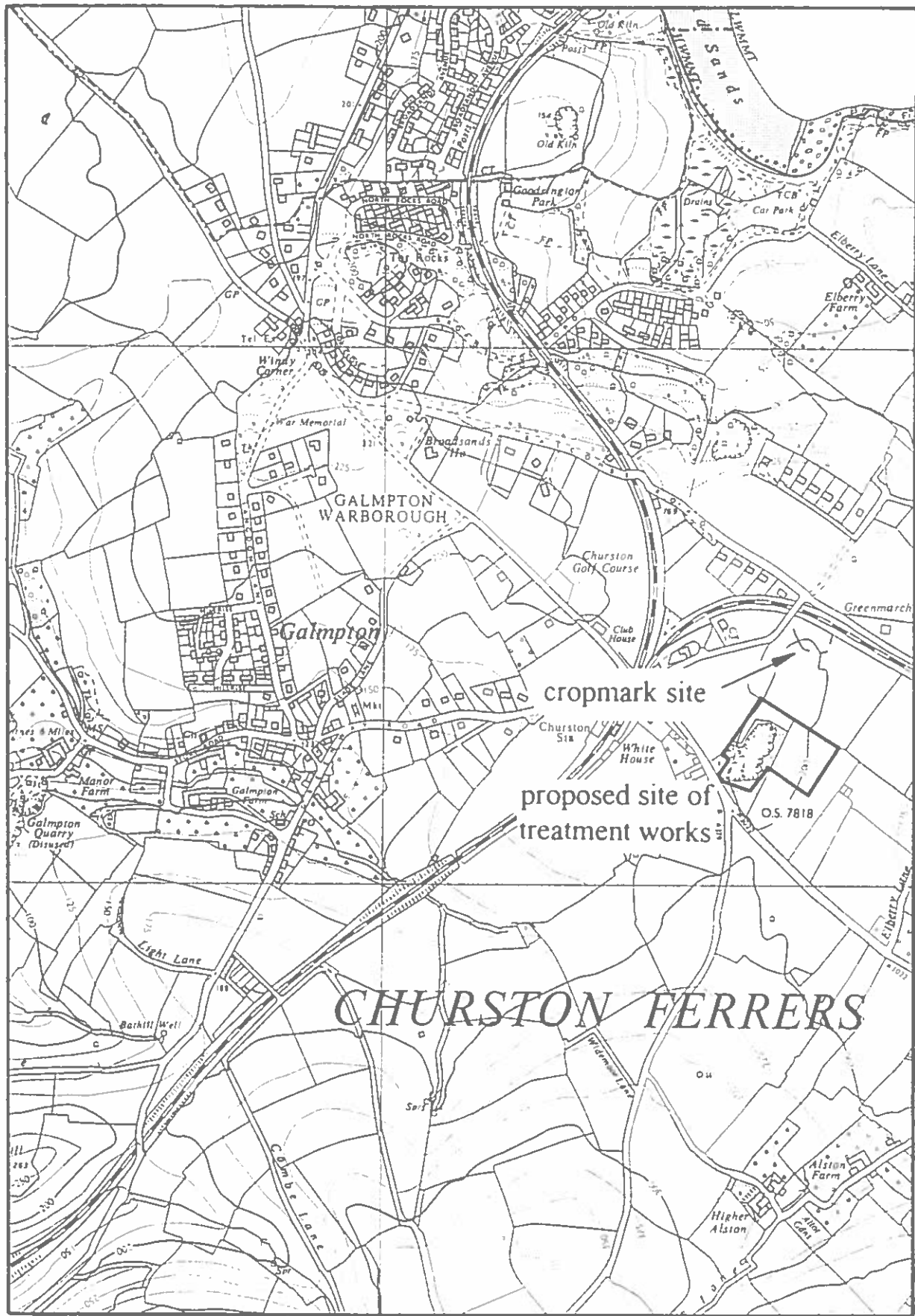


Fig. 2 Location of proposed sewage treatment works (1:10,000)

# BROKENBURY QUARRY 1993

## Location of Eyaluation Trenches

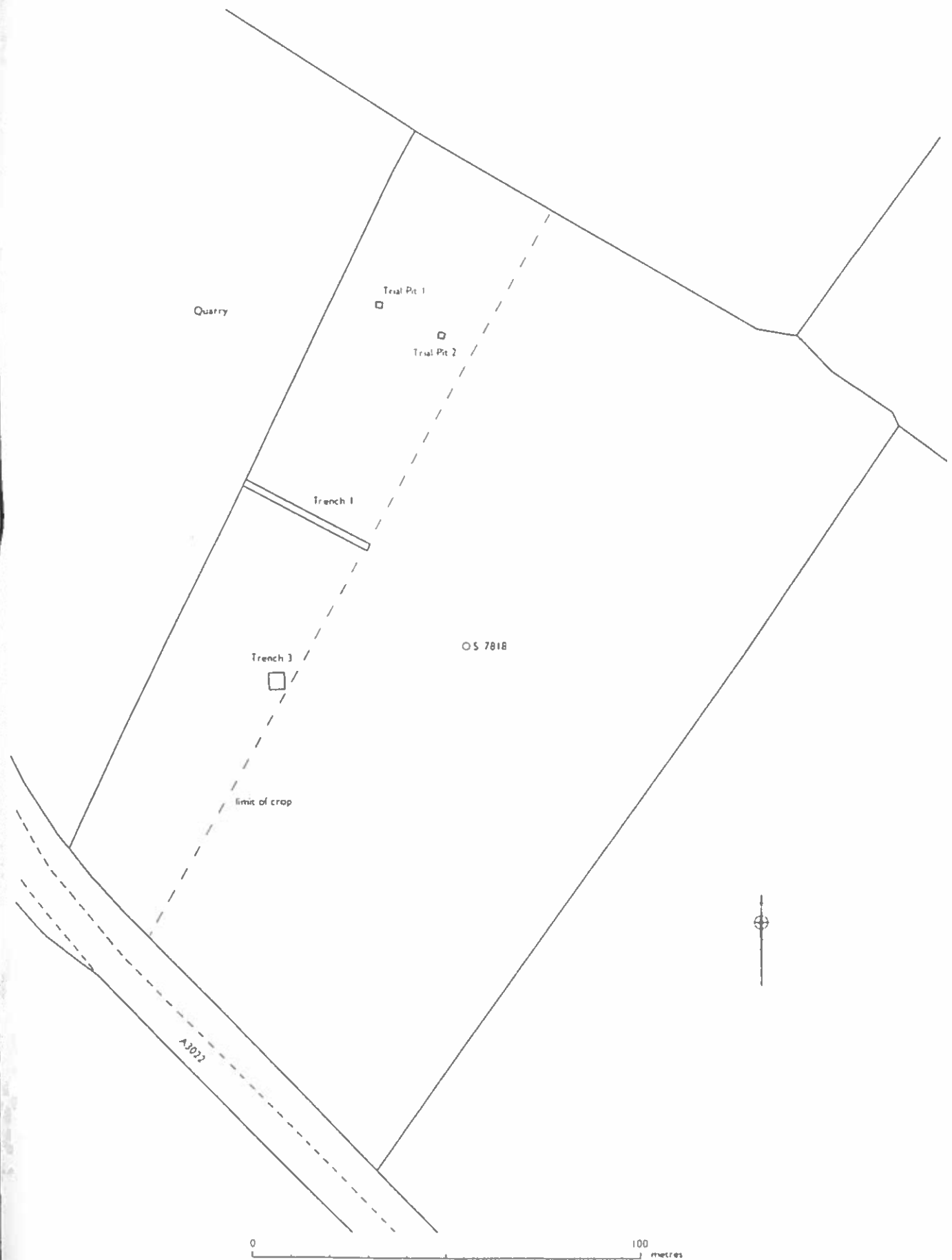
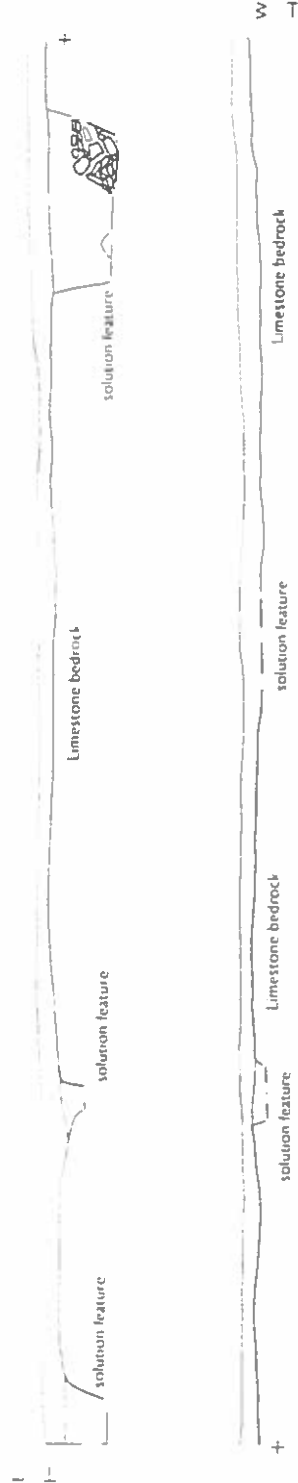


Fig.3 Location of evaluation trenches

# BROKENBURY QUARRY 1993

## Trench 1

### Section



### Plan

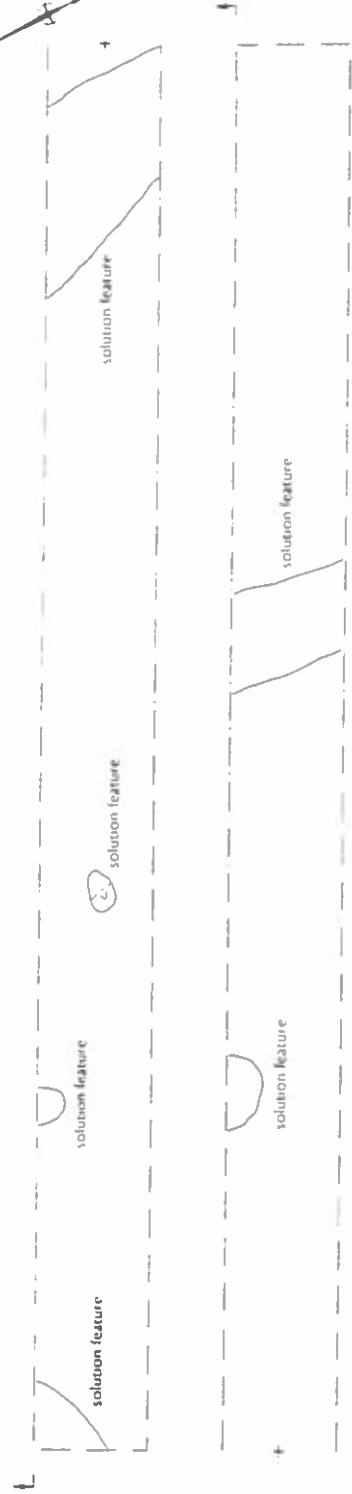
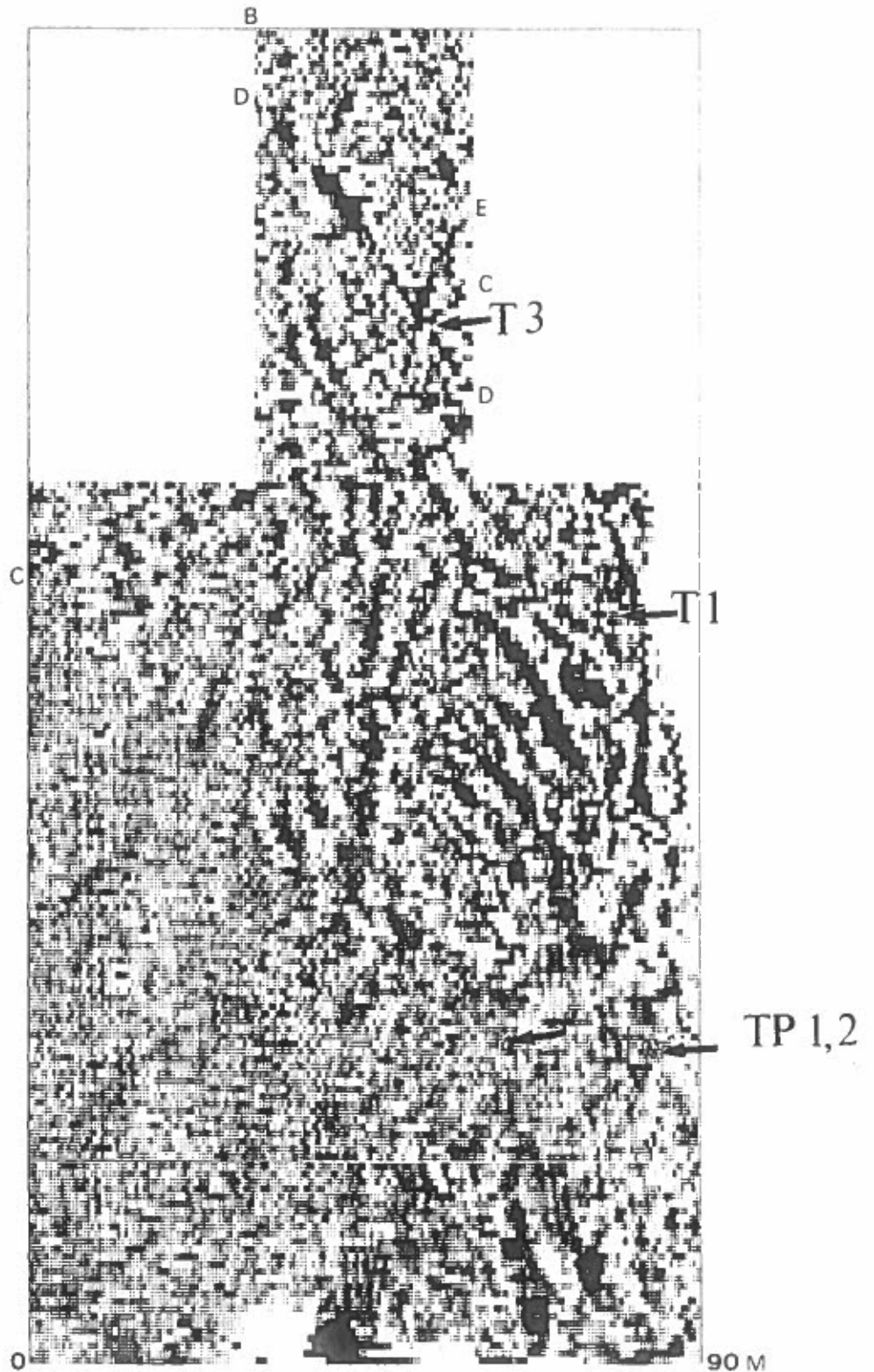
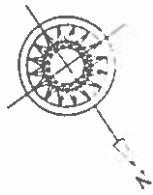


Fig. 4 Trench 1, section and plan of solution features.



BROKENBURY QUARRY, BRIXHAM, DEVON				Scale	1:886
Shade Plot (Clip)		Size x 0.5		Block	Off
Minimum	-3	Grey Levels	17	Black White	Positive Negative
Maximum	3	Palette	Positive		
Contrast	2				
Units	Absolute				





Pl. 1 The site before excavation (looking south-west).



Pl. 2 Trench 1 (looking north-west).





Pl. 3 Oval solution feature in Trench 1 (looking north-west).



Pl. 4 Solution feature in north face of quarry (looking north).





Pl. 5 Linear feature in Trench 1 before excavation (looking north-east).



Pl. 6 Linear feature in Trench 1, partially excavated (looking south).