

SEVERN TRENT WATER LIMITED
NOTTINGHAMSHIRE GROUNDWATER STRATEGY

ARCHAEOLOGICAL RECORDING

TRENT AND PEAK ARCHAEOLOGICAL TRUST

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INTRODUCTION AND OBJECTIVES

Implemented by Severn Trent Water Limited, the Nottinghamshire Groundwater Strategy is part of a regional programme of water supply improvements and relates to the redevelopment and overhaul of water supply in areas of Nottinghamshire which rely entirely upon the Triassic Sandstone aquifer source. A key element of the strategy is a system of new underground trunk mains designed to extend and interconnect existing transmission links to facilitate the blending of confined and unconfined aquifer groundwater at specific locations, with the aim of reducing and controlling leached agricultural nitrate levels.

A combination of the proactive conservation policy adopted by Severn Trent Water Ltd. and the increasing integration of archaeology within the process of land management and development led to early communication between Severn Trent Water Ltd. and the Nottinghamshire County Archaeologist. The resulting assessment established that sites of archaeological importance lay on or adjacent to the projected route of the new trunk mains.

The Archaeological Resource Management Strategy developed through consultation and implemented by Severn Trent Water Ltd. consisted of damage avoidance route planning and a programme of Archaeological Recording to be undertaken during the groundworks phase of the pipe-laying contract. The primary objective of the recording programme being the production of a record of archaeological deposits, remains or sites for which specific or immediate archaeological excavation was not deemed an appropriate response.

The recording programme was designed to:

1. Extend the understanding and interpretation of known sites in the vicinity of the pipe route in terms of date of occupation, status and structure.
2. Assess the survival conditions and potential for information retrieval within the material filling ancient ditch and field boundary gullies.
3. Assess the potential for archaeological remains which may be concealed by ancient forest or areas of modern woodland.
4. Undertake localised evaluation of the river valleys in terms of the former course of river channels, flood levels, depths and sedimentological sequence of alluvial and possible peat deposits, together with the potential for survival of archaeological and environmental remains within the river valleys as a whole.
5. Accurately plot the location of ancient sites and other archaeological features and assess their potential for future investigation.

In the 1970's an aerial photographic survey of cropmarks in Nottinghamshire, undertaken by Dr. Derrick Riley, revealed an extensive and previously unsuspected system of early land division and settlement. Of the numerous sites recorded only four locations, threatened by quarrying or similar groundworks, have been investigated through excavation. Part of a long term study of the early landscape of North Nottinghamshire, the excavations have been supplemented by a six year seasonal fieldwalking project designed to

assess the status of this ancient landscape and provide a framework for future investigation.

In addition to the primary objective, the Groundwater Strategy recording programme would significantly augment the archaeological landscape study by providing information with respect to:

1. Areas where gaps exist in the evidence revealed by aerial photography.
2. The nature and thickness of topsoil, subsoil, and alluvial deposits.
3. The nature of underlying geological deposits.
4. The depth of disturbance by ploughing.
5. The potential for environmental and economic remains.
6. The existence of ancient 'buried' soils.

In October 1990, Severn Trent Water Limited commissioned Trent and Peak Archaeological Trust to undertake the programme of archaeological recording.

The field work was structured around a core team who would secure a record of archaeological and related features by means of photography, dimensioned drawings and detailed context descriptions.

Only limited excavation of localised archaeological features exposed by removal of topsoil would be carried out by the core team in support of the basic record.

The project specification made provision for a contingency team to cater for rapid response investigation of significant archaeological discoveries, warranting detailed treatment unable to be provided by the core team without jeopardising contractual progress.

Exposure of deposits to be recorded was not determined archaeologically, but by the groundworks contractor on an opportunistic basis. The essence of the project being the production of an archaeological record, within the constraints of the respective contractors' working methods and programme.

The process and results of the recording programme are described in the following report.

The report is arranged in two primary sections which relate to the two geographic areas bisected by the new mains and the contractual arrangements for the project as a whole. The primary sections being:

- 1.0 Contract 'A' - MARKHAM CLINTON (KIRTON) TO BUDBY MAIN - fig 1.
- 2.0 Contract 'B' - HAYTON TO WORKSOP MAIN - fig 1.

Each primary report section is subdivided into the following elements:

- .1 Introduction
- .2 The Pipe Route and Recording Areas
- .3 Topographic and Geological Background
- .4 Archaeological Background

- .5 Mains Groundwork Methodology
- .6 Archaeological Recording
 - .6.1 Methodology
 - .6.2 Area Recording Programme
- .7 Archaeological Results
- .8 Summary Discussion of Results

The report is supplemented by sections which address the following:

- 3.0 Implications and recommended further action
- 4.0 Disposition of Archive/Finds
- 5.0 Acknowledgements
- 6.0 References

FIGURES 1 - 8

AREA RECORD DRAWINGS - FIG. ARD.1 - Scales, symbols and conventions.

FIGS.A1 to A9 - Contract 'A'.

FIGS.B1 to B12 - Contract 'B'.

The overall Archaeological Recording project was directed by Mr. John Walker (M.D. TPAT). Mr. John Hockley (Archaeological Project Officer TPAT) researched the background information, provided liaison with the client and respective Resident Engineers, implemented and managed the fieldwork programme, and compiled the resultant report.

1.0 CONTRACT 'A' - KIRTON to BUDBY MAIN

1.1 INTRODUCTION.

Contract 'A' relates to the archaeological recording carried out in conjunction with the groundworks for the trenched insertion of approximately 9,900 metres of 600mm dia ductile iron trunk main, between the BUDBY Pumping Station in the west and an existing main in the village of KIRTON in the east.

1.2 THE PIPE ROUTE AND RECORDING AREAS.

The contract 'A' trunk main was, for the most part, oriented in an East-West direction (Fig. 2) from the link at the BUDBY Pumping Station (SK 604701) the new main was routed alongside existing roads or tracks passing through the eastern remnants of Sherwood Forest.

Crossing the A616 (Ollerton-Sheffield) road the route passed through arable and wooded parkland of the Thoresby Estate to the A614 (Nottingham-Doncaster) road. From this point, through the Boughton Pumping Station (SK 666691), to the link connection in the village of KIRTON (SK 690693), the main was laid across arable land or contained within the verge of existing roads or farm

tracks, crossing the B6387 (Ollerton- Retford) road, the River Maun and its tributary Boughton Dyke in the process.

The mains route was subdivided into ten recording areas which relate to the pipelaying contractors groundwork programme and the natural divisions created by roads, rivers and intermediate connections to existing services. (Fig. 3)

1.3 TOPOGRAPHIC AND GEOLOGICAL BACKGROUND.

The few settlements in the region are mainly small and long established villages, with development of Ollerton and Edwinstowe taking place following the introduction of deep coal mining in the 1920's. Much of the region is agricultural although areas of woodland and recent afforestation exist in the west.

Contour changes in the vicinity of Contract 'A' are very gradual. The river valleys are shallow and between them the interfluvial ridges rise gently and usually no more than another 45 metres. Levels along the mains route ranged through heights of 30m O.D. at Boughton Dyke, 34m O.D. at the River Maun, to approximately 61m O.D. through parts of the Thoresby Estate. (Fig.2)

The principal geological formations of the region, the Bunter Pebble Beds, the Lower Mottled Sandstone and various associated gravels and sandy boulder clays will be referred to as the Sherwood Sandstone area. (Fig.4) These formations, up to fourteen kilometres wide, underlie a long strip of country from the River Don in the north to the River Trent in the south. The Sandstone belt is bounded to the east by the Keuper Waterstone and Keuper Marl formations and to the west by Magnesian Limestone and Coal Measures.

Large areas of the permeable Sandstone formations are covered with easily worked soft sandy soils, characteristic which, from cropmarks and other evidence, appear to have been extensively exploited by early man.

The Soil Survey map of the area (Soil Sheet SK66 - Ollerton) indicates that the mains route traverses an area primarily overlain with the Newport Series sandy or coarse loamy brown earth derived from drift or residuum Bunter rocks. In the shallow valley of the river Maun a narrow band of Ollerton Complex Series peaty brown earth lies each side of the river. A narrow band of similar soil lying to the west of Boughton Dyke. East of Boughton Dyke along the west facing Keuper escarpment in the vicinity of Kirton the soil type is predominantly of the Compton Series, a clayey reddish alluvium derived from Triassic rocks.

With an average rainfall below 625mm, the region is one of the drier parts of England and today the land is primarily used for arable cultivation and not pasture which requires higher and more sustained levels of moisture. Such pastureland as does exist today is, in the main, confined to the alluvial river valleys where the water table is nearer the surface.

Despite the lack of surface water the sandstone area of Nottinghamshire is an important source of water, with millions of gallons extracted daily from the regional aquifer.

In locations where underlying deposits have been disturbed by ancient land use, the variations between disturbed and undisturbed strata, together with the characteristics of soil types and modern land use, often combine to produce climate induced cropmarks. This is particularly noticeable in periods of severe drought, when moisture stress results in differential plant growth which can clearly outline ancient ditch, enclosure and other features associated with early land use.

A substantial part of the archaeological record for the region is founded upon the 1970's cropmark survey and the subsequent, and ongoing, programme of fieldwalking, excavation and research.

1.4 ARCHAEOLOGICAL BACKGROUND.

Aerial photography of cropmarks in North Nottinghamshire has revealed numerous sites of ancient occupation and land use, particularly in the region to the north of the River Meden; however, south of the river, including the area traversed by the Contract 'A' mains, the cropmark evidence is less prolific.

The gaps that exist in the cropmark evidence may be partially explained by the more extensive areas of afforestation, including, in the west, the remnants of Sherwood Forest and the coniferous woodland of Thoresby Estate, which may well conceal other remains.

As there are few streams in the area between the River Meden and the Trent Valley near Nottingham, it is possible that early man was unable to exploit the dry, acidic and somewhat infertile soil in the same way as the more extensively watered region to the north. This is thought to be one of the reasons for the existence of Sherwood Forest, when, in the Middle Ages, it was decided that the land was not particularly well-suited for agriculture and better left as woodland.

In areas where modern arable cultivation provides ideal conditions for aerial survey, the absence of cropmarks may be due to unfavourable variations in the type and thickness of overlying soils, the geological nature of underlying deposits, or the truncation of shallow features caused by deep ploughing and other more recent disturbance and land development.

Land adjacent to the watered valleys of the River Maun and Boughton Dyke would have presented more suitable conditions for early exploitation and settlement; however, the cropmark evidence in these areas is sparse and probably due to minimal plant stress resultant from higher levels of moisture retention within the alluvial river valley soils.

In the lower regions of the river valleys' any remains that may exist are probably concealed at depth due to the accumulation of alluvial and peat deposits.

Where the cropmark evidence has been recorded it primarily reflects the boundaries of ancient field systems and individual or clustered groups of enclosures. The field systems, when viewed in plan, are arranged in three varieties, the more prolific brickwork type and the less frequent nuclear and irregular plan forms.

Resembling the pattern of joints in a brick wall the field plans of the brickwork type are formed by a series of long parallel ditches with cross ditches dividing the strips into fields of between 0.5 to 2.8 ha in area. The nuclear plan fields are similar to the brickwork type but arranged in smaller blocks in a patchwork pattern and typified by a central nuclei of enclosures. Irregular plan fields approximately rectangular in shape generally cover small areas on low ground or near rivers.

The information obtained from fieldwalking and localised excavations carried out on a small number of sites to date indicates that many of the fields systems were in use during the Roman period; however, the earliest period of use is uncertain and it is possible that some sites could be pre-Roman in origin.

Reference to the County Sites and Monument Record and other documentary sources revealed the following information regarding known sites of historic or archaeological interest located on or adjacent (within 300-500 metres) to

the mains route. (Fig.5)

- SK 608702 BUDBY CARR, near the river Medan, two adjacent enclosures of 0.12 and 0.2 ha and a circle of 18m diameter, together with several rectangular fields, probably having the river as their northern boundary.
- SK 635695 East of CERES LODGE, a single curvilinear feature probably associated with the site below.
- SK 640698 THORESBY PARK, southeast of ICE HOUSE WOOD, an extensive complex of at least ten curvilinear and rectilinear enclosures contained between parallel, single and double ditched field boundaries covering an area of approximately 3.5 ha.
- SK 647698 THORESBY PARK, southeast of ICE HOUSE WOOD, a single curvilinear feature probably associated with the site above.
- SK 654686 Northwest of OLLERTON, east of A614, two parallel linear features approximately 30 metres apart.
- SK 694691 KIRTON, Village. The Domesday record of 1086 identifies the village as Schidrintune or Schitrintone.

Other features of significance in the vicinity of the mains route are:

SHERWOOD FOREST, at Budby and Thoresby Park.

RIVER MAUN, between the A614 and Boughton.

BOUGHTON DYKE, between Boughton and Kirton.

Of the sites noted above, only the complex of enclosures and field boundaries southeast of Ice House Wood at SK647698 (Fig.5) has, to date, been the subject of further archaeological investigation. Centered upon the main enclosure clusters in O.S. field Nos. 6370.0001 and 6470.0021, a fieldwalking project to recover and record displaced artefacts was carried out by Trent and Peak Archaeological Trust during March 1990. Preliminary analysis of the recovered finds and their distribution relative to the cropmark features indicates Romano-British occupation with a surrounding system of fields, probably having ditched boundaries. Finds of medieval date were minimal, this probably reflecting the limited utilisation of the area during the Middle Ages and the encroachment of Sherwood Forest. No prehistoric pottery was found. The site, which lies approximately 500 metres south of the present course of the river Medan, is located on slightly undulating arable land which slopes gently to the east. The area is largely bounded by woodland, consequently aerial photography has not revealed the full extent of the early field system associated with the enclosures.

As the route of Contract 'A' main passed in an east-west direction approximately 150 metres south of the Ice House Wood enclosure cluster, it was anticipated that the groundworks would probably reveal evidence of an extended field system in the form of ditches or gulleys in the pipetrench section. This type of feature often presents an opportunity to recover dateable material from deposition context and establish survival conditions of organic and other remains within the ditch fill material.

Evidence in the wider region indicates that gravel terraces overlooking river valleys were frequently favoured areas for exploitation. The disposition of other cropmark recorded sites in the vicinity of Contract 'A' appears to reinforce this association with a source of water, with known sites located in close proximity to the Rivers Poulter, Meden, Maun and their tributaries.

It was therefore anticipated that the groundworks crossing the river valleys of the Maun and its tributary, Boughton Dyke, would reveal evidence of early occupation and land use together with information on the state of preservation and potential for waterlogged deposits.

The Domesday recorded origins of modern place names in the region of Contract 'A' groundworks such as Perlethorpe, Kirton, Ollerton, Boughton, Laxton, Thoresby, Budby, Walesby and Edwinstowe indicates a broad spread of Anglo-Saxon and Danish settlement, and by the time of the Domesday survey in AD 1086 much of the region was controlled by Richard de Bully as tenant-in-chief on behalf of William I.

In the tenth century, the forest at Sherwood stretched for at least seven miles to the north of what became its medieval boundary. The early Yorkshire Charters describes the village at Sutton, some four miles northwest of Retford, as touching 'scirwudu.'

The existence of the medieval Sherwood Forest is first mentioned in 1154 when it was controlled by William Peveral for Henry I, but the large land holdings of William I at the time of the Domesday survey and the diminished value of much of the land in the areas since 1066 indicates that afforestation was probably started by William I and his successor in the 11th Century.

The forest and the laws which preserved it for the kings sport are a key element in any study of medieval society. In the 13th century, under medieval forest law, the River Meden formed the northern boundary of Sherwood Forest. The afforestation carried out by Norman and early Angevin kings was probably developed from the surviving areas of vast stretches of wooded or scrub-covered land, within which patches of cultivation had slowly been brought into permanent existence.

The pre-enclosure breck system of farming in the forest indicates the difficulty of maintaining permanent cultivation of the land. Many parishes having only small zones of permanent cultivation near the village surrounded by forest, parts of which, called brecks, were only cultivated for short periods, then allowed to revert to scrubland or forest.

Felling for timber rapidly reduced the size of the forest and by the late 18th century only small areas remained with much of the land in agricultural use or converted to permanent grassland.

Early in the 19th century efforts were made to improve the fertility of grazing land in the vicinity of Edwinstowe by means of organic irrigation with water containing sewage from Mansfield. One effect of this process being the presence of ochreous mottling in soils and sub-soil above the natural level of groundwater.

In the 19th century the Sherwood Sandstone area was noted for farming innovation with the introduction of new organic fertilizers, nevertheless, much of the region was only marginally viable. Significant advances in agricultural production and recovery from the severe depression of the 1930's only taking place during the Second World War when much derelict land was brought into arable production which, with its risk of wind erosion, is maintained today.

With the exception of the mains link in the village of Kirton, the pipe route did not impact directly upon known Anglo-Saxon, Medieval or Post-Medieval settlements; however, it was thought that the groundworks could reveal

evidence of medieval or earlier land use in the vicinity of known sites of occupation.

1.5 MAINS GROUNDWORKS METHODOLOGY

Designed for minimal environmental impact, the new mains were contained, wherever possible, within the verge of roads or forest tracks, where a direct trench pipelay method was adopted. When crossing arable land, the topsoil was removed by machine along a 20 metre wide (max) easement in advance of trench excavation and pipelaying. The respective methods being shown on the accompanying area record plans.

The machine excavated pipe trench was generally 1.50 metre wide with depth varying between 1.8m and 2.2m. More extensive excavation was carried out at predetermined intervals to accomodate valves and washouts, at these locations suitably shored construction pits approximately 3.5m deep were formed.

The crossing of Boughton Dyke was accomplished by temporary dam and diversion of the relatively shallow water course. Trench sheet shoring being used to prevent collapse of the waterlogged alluvial deposits.

The River Maun crossing was not carried out until March/April 1991 at which time the low water level allowed for temporary piped diversion of the river during excavation, pipelaying and ground reinstatement.

The contractors sequence of trench excavation, pipelay and backfill was generally carried out in approximately 20m elements as a rolling procedure, providing an adequate period for observation and archaeological recording.

1.6 ARCHAEOLOGICAL RECORDING.

1.6.1 Methodology.

The archaeological recording process was carried out in three distinct phases. Firstly, the line of verge or easement was fieldwalked prior to removal of topsoil and/or trenching. Two parallel transects were walked along the line of the easement at a separation of between 5m - 10m, depending upon the easement width. Post medieval surface finds were collected and field plotted, while accurate find spots were plotted for finds of an earlier date. Topographic features and visible soil changes on or adjacent to the pipe route also being recorded. The second phase of recording followed the removal of topsoil when the stripped easement was visually inspected in order to record exposed features and recover/plot displaced artefacts from stripped surface and resultant spoil.

Unfortunately this phase of recording was only partially successful. This was due to a combination of ground/weather conditions and uneven or incomplete removal or spreading of topsoil. This was further compounded by extensive disturbance of the exposed surface by tracked and other vehicles required to access the easement, with the result that in some areas only the most distinctive features could be observed and recorded. However, it was anticipated that any features obscured by such conditions would be revealed, at least in part, during the trenching phase and recorded at that time.

The final, and what proved to be the most important phase, centered upon the observations and recording of archaeological features, stratigraphy and underlying geological formations exposed during the contractor's trench excavation and pipelaying procedures.

1.6.2 Area Recording Programme - Contract 'A'.

The ten primary recording areas are shown in Fig.3 and consist of:

- Area A1 - BUDBY PUMPING STATION, SK6045/7017 to E-W alignment junction at SK6036/6953. Direct trench alongside forest track. (Fig. A1)
- Area A2 - ALIGNMENT JUNCTION to A616 ROAD SK6287/6939. Direct trench alongside forest track (Figs. A2 west and A2 east)
- Area A3 - A616 ROAD to CERES LODGE SK6287/6951. Direct trench in forest track (Fig. A3)
- Area A4 - CERES LODGE to CHESTNUT AVE SK6372/6968. Stripped easement and trench across arable land (Fig. A4)
- Area A5 - CHESTNUT AVE. to A614 ROAD SK6533/6923. Stripped easement and trench across arable land and through conifer woodland (Figs. A5 west.1, A5 west.2, A5 west.3 and A5 east)
- Area A6(a) - A614 ROAD to alignment junction east of RIVER MAUN SK6622/6902 Stripped easement and trench across arable land (Fig. A6a)
- Area A6(b) - ALIGNMENT JUNCTION to BOUGHTON PUMPING STATION (west) SK6665/6919. Stripped easement and trench across arable land. (Fig. A6b)
- Area A7 - BOUGHTON PUMPING STATION (east) SK6665/6919 to B6387 ROAD SK6789/6931. Direct trench alongside road/track and stripped easement and trench in two fields adjacent to railway crossing. (Figs. A7 west and A7 east)
- Area A8 - B6387 ROAD to BOUGHTON DYKE SK6870/6948. Stripped easement and trench across arable land (Fig. A8)
- Area A9 - BOUGHTON DYKE to CONNECTION IN KIRTON VILLAGE SK6903/6931. Stripped easement and trench across arable land and direct trench through farm yard to termination (Fig. A9)

Commencing on the 24th October 1990, the field recording programme followed the contractor's sequence of work which was arranged to suit land access agreements, etc.; and whilst this did not accord with the area recording numerical sequence, the archaeological description and results are arranged in sequence Area A1 through Area A10.

GROUND/WEATHER CONDITIONS.

The bulk of Contract 'A' recording was carried out between October 1990 and March 1991 with the consequence that mainly wet ground conditions were encountered. With the exception of snowfall during the weeks of 10th-14th December 1990 and 11th-15th February 1991 which affected pipelaying progress, weather conditions for effective observation and recording were generally favourable.

ARCHAEOLOGICAL DESCRIPTION - Contract 'A'.

- AREA A1 - Pipe route in grass verge alongside or in forest track between Budby pumping station (SK 60450/70170) and the Northern edge of Budby South forest (SK 60360/69530). Fig. A1.

No results from fieldwalking due to grass cover and no removal of topsoil prior to trenching. Trench mechanically excavated to a depth of 2.0m for the majority of the route, with trench depth reaching 3.0m at SK 60360/69530 to

facilitate the installation of a 90 degree bend and associated concrete "thrust blocks".

Earliest deposit [1007] consisted of a red/brown sand, which contained frequent small to medium sized rounded pebbles, and evidence of root disturbance.

Overlying this sand, from SK 60415/69910 Southwards, was a firm mid yellow/brown silty soil, [1008], containing a small percentage of sand and clay, frequent small to medium sized rounded pebbles, and frequent fine to medium fibrous tree roots.

At the Southern extreme of Area A1 (SK 60360/69530), layer [1008] was overlain by dark brown/black peat, approximately 0.30m thick, context [1010]. This in turn was sealed by topsoil. This layer, [1006], was present from SK 60450/70170 to SK 60360/69530, taking the form of loose compacted mid red/brown sandy soil containing frequent small to medium sized pebbles. This layer also contained frequent fleshy/fibrous roots, mainly grass.

The forest track then formed the surface layer [1009], approx. 0.30m thick and made up of firm compacted light yellow/brown limestone pieces, bonded with finely degraded limestone dust. See sections S1-S3 - Fig A1.

No features were recorded within area A1, and with the exception of the evidence of afforestation, this area proved to be archaeologically negative. All finds recovered being of modern date.

AREA A2 - Pipe route in grass verge alongside forest track between SK 60360/69530 and SK 62155/69390 (The A616), running approx. E-W along the Northern edge of Budby South forest. Fig.A2

No results from fieldwalking due to grass cover, and lack of removal of topsoil prior to trenching.

Trench mechanically excavated to an approximate depth of 1.5m to 2.0m, with trench depth increasing to approx. 3.0m at SK 62155/69390 to allow the crossing of the A616.

Earliest deposit, [1024], was a very mixed, multiple lensed sand layer, thickness 0.60m. This layer was only seen at SK 61160/69430, and contained no apparent inclusions. The upper boundary of this layer merged with the lower edge of the overlying layer [1007].

Layer [1007], red sand, was present for the entire length of area A2 from SK 60360/69530 to SK 62180/69390, and as in area A1, where this layer formed the primary deposit, thickness was at least 1.50m. Inclusions were limited to frequent small to medium sized pebbles and frequent root remains.

Above this layer, between SK 61050/69450 and SK 61200/69425, a very mixed hard compacted brick/clay/silt mix [1023] was recorded. This layer also contained frequent small to medium sized pebbles and also occasional small pieces of coal/charcoal. This layer was only approximately 0.10m thick.

Overlying layer [1023], was a firm mid-dark brown soil [1022], containing frequent pebbles, occasional small patches of dark brown peat material and occasional small lenses of orange-brown sand. This layer was present only from SK 60900/69460 to

SK 61200/69425.

Sealing this layer to the West, context [1017] appeared between SK 60700/69500 and SK 61400/69400, this being a mid-light yellow brown sand containing pebbles and occasional patches of red and grey sand. This layer was initially seen to run out adjacent to Ladysmith plantation, however it re-emerged further East, from SK 61570/69380 onwards, as context [1031]. Both [1017] and [1031] are the same as layer [1008] seen in area A1.

As in area A1, the surface deposit was [1006], topsoil, which was present for the entire length of area A2 from SK 60360/69530 to SK 62180/69390.

See sections S1-S4 Fig.A2.(W). and S1-S3 Fig.A2,(E).

No features were recorded within area A2, and all finds recovered were of modern date.

AREA A3 - Pipe routed through woodland along forest track between the A616 (SK6218/6939) and CERES LODGE (SK6287/6951). Fig.A3.

Pre-excavation fieldwalking did not produce finds due to grass cover and made-up nature of the track surface.

Top soil was not removed prior to trenching, the trench being mechanically excavated to a maximum depth of 2.0m.

The primary layer encountered at limit of trench depth was an orange/brown,mottled medium sand [1037] which contained frequent small to medium sized rounded pebbles. The upper 0.20 - 0.30m of this natural sandstone layer showed evidence of having been extensively disturbed by tree roots.

The hardcore make-up and macadam surface of the A616 road [1100] was cut into the natural sandstone [1037] at SK6218/6939.

Running east from approximately SK 6254/6944 the natural sand was overlain and merged with a 0.20 - 0.40m thick layer of yellow/brown mottled sandy silt [1038] which contained occasional sm/med. sized rounded pebbles and random lenses of small pebbles. This layer,which lensed out on the western approach to CERES LODGE, also showed evidence of root penetration.

The forest track formed the 0.20 - 0.40m thick surface layer [1036] consisting of a dark grey/brown sandy silt containing loosely compacted cinder,small irregular fragments of limestone, tile and brick and occasional med. to large (0.30m) irregular sandstones. See sections S1 to S4 - Fig. A3.

The only feature in area A3 occurred at SK 6281/6949 and consisted of a 1.6m deep vertically sided sub-rectangular pit [1039] having an east-west width of 2.1m. The base of the pit was lined with blue plastic sheet [1042] over which concrete [1041] had been laid above which was deposited fill [1040] a yellow/grey/brown mixed sand containing occasional pebbles, charcoal flecks and layered turves. The purpose of this 20th century construction was not established. See section S3 Fig.A3.

Finds from trench or excavated spoil - none.

AREA A4 - Pipe routed across arable land between CERES LODGE (SK6287/6951) and CHESTNUT AVE. (SK6372/6968). Fig.A4.

Field walking both prior to formation of easement and following top soil removal did not produce finds.

Trench mechanically excavated to depth of 2.0m max.

Appearing as a continuation of sand layer [1037] in Area A3 natural sand layer [1056] formed the primary deposit to limit of trench depth and consisted of an orange/red/brown mottled sand with occasional sm/med rounded pebbles. This was overlain and merged with a mid/dark brown sandy 0.30m (max) thick plough soil [1054] containing very occasional (0.01 - 0.07m) rounded pebbles. See section S3, Fig.A4.

The pipe trench was intersected by modern forest and field access tracks located as follows:

South of CERES LODGE at SK 6290/6951 a 3.2m wide x 0.30m thick well compacted layer of grey/brown sandy silt [1055] containing frequent fragments of limestone, brick, slag, cinders and coal formed an access road to forest tracks south of CERES LODGE. (See section S1 Fig.A4).

At SK 6292/6952 a 5.25m wide access track was formed by a 0.05m x 0.30m thick layer of crushed brick/tile [1058] overlain with a 0.05m thick layer of compacted limestone, slag and coal frags [1057] (see section S2 Fig. A4).

A track along the west edge of CHESTNUT AVENUE SK 6369/6967 was formed from a 3.5m wide and 0.10 - 0.15m thick layer of sm/med (0.01m-0.07m) rounded pebbles in a red sand matrix [1060] sealed with a 0.03m- 0.05m thick macadam surface [1059] (See section S4 Fig.A4).

There were no finds from the trench or excavated spoil.

AREA A5 Pipe routed across arable land and wooded area between CHESTNUT AVENUE (SK6372/6968) and the A614 trunk road (SK6533/6923). Figs.A5 west.1,A5 west.2,A5 west.3 and A5 east.

The western end of the area A5 pipe run lay approx. 50m south of the ancient field system/enclosure group at SK 6400/6980

Except for approx. 70m of direct trench at CHESTNUT AVENUE a topsoil stripped easement was formed along this section of the mains route.

Fieldwalking prior to removal of top soil produced 19/20th century finds in the form of clay pipe stem and glass fragments.

Finds of 19/20th century pot sherds recovered following the removal of top soil were probably associated with the fill of modern pits described below.

Trench mechanically excavated to a depth of 2.00m.max.

The earliest layer was a continuation of the natural sandstone from Area 4 and again consisted of an orange/red/brown medium sand [1063] containing occasional sm/md rounded pebbles.

In a shallow depression between SK6374/6968 and SK6392/6965 this layer merged with an overlying yellow/orange brown mottled fine to medium natural sand [1062] containing frequent medium

to large pebbles.

Plough soil [1061] a mid grey/brown sandy loam containing moderate (up to 15%) sm/md (0.01-0.07m) rounded pebbles, humus, roots and occasional charcoal flecks formed the surface layer. See sections S1,S2,S3 Fig.A5 west.1.

The stratigraphy remained consistent to SK6507/6934, on the east facing slope of the Maun valley, from which point a gradual and laterally merging colour/composition change occurred.

The earliest layer at trench depth being a yellow sandy silt [1053] containing frequent (50%-70%) medium (0.01m-0.10m) rounded pebbles. This being overlain and merging with a yellow sandy silt [1052] of between 0.40m - 0.60m in thickness, containing occasional (5%) medium rounded pebbles and very occasional large (0.25m) irregular rounded sandstones. The surface of this layer formed a sharp interface with the overlying topsoil [1051] a mid brown sandy silt containing occasional (5%) sm/md well rounded pebbles, humus, roots and charcoal flecks. The make-up and macadam surfaces of the A614 trunk road [1099] cut layers [1051] and [1052] at SK6583/6923.

Area 5A produced a concentration of features and these are described in a west to east sequence as follows:

At SK6406/6962 a 2.0m wide, sectionally wedge shaped, gulley [1064] was recorded in both north and south facing sections of the trench. From the west, the cut sloped gradually down into a slightly concave base at a max. depth of 0.30m. The east side then rises steeply (60%) for 0.15m before breaking gently into a slightly concave sub-horizontal plane for approx. 0.20m before gently breaking and rising near vertically to a sharp break with the surface of layer [1063]. The gulley cut was filled with a mottled grey sandy silt [1065] which contained very occasional (less than 5%) sm. (less than 0.02m) rounded pebbles and occasional flecks of charcoal. Evidence of iron panning was noted in the base of the fill.

The stepped profile along the east edge probably indicates more than one phase of formation activity although this could not be distinguished in the fill. Unfortunately the fill did not produce artefactual material consequently it is not possible to date the probable formation of this feature.

However, the proximity and probable alignment with the field boundaries of the Romano-British site to the north indicates that this feature is probably a gully contemporary with the land use associated with the enclosure group revealed by aerial photography. See section F1, Fig.A5 west.2.

At SK6407/6962 approximately 9.0m east and parallel with the preceding feature, a 6.6m wide shallow gulley [1066] was recorded in both north and south trench sections. The west side broke sharply from the surface of layer [1063] and sloped gradually down to a gently undulating near horizontal base with maximum depth of 0.25m in the east before rising at approx. 30 degrees, slightly stepped and breaking gently to a 10 degree slope to a sharp break at the surface of layer [1062].

The fill of this gulley consisted of a mottled grey sandy silt with very occasional (less than 5%) small (0.01-0.02m) rounded pebbles and occasional charcoal flecks. Slight iron panning was present in the base of the fill.

The fill, which did not produce dateable finds, was similar in colour and composition to that in the preceding feature (F1). This together with its linear form and parallel alignment suggests that this shallow gully is contemporary with the adjacent Romano-British site. See section F2, Fig. A5 west.2.

The next in the sequence of features a 0.35m deep pit [1068] was recorded in the north trench section only at (SK6412/6960). Cut into natural sandstone, the west side breaks sharply from the surface of layer [1063] with an initial steep slope before breaking very gradually to a rounded concave base which was rising gently in the east to the point where cut by later feature [1071].

The primary fill of pit [1068] consisted of a yellow/brown sandy silt [1070] with occasional (5-10%) small (0.01-0.02m) rounded pebbles and evidence of root penetration. This material merged gradually with the secondary fill [1069] a dark grey/brown sandy loam containing very occasional (less than 5%) very small (up to 0.01m) rounded pebbles and occasional charcoal flecks. The secondary fill was moderately disturbed by recent tree root penetration.

Whilst the fill did not produce dateable finds, the truncation by the following feature again points to association with the adjacent Romano-British site.

The east edge of pit [1068] and its fill was truncated by later gully cut [1071], which appeared in both north and south trench sections. The west edge of this cut breaking sharply from the surface of fill [1069] in the north section and layer [1063] in the south section. The west side being steep and slightly concave breaking gradually to a flat, horizontal base running 2.50m east before breaking gradually to rise at a 45 degree slope with a sharp edge at the surface of layer [1063].

The root disturbed fill of this wedge shaped cut consisted of dark grey/brown sandy silt [1072] containing less than 5% sm/md (0.05-0.025m) rounded pebbles and occasional charcoal flecks.

The location and alignment of this feature correlates with the conjectured extension of a North-South cropmark indicative of a gully or field boundary associated with the adjacent Romano-British site of occupation. See section F3, Fig. A5 west.2.

A rectangular recut pit [1075] [1077] approx. 2.50m long x 0.60m deep was recorded in the north facing trench section at SK6437/6955.

The form and fill of this pit [1076] [1078] and [1079] including coal, slag and broken fragments of corrugated steel sheet indicating a relatively modern feature, a view supported by an off-white glazed pot and a fragment of glazed plate stamped 1815 (date ?) recovered from the excavated spoil in this location. (See section F1, Fig. A5 west.3)

Post hole [1073] was recorded in the south trench section at SK6437/6956. With near vertical sides and a slightly concave base the post hole, cut from surface of layer [1063], was 0.64m deep and 0.20m wide. Its fill of mid grey/brown sandy clay [1074] also contained crushed coal and slag. The form and fill of the post hole being indicative recent activity in the woodland area. (See Section F2, Fig. A5 west.3)

At SK6442/6959 the south trench face revealed two c.0.60m deep pits [1080] & [1082] filled and overlain with grey/brown sand [1081] containing layered turf in cut [1082]. A shallow lense of re-deposited sand/gravel [1083] lay west of the sand fill, all being sealed with a layer of light to mid grey sand [1094]. The purpose of this localised activity is unclear, but is probably associated with forestry or the adjacent military establishment and therefore modern in date, although no dateable finds were recovered to support this view. (See Section F3 Fig. A5 west.3).

At SK6466/69533 the north facing trench section revealed a 0.35m wide x 0.40m deep near vertically sided and slightly concave based pit [1084] which was filled by a dark brown silty sand [1085] containing small rounded pebbles, occasional iron nails, coal and fragments of white glazed pot of 19/20th century date. (See section F1 Fig. A5 east).

A 2.2m wide and 0.63m deep pit [1086] was recorded in the north facing trench section at (SK6476/6954). This pit had near vertical sides breaking sharply from surface of [1063] and gently into a slightly concave base. The fill sequence of this cut consisted of a 0.10m thick, charcoal rich (75%) very dark brown (almost black) sandy layer [1087]. This layer being free of other inclusions, but moderately disturbed by tree roots. This was overlain in the N.E. side of the cut by a tapering and probably dumped layer of purplish brown silty sand [1088] containing occasional small rounded pebbles and charcoal flecks, all again moderately disturbed by tree roots. The overlying material formed the most substantial filling of the cut and consisted of an orange/brown mottled silty sand with occasional small rounded pebbles and very occasional large (0.12-0.15m) boulders. This element of fill probably being redeposited natural sandstone again showed evidence of tree root disturbance. (See Section F2 Fig. A5 east).

AREA A6(a) Pipe routed across arable land between A614 trunk road (SK6533/6923), crossing the River Maun at (SK6613/6904) to an alignment junction approx 90m east of the river at (SK6622/6902). Fig.A6a.

Fieldwalking the line of easement both before and after removal of topsoil did not result in recovery of surface or displaced finds.

The stratigraphic sequence immediately east of the A614 road was a continuation of that recorded in Area A5 a 1.10m thick layer of yellow sandy gravel [1045] overlain by and having a sharp interface with a 0.40m thick layer of pale yellow/white sand [1044] which merged with subsoil/topsoil [1034]. Further east, a more pronounced subsoil was encountered in the form of a lensing layer of red/brown sand varying in thickness from 0.05m-0.35m and containing frequent sm/med rounded pebbles [1035]/[1043]. See section S1 Fig.A6a.

On the western approach to river Maun, the trench depth increased to approx 3.8m. The stratigraphy at the west bank of the river consisted of a 1.5m+ layer of red medium grained natural sandstone [1092] containing small pebbles and small gravel lenses. This was overlain with a 1.2m thick layer of

orange/grey/brown mottled sandy alluvial gravel 50% sand and 50% gravel [1091]. The pebble size in this layer ranging from 2-3mm to 0.15m in diameter with graded bedding in distinctive bands.

A thin (0.10m - 0.15m) layer of dark brown sandy peat [1093] containing occasional small pebbles, plant debris and small fibrous roots formed a distinctive horizon between layers [1091] and the overlying yellow/white mottled sand [1090] which contained very occasional small pebbles and pockets of red sand. This layer merged with subsoil [1035] which was overlain with topsoil [1034].

Unfortunately, the excavation at the crossing of the Maun did not present ideal conditions for recording, due to the wet conditions, intermixing of layers and the use of trench liner, however, observation indicated that present river channel [1098] cut layers [1093] [1090] [1035] and [1034] and the bottom of the channel cut slightly into the alluvial gravel layer [1091]. See section S4 Fig.A6a

The two features recorded in area A6a, a post hole [1048] and associated filling [1049] and [1050] at SK6557/6917 and a 1.6m deep trench cut [1046] containing a terracotta drain and fill [1047] at SK6568/6915 gave every indication of being modern in date. See sections S2 and S3 Fig.A6a

No dateable artefacts were recovered from Area 6a.

AREA A6(b) Route topsoil stripped across arable land between the river Maun (SK 66220/69020) and Boughton pumping station (SK 66650/69190) Fig A6(b).

Stripped wayleave and spoil heaps were walked and a small amount of pot/tile was recovered, all finds were unstratified and from subsequent examination found to be post-medieval in date.

Trench was machine excavated to a depth of 2.0m for the majority of the pipeline route, with trench depth increasing to approx. 3.8m close to the river Maun (SK 66220/69020).

Primary deposit for the area was [1015], a loose compacted red sand containing common small-medium sized rounded pebbles. No other inclusions were recorded. This layer was at least 1.5m thick and was present from SK 66220/69020 to SK 66650/69190.

This layer was overlain in the West by [1014], a firm mid brown sandy silt approx. 0.50m thick, containing small-medium sized pebbles and fibrous roots, which in turn was sealed by [1013] a mixed light brown sand 0.70m thick, containing similar inclusions. Both of these layers appeared at the Western extreme of area A6(b) and were seen to run from SK 66220/69020 Westwards.

Above [1015] to the East was layer [1016], a loose yellow brown sand with no apparent inclusions. This was recognised to be the same as layer [1003] area A7. This context was in evidence from SK 66475/69125 to SK 66650/69190.

Overlying both [1013] and [1016], was [1012], a firm clayey sand, very mottled in colour ranging from grey to orange. No other inclusions were recorded. This layer was approximately 0.40m thick and was in evidence from SK 66220/69020 to SK 66650/69190.

The surface deposit for area A6(b) was topsoil [1011], a firm dark grey/brown silty soil containing very few inclusions, only common small-medium sized rounded pebbles and crop remains (fine medium woody roots). This layer was 0.25m thick on average and was present for the whole of area A6(b) (co-ordinates as for [1012]).

No features were recorded within area A6(b).

AREA A7 Pipe routed across arable land and in verge alongside Brake lane between the B6387 and the mineral railway (SK 67460/69070 to SK 67890/69310) Fig.A7(E), and from the railway to Boughton pumping station (SK 66650/69190 to SK 67460/69070) Fig.A7(W).

For the most part, trench was in verge with no topsoil stripping and there were no finds from fieldwalking due to grass cover. The lengths of trench immediately to the East and West of the railway, between the line and Brake lane, were under arable cultivation and were topsoil stripped. Fieldwalking produced no evidence for any features and all finds were post medieval in date.

The trench was mechanically excavated to a depth of between 2.0m and 2.5m according to ground conditions and topography.

The earliest layer recorded was [1005], a hard compacted light grey sandstone containing no inclusions. This deposit only occurred in the deepest parts of the trench, and was only seen to the East of the mineral railway between SK 67460/69070 and SK 67522/67202.

Overlying layer [1005] was layer [1002] a medium compacted red sand containing frequent rounded pebbles, this layer formed the major deposit throughout the area, and was the same as the red sand layers seen throughout most of contract A. The layer was between 1.5m and 2.0m thick and was present from SK 66650/69190 to SK 67890/69310.

Above this layer was a loose compacted light yellow-brown sand with no apparent inclusions, context [1003]. This layer was only seen to the West of New Zealand cottages, between SK 67000/69214 and SK 67270/69130, and was between 0.10m and 0.50m thick.

In turn this layer was overlain by layer [1001], a weak compacted mottled sand, ranging in colour from red to grey/brown, and containing only occasional medium-fine fibrous roots occurring in the upper 0.10m of the layer. This layer was present over most of the length of area A7, between SK 67000/69210 and SK 67700/69250.

The next deposit above [1001] was [1004] interpreted to be the remains of the original course of Brake Lane. This took the form of a loosely metallised black/dk. grey ash/pebble surface containing frequent pieces of tile/brick. From the available information it would seem that this track dates from the 19th but may of course be of earlier date. Evidence for this track was seen between New Zealand cottages and the western side of the mineral railway (SK 67270/69130 to SK 67460/69070).

The upper surface layer for the whole of area A7 was [1000] topsoil, a med. compacted light-mid brown sandy soil containing common small-medium sized pebbles and occasional pieces of post-medieval pot/tile. This layer was approximately 0.30m+ thick

and was present from SK 66650/69190 to SK 67890/69310.

Final activity in area A7, above [1000], was represented by the modern road, the B6387, to the east at SK 67890/69320 and the mineral railway which divided the site in half at SK 67460/69070. See Fig. A7(w) S1-S3, Fig A7(e) S1-S3.

No features were recorded within area A-7.

AREA A8

Pipe routed across arable/pasture land between the B6387 and a small watercourse, known as Boughton Dyke (from SK 67890/69310 to SK 68700/69480). This dyke was of particular interest giving a possible opportunity for environmental sampling and an indication of the extent of any surrounding wetlands which may have been present in the past (Fig. A8)

Whole route was wayleave stripped, and ground and spoil heaps were walked producing few finds, mainly pot/tile of post-medieval date.

Trench was machine excavated to an average depth of 2.0m for the majority of the route with trench reading a maximum depth of 3.5m at Boughton Dyke crossing (SK 68700/69480).

Primary deposit for the area was [1002] the same red natural sand as recorded in area A7. This layer had a thickness of 0.75m+ and was visible from SK68000/69375 to SK 68600/69530.

Overlying this was [1021] a layer identified to be the same as [1003] area A7 present from SK 68000/69375 to SK 68700/69480.

Towards the west the stratigraphic sequence initially followed the same pattern as area A7 with layer [1021]/[1003] being overlain by [1001], however, above this a sequence of three layers appeared that were only seen between the road (SK 67890/69310) and SK 68125/69460. These layers were as follows: directly above [1001], [1020] a med compacted lt. grey sand containing common distinct med-dark grey sand mottles and occasional small-medium sized rounded pebbles. This was 0.35 thick. Above this was layer [1019], this took the form of a firm compacted mid grey sand containing only a few small rounded pebbles as before average thickness 0.20m. The upper context boundary of [1019] was very indistinct and merged with that of the overlying layer [1018]. Layer [1018] was very similar in appearance to [1021] being medium compacted red/brown mottled sand with very few inclusions other than occasional sm-med fibrous roots in the upper 0.10m.

Above [1021] between SK 68400/69530 and SK 68560/69530 layer [1025] was recorded. A med. compacted mid brown silty sand containing common small-medium sized rounded pebbles. This layer varied in thickness from 0.60m to 1.0m.

Finally, above [1021] to the east, adjacent to Boughton Dyke a further series of three layers were recorded as follows: a dark brown/black peat layer [1027] containing occasional small pieces of well preserved roundwood and no other inclusions this layer, average thickness 1.0m extended for 50m to each side of the dyke (from SK 68650/69500 to SK 68750/69460) and would seem to indicate the extent of wetland/marsh previously present in this area. Overlying [1027] was layer [1026] a med compacted sand initially multilensed and

ranging in colour from lt. grey-brown to lt. red-brown contains only occasional small rounded pebbles, thickness 1.0m maximum this layer was seen from SK68650/69570 to SK68700/69480. Above [1026], between SK68650/69510 and SK 68700/69490, layer [1028] was recorded, this being med. compacted orange-brown sand/gravel containing frequent small-medium sized pebble inclusions this layer was only approximately 0.20m thick and was present for under 50m.

The surface layer for the whole of Area A8 was again [1000] the topsoil seen throughout area A7.

Cutting [1000] to the east was [1096] the course of the Boughton Dyke (SK 68705/69455) a winding 'linear' but approximately 7.0m wide and a maximum of 2.5m deep.

See Fig. A8 S1-S6.

No features were identified throughout area A8.

AREA A9

Pipe routed through farm yard and a section of rough pasture between Boughton Dyke (SK 68700/69480) and KIRTON MAIN STREET (SK 69030/69310). Fig. A9.

The section through the rough pasture (SK68700/69480 to SK 68920/69400) was wayleave stripped with the remaining farm yard stretch being trenched without any prior clearance. All stripped areas together with all spoil heaps were walked, but as before the few pot/tile finds being post-medieval in date. All finds from the area being unstratified.

The trench was machine excavated to an average depth of 1.5m, although adjacent to the dyke, the trench approached 3.0m deep.

The earliest deposit recorded was [1033] had compacted brick red clay with no inclusions, this was only seen at L.O.E. between SK68920/69400 and SK 68950/69380.

Above [1033] was a hard compacted lt. green-grey clay [1032] containing distinct yellow-brown mottles with no apparent inclusions, this layer was approximately 0.80m thick and was visible only in the eastern half of the area. (Between SK 68810/69440 and SK69030/69310).

Overlying [1033] to the west, the red sand layer [1002] reappeared for a short distance between SK 68825/69430. This was the same layer as appeared in areas A7/A8.

To the west adjacent to Boughton Dyke and above [1002] layer [1003]/[1021] ran from SK 68700/69480. Gradually rising up and running out at SK 68775/69450.

Above [1003]/[1021] and present over most of the length of the rough pasture from SK 68750/69440 to SK 68920/69400, layer [1030] was recorded. This layer was a hard sticky yellow-brown sandy clay containing common small-medium sized pebbles, approximately 0.40m thick.

This, in turn, was overlain adjacent to the dyke by a small section of layer [1001] as seen before in areas A7/A8. This was only present between SK 68750/69460 and SK 68775/69450.

Overlying this as in area A8, the dark brown/black peat layer

[1027] was present between Boughton Dyke and SK 68750/69460. Again as in area A8 this would seem to indicate that the original wetland/marsh area extended for approximately 50m either side of the present watercourse.

Above [1027] and present for the whole length of the rough pasture (SK 68700/69480 to SK 68920/69400) was layer [1029] a hard, friable lt. yellow-brown clay containing frequent inclusions of ash/clinker, modern brick, etc. also shows evidence of plough marks and later crop disturbance. This layer varied in thickness between 0.15m and 0.20m.

Finally the surface layer for the whole of area A9 was the same as that in area A7/A8, layer [1000], the only difference is that this layer contains frequent brick fragments, modern rubbish and build-up. Again as before in area A8, the topsoil [1000] is cut by Boughton Dyke itself [1096]. Details as for area A8.

See Fig. A9, S1-S5.

No features were identified throughout the whole of area A9.

1.7 ARCHAEOLOGICAL RESULTS - Contract 'A'.

Fieldwalking.

Grass cover and made-up nature of woodland tracks precluded recovery of displaced surface finds in areas A1 through A3. Inspection for artefactual material in excavated spoil in these areas was also negative.

The arable element of area A4 was walked however, no finds were recovered from surface or excavated spoil.

Finds from surface and spoil in area A5 were sparse. It is probable that the few post-medieval items recovered were originally deposited in pit [1077].

No finds recovered from area A6a.

Fragments of post-medieval pot, tile and glass etc. were recovered from areas A6b, A7, A8 and A9 however, with the exception of the village of Kirton, the infrequent disposition of finds did not indicate sites of occupation on or immediately adjacent to the mains route.

Trench Excavation.

Trench excavation through the predominantly forested areas A1 - A4 did not reveal archaeological evidence of occupation or land use. Such features as were recorded taking the form of modern pits and field access tracks. In area A2 a localised layer containing organic peat [1022] lay in a natural depression west of Ladysmith Plantation and leached staining of upper level of natural sandstone occurred in area A4.

Trench excavation through area A5 exposed a number of sectionally recorded features, the majority of which were interpreted as recent interventions. However, the sequence of gullies [1064][1066][1071] and pit [1068] provide probable evidence of ancient land use. The location and orientation of gully [1071] correlates with the conjectured extension of a N-S cropmark associated with the known site immediately north of the mains route. The trench recorded features did not produce dateable evidence but finds from an earlier fieldwalk survey of this site points to a Romano-British origin.

The total area covered by this cropmark recorded site is uncertain due to surrounding woodland/forest groundcover and whilst the extent to North, East and West remain unknown, the well defined gullies (1064) (1066) and (1071) indicate that the field system probably extends south into the wooded area west of Proteus Camp. (Figs. A5 east, A5 west 1, A5 west 2 and A5 west 3.)

Excavations through the shallow valley of the river Maun, (areas A6a and A6b) provided an opportunity to record depth of alluvial deposits and the east edge of what is probably a former river channel (See Section S1, Fig. A6b). However, trench depth and unstable nature of the ground prevented detailed examination of deposits at the river crossing.

As with the areas A1-A4, areas A7-A9 produced very little evidence for occupation or archaeological activity. Such evidence as was present was limited to modern drains and trackways all connected with the modern development of this area. A localised area of peat was seen adjacent to the Boughton dyke, between areas A8 and A9. This area would seem to indicate the extent of marsh/wetland which previously existed at this location.

1.8 SUMMARY DISCUSSION OF RESULTS

This element of the project provided a useful transect across a little investigated area of the county. However, with the exception of the probable Romano-British features recorded in area A5, the archaeological result in terms of land use or occupation was remarkably negative.

Although woodland and modern afforestation prevents aerial photographic coverage for much of this region, the lack of evidence from trench excavation appears to confirm the view that this poorly watered area was not as extensively settled as land further north.

At higher altitude the well draining and generally dry sandstone formations would probably preclude the survival of organic remains within the fills of ancient gullies or other retentive features. However, the river valleys of the Maun and Boughton Dyke would appear to offer good potential for stratigraphic and organic preservation and for environmental study of alluviation phases.

The trench transect did not provide any evidence of 'buried' soils and for the most part the present plough soil lies directly over the natural sandstone with subsoils only being definable in the lower area of the river valleys. An effective assessment of damage by ploughing was not possible due to the very small number of ancient features exposed.

2.0 CONTRACT 'B' - HAYTON TO WORKSOP MAIN

2.1 INTRODUCTION.

Contract 'B' relates to the archaeological recording carried out in conjunction with the groundworks for the trenched insertion of 450mm dia. ductile iron trunk main to the north and west of Retford, Notts. The 4000m pipe run to the west being installed between a mains link connection in the B6045 Blyth Road and the Chequer House Pumping Station, while to the north, 7000m of new main provided a link between the Barnby Moor Pumping Station and the Hayton Wellfield and Pumping Station.

2.2 THE PIPE ROUTE AND RECORDING AREAS.

Both sections of Contract 'B' trunk main are generally oriented in East-West direction (Fig. 6)

From the connection with an existing main in the B6045 Blyth Road (SK607825) the western section of the new main was primarily routed alongside existing roads or tracks, crossing a disused airfield at (SK 625820) and the River Ryton to a connection at the Chequer House Pumping Station (SK 647815) located approximately 300m west of the A1 Trunk Road.

North of Retford the pipe route ran from the Barnby Moor Pumping Station (SK 670842) crossing arable land south and east of the village of Sutton to Lound Low Road from where the pipe trench was contained in the road or verge passing south of the Wild Fowl Sanctuary through Sutton Grange, bisecting an area of extensive gravel quarrying and flooded gravel pits to Chainbridge Road and continuing in the road verge to the River Idle crossing. From the River Idle, the route traversed arable land, crossing the B1403 road and the Chesterfield Canal, to the terminal connection at the Hayton Wellfield and Pumping Station (SK 728853).

The Contract 'B' mains route was subdivided into twelve recording areas. (Fig. 7)

2.3 TOPOGRAPHIC AND GEOLOGICAL BACKGROUND.

In this region contours appear to be of less archaeological importance than in other areas. Changes in altitude are very gradual and the most significant effect of height on early occupation seems to have been the difference between the very low land liable to flood and the higher, better drained land above 5m which was probably above flood levels. A Romano-British site at Sandtoft, some distance to the northeast, lies at approximately 3.1m above sea level and has provided evidence of flooding in the fourth Century; whilst the lower limit of Roman occupation in the Fens is believed to be at about 2.5m above sea level.

North of Retford a wide stretch of low ground lies on both sides of the River Idle. Ground levels along the pipe route in this area range from 15m O.D. in proximity to Hayton, dropping rapidly to below 7m O.D. across the flood plain of the Idle and then rising gently to 14m O.D. at the Barnby Moor Pumping Station. (Fig. 6)

The low lying area being only slightly higher than sea level was subject to extensive flooding until it was drained by work begun by Vermuyden in the 17th Century. It is therefore likely that prior to drainage the plain of the Idle consisted of a seasonally flooded water meadow environment and whilst sites of ancient occupation are recorded on the river terrace gravels any early use of land at the lowest levels would probably have been restricted to summer grazing.

The varied geological formations of this area appear to play a significant role in establishing the pattern of ancient occupation and land use. Between Barnby and Sutton well drained sandy soil overlies the eastern edge of the Sherwood Sandstone belt. Between Sutton and the River Idle and extending in a narrow belt between Mattersey in the north and Retford in the south, lies the first gravel terrace of the river. The gravel terrace abuts a finger of alluvium and peat deposits which extend east across the flood plain of the river to overlie and abut the Keuper Marl formations and escarpment which rises immediately east of the village of Hayton. (Fig. 4)

In the slightly more undulating area between Chequer House and the B6045, ground levels range from 17m O.D. in the shallow valley of the River Ryton to 38m O.D. across the disused airfield and 40m at the B6045 Blyth Road.

Sherwood Sandstones form the principal geological formation in this area being overlaid with well drained, easily worked, sandy soils. (Figs. 4 and 6)

With the exception of the extensive area of gravel extraction in the vicinity of Sutton and Lound most of the land in the region is today

used for arable cultivation with small areas of pasture being in the main confined to the river valleys.

2.4 ARCHAEOLOGICAL BACKGROUND

To the north and west of Retford aerial photography of cropmarks has recorded numerous sites of ancient occupation and land use. The sites, which are more prolific than those recorded to the south of the region again take the form of field boundaries and individual or groups of enclosures. The pattern of early land use appears to be influenced by the rivers Idle and Ryton with a concentration of brickwork plan fields arranged along the low interfluvial ridge running north-south between the two rivers; whilst to the west a succession of large enclosure clusters with localised fields occurs mainly on the low lying terrace gravels adjacent to the River Idle. Unfortunately, gravel extraction has been very damaging to many sites in this area.

Reference to the County Sites and Monuments Record and other documentary sources revealed the following information regarding known sites of historical or archaeological interest located on or adjacent to (within 300-500m) the mains route. (Fig.8)

- SK 708858 Intersected by CHAINBRIDGE ROAD; a complex of enclosures, localized field boundaries and paired ditches. (This site has been largely destroyed by gravel extraction in recent years).

- SK 692853 South of LOUND; an incomplete rectangular enclosure containing a divided small enclosure with field boundaries to the south and west.

- SK 671843 East of BARNBY MOOR; a rectangular enclosure containing a small enclosure with traces of field boundaries to south and east.

- SK 685837 South of SUTTON; a large cluster of enclosures and field boundaries (part destroyed by gravel extraction).

- SK 641811 South and west of CHEQUER BRIDGE; five separate groups of enclosures with long field boundaries.

- SK 608829 West of B6045 Blyth Road and Hundred Acre Wood; two small enclosure groups with traces of field boundaries.

- SK 682847 SUTTON, village; the Domesday record of 1086 identifies the village as 'Sudtone'.

Other features of significance in the vicinity of the mains route are:

Flood plain of River Idle between Sutton and Hayton

River Idle - between Lound and Hayton

River Ryton - at Chequer Bridge

Of the sites noted above only the complex of enclosures bisected by Chainbridge Road has been previously investigated. In 1985 a short term rescue excavation was carried out prior to gravel extraction in the area north of the road. The area of the site to the south having been destroyed some years earlier.

The results of the limited and localised excavation dated the use of the enclosures to the Romano-British period.

As the route of the new mains bisected this site it was anticipated that

the groundworks would reveal the only remaining evidence of occupation lying undisturbed below Chainbridge Road and thereby add to the record of this, now largely destroyed, site.

The main route did not pass directly through known centres of Anglo-Saxon or Medieval settlement however, it was thought that the groundworks would provide evidence of medieval and earlier land use, particularly in the area south and east of Sutton.

2.5 MAINS GROUNDWORK METHODOLOGY

The contractors groundworks generally followed the methods described for Contract 'A' (See item 1.5) however the unstable ground conditions encountered between Sutton and Hayton necessitated some adjustment in the working method. In this area the high water table, waterlogged conditions and consequent danger of trench collapse required the contractor to reduce the working length of the trench to 8 - 10m, batter or step the trench sides, utilise prefabricated shoring boxes and pump groundwater to ensure safe working conditions for pipelaying personnel.

Unfortunately these measures, whilst clearly necessary, imposed a significant constraint on effective observation and archaeological recording a situation compounded by the use of Terram sheet trench lining which partially obscured the trench sections.

The crossing of the Chesterfield Canal (SK7281/8537) was carried out between a trench sheet coffer dam which precluded effective recording of this modern waterway.

The river Idle crossing at SK7137/8571 was accomplished by trenching through the river bed without restricting the flow of water. A similar method being used at the crossing of the river Ryton at SK6455/8156.

In both locations the resultant flooding of the river bank trenches and continual collapse of trench sides precluded effective observation and recording of the river bed and low level alluvial deposits.

2.6 ARCHAEOLOGICAL RECORDING

2.6.1 Methodology

The archaeological recording procedure followed the same three stage process described for Contract 'A' (See item 1.6.1)

2.6.2 Area Recording Programme - Contract 'B'

The twelve primary recording areas are shown in Fig.7. and consist of;

- | | |
|---------|---|
| Area B1 | HAYTON PUMPING STATION SK7285/8536 to B1403 road SK7245/8546. Stripped easement and trench across arable land, including crossing of the CHESTERFIELD CANAL. (Fig.B1) |
| Area B2 | B1403 road to RIVER IDLE SK7137/8571. Stripped easement and trench across arable land. (Figs.B2 east and B2 west) |
| Area B3 | RIVER IDLE to junction of CHAINBRIDGE ROAD and LOUND LOW ROAD SK7028/8584. Direct trench in road verge. (Figs. B3 east and B3 west) |
| Area B4 | ROAD JUNCTION to SUTTON GRANGE SK7003/8549. Direct trench in road verge. (Fig.B4) |
| Area B5 | SUTTON GRANGE to route alignment in LOUND LOW ROAD at SK6887/ |

8504. Direct trench in road verge. (Figs. B5 east and B5 west)
- Area B6 LOUND LOW ROAD to SUTTON LANE SK6783/8433. Stripped easement and trench across arable land. (Figs. B6 east and B6 west)
- Area B7 SUTTON LANE to RAILWAY SK6751/8418. Stripped easement and trench across arable land. (Fig.B7)
- Area B8 RAILWAY to BARNBY MOOR PUMPING STATION SK6707/8423. Stripped easement and trench across arable land. (Fig.B8)
- Area B9 CHEQUER HOUSE PUMPING STATION SK6470/8153 to RIVER RYTON SK6455/8516. Direct trench in road verge. (Fig.B9/B10 east)
- Area B10 RIVER RYTON to east boundary of DISUSED AIRFIELD SK6295/8180. Direct trench in road verge. (Figs.B9/B10 east and B10 west)
- Area B11 AIRFIELD east to AIRFIELD west SK6234/8189. Stripped easement and trench across land now used for pig rearing. (Fig.B11)
- Area B12 AIRFIELD west to B6045 BLYTH ROAD SK6071/8256. Direct trench in track verge. (Figs.B12 east and B12 west)

Observation and recording of localised excavation at the Hayton Pumping Station site and various test pits was carried out during December 1990. The area recording programme proper commenced on the 7th January 1991 and followed the contractors sequence of work which was arranged to suit land access agreements and prevailing ground conditions.

GROUND/WEATHER CONDITIONS.

Except for the week of 11th - 15th February 1991, when heavy snowfall affected both the progress of groundworks and archaeological recording, weather and ground conditions encountered during the contract were generally favourable. Only in areas B1 to B5 did ground conditions and contractors working methods impose any constraint on effective observation and recording. (See item 2.5)

ARCHAEOLOGICAL DESCRIPTION

- AREA B1 Pipe routed across arable land between the CHESTERFIELD CANAL (SK 72850/85360) and the B1403 (SK 72450/85460). Fig B1.

Area was wayleave stripped with cleared ground and spoil heaps all walked. As with the other areas along the route, recovered finds were very limited in number and of indeterminate date.

Trench was machine excavated to a depth of 2.0m, with the exception being the crossing of the B1403 where trench depth increased to 3.0m+.

Earliest deposit for the area was [2091], well compacted dark red-brown clay containing occasional light grey clay streaks and no other apparent inclusions. This layer was at least 0.50m thick and was present for the whole length of the area.

Overlying [2091], to the East, between SK 72850/85360 and SK 72480/85440 was [2090], a layer of very well compacted light grey/yellow-brown sand containing a small percentage of clay, occasional pebbles and molluscs. This layer was between 0.30m and 0.50m thick.

Above [2091], beginning just East of the road (at SK 72430/85460) and continuing Westward, was context [2094], well compacted mid grey clay containing up to 10% sand and 10% organic material (concentrated close to the upper context boundary), between 0.50m and 0.70m thick.

Sealing [2090] to the East (between SK 72850/85360 and SK 72650/85400) was [2089], a well compacted dark brown/black peat containing well defined plant remains, angular pebble fragments and mollusc remains, this layer was approximately 0.20m thick.

Above this peat, was [2088], a well compacted light grey-brown clay with no apparent inclusions, this deposit was present between SK 72850/85360 and SK 72510/85440 and was approximately 0.30m thick.

Overlying both [2088], to the East, and [2094] to the West was another peat layer [2092], this was medium compacted and dark grey-brown in colour containing no apparent inclusions. The layer was between 0.20m and 0.60m thick and was in evidence from SK 72510/85440 to SK 72350/85480.

Above [2092] adjacent to the road was [2096], this layer was present from SK 72350/85480 westwards and consisted of a light grey clay containing no apparent inclusions, approximately 0.20m thick.

The surface deposit for the whole of area B1 was topsoil [2087], a well compacted friable, mid red-brown clayey soil containing very occasional small pebbles and frequent fibrous root inclusions. This layer was present from SK 72450/85460 to SK 72850/85360 and was approximately 0.45m thick.

The remaining activity within area B1 consisted of the Chesterfield canal [2124] to the East, and the modern road surface and make-up [2093] at the Western extreme of the site. See sections S1-S4 Fig B1.

No evidence for any features within area B1 was present.

AREA B2 Pipe routed across arable land between the B1403 (SK 72450/85460) and the RIVER IDLE (SK 71370/85710). Fig.B2(E), Fig B2(W).

Whole route wayleave stripped with cleared ground and spoil heaps all walked. Recovered finds were few in number and of indeterminate date, as before.

The trench was machine excavated to a depth of between 2.0m to the East, and approaching 4.0m at the River Idle.

Earliest deposit for the area was seen between SK 72140/85540 and SK 72110/85560, a well compacted mid grey clay [2109] containing no apparent inclusions.

Above this between SK 72250/85510 and SK 72160/85540 was [2099], a well to medium compacted, friable, light red sand containing very occasional small-medium rounded pebbles approximately 0.40m thick.

Overlying this was [2098] (Due to the intermittent trenching method this layer was also identified as [2106]/[2107]), a medium compacted mid-light green/yellow brown clayey sand containing very occasional small patches of black organic material. No other inclusions were present, and the layer was between 0.80m and 1.0m thick and seen from SK 72260/85510 to SK 72160/85540.

In turn, [2098] was overlain by [2105] (at SK 72160/85540), a 0.20m thick layer of medium-well compacted mid grey-brown clayey sand, containing moderate amounts of small-medium diameter root remains, with no other apparent inclusions.

Above [2105] was [2118] (also identified as [2078]), this was a very well compacted red layered sand(stone) containing no apparent inclusions, present from SK 71760/85630 to SK 71400/85690 and 0.10m+ thick at the limit of excavation.

Sealing this layer between SK 72160/85540 and SK 71700/85650, layer [2104] was recorded. This was a medium-well compacted mid grey clayey sand containing no inclusions. As this layer progressed Westward it became much more mixed with medium sized patches of green/grey sandy clay. Thickness varied from 0.20m to the East, to a maximum of 1.0m in the West.

Layer [2104] was overlain by two layers, [2094]/[2007] between SK 72430/85460 and SK 72270/85510, and [2117] (Also found to be the same as [2110]/[2112] and [2114]/[2115]) between SK 71910/85610 and SK 71400/85690.

[2094] was a well compacted mid grey clay containing approximately 10% organic material in its upper 0.10m-0.20m. This layer was in turn overlain by [2092], between SK 72510/85440 and SK 72350/85480 as previously described in area B1, which in turn was sealed by [2096] another light grey clay layer as seen in area B1. From SK 72350/85480 to SK 72260/85510, [2094] was below layer [2097] a medium compacted mid red-brown sandy silt containing up to 10% clay and very frequent small flecks of chalk/shell, this layer was a maximum of 0.40m thick.

[2117] was a medium compacted dull red sand containing very occasional small-medium sized rounded pebbles, between 0.30m and 0.40m thick and present from SK 71910/85610 to SK 71400/85690. This layer was seen to be the same as [2110]/[2112] and [2114]/[2115].

Overlying [2117] was [2116], a medium-loose mixed mottled sand varying in colour from very light brown to orange brown, and containing occasional small-medium sized pebble inclusions. [2116] was approximately 0.80m thick and present from SK 71910/85610 to SK 71400/85690 and seen to be equivalent to [2077]. [2117] was also overlain by [2111] a well compacted dark grey-brown/black peat containing no obvious inclusions, this was present between SK 72010/85580 and SK 71910/85610. This, in turn, was below [2103], a medium compacted mid-light brown clayey silt with no apparent inclusions. It was later seen that layer [2111] was the equivalent of [2113] and layer [2103] was the same as [2100].

[2116] was overlain, in the West alongside the River Idle, by [2076]. This layer was a dark grey organic clay containing occasional small roots and small pebble inclusions. This layer was at SK 71380/85690 and around 0.50m thick.

Throughout area B2 there were three different surface deposits, changes usually taking place at field boundaries. The three deposits were as follows: Topsoil [2087] ran between the B1403 (SK 72450/85460) and SK 72260/85510, and was a continuation of the layer seen in area B1. The topsoil between SK 72160/85540 and SK 72260/85510 was [2101], a light yellow-brown sandy soil, containing frequent small pebbles and small fibrous root inclusions, approx. 0.30m thick. (Between SK 72160/85540 and SK 72140/85550 a dark grey-brown peat layer, [2102], approximately 0.20m thick appeared between [2101] and [2103]). Finally between SK 72160/85540 and the

River Idle at SK 71370/85710, topsoil was represented by layer [2108], a 0.30m thick med-well compacted dark brown-grey soil containing crop root inclusions, occasional small limestone inclusions and occ. rounded pebbles.

Final activity within area B2 was represented, to the East by the B1403 road, and to the West by the River Idle.

Activity adjacent to the road showed a built up grass verge [2003], a dark grey brown clayey soil, in turn sealed by [2093] the modern B1403 road surface and associated hardcore, with ultimately, [2095], a large concrete drain being cut down to a depth of approximately 1.2m.

At the Western end of the area, overlying [2108] topsoil, [2075], a sandy gravel appeared, this seemed to be modern build-up/reinforcement for the river bank. This, in turn was cut and sealed by [2122], the cut for the River Idle.

Only two features were recorded within area B2, these being a pair of shallow ditches [2120] and [2121]. These features were first noted in the South facing section of the trench approx. 5m apart at SK 71680/85650. [2120] was approx. 0.40m deep and was seen, in the North facing section, to cut [2121]. [2121] was larger at 1.2m wide and 0.6m deep. It was not apparent whether these ditches joined or simply crossed each other.

The fill of the ditches was the same for both features, [2119] a well compacted mid-dark brown/black peat containing clearly defined wood fragments, but no other inclusions.

AREA B3 This E-W element of the main was primarily routed along the north edge of CHAINBRIDGE ROAD between the RIVER IDLE SK7137/8571 and the junction of CHAINBRIDGE and LOUND LOW ROADS SK7028/8584. Figs.B3 east and B3 west.

Topsoil was not removed prior to trenching, the trench being mechanically excavated to a max. depth of 2.0m.

The trench bisected the now largely destroyed enclosure group and field system centred at SK708/858. The destruction being caused by gravel extraction which has left this area surrounded by flooded gravel pits and residual spoil heaps.

Unfortunately it was not possible to carry out detailed investigation of the archaeological features revealed in this area due to unstable ground conditions and the contractors working methods as outlined in item 2.5.

Natural (alluvial) gravels [2011] form the principal underlying deposit in area B3. This layer consists largely of sub-rounded medium (0.01-0.03) sized pebbles predominantly yellow/grey in colour with occasional pockets of orange/red sand and sandy clay with traces of horizontal banding.

In the east, from the IDLE to approx. SK7116/8572 the natural gravels were overlain by a 0.30-0.80m thick layer of dark red/brown laminar organic peat [2010] this being overlain by a 0.15m thick layer of clean grey clay [2009] which contained the occasional small lense of yellow/brown sand.

The forgoing deposits were all sealed by the road make-up and

surface [2008] consisting of a 0.50-0.70m thick layer of grey/brown sand containing 50-70% rounded bunter pebbles together with crushed brick and limestone hardcore.

Between SK7116/8572 and the junction of CHAINBRIDGE and LOUND LOW ROADS the road make-up and surface [2008] lay directly over the natural sand/gravels [2011].
See sections S1,S2 and F5, Fig.B3 east.

The features recorded in area B3 are described in an east-west sequence as follows;

At SK7116/8572 an E-W line of four post holes were recorded in the south facing trench section. Cut into peat layer [2010] the post holes [2012],[2015],[2017] and [2019] were all approx. 0.30m deep and varied in width from 0.10m to 0.15m.

The post group occurred at the point where peat layer [2010] merged with natural gravels [2011] and over a shallow concave gulley [2021] cut into the surface of gravels [2010]. The basal gulley fill consisted of orange/brown iron-panned sandy gravel [2022] this being overlain by peat [2010]. See section F5 Fig.B3 east.

Immediately west of the foregoing a 1.73m wide x 0.60m deep pit [2023] was recorded in the south facing trench section. Having steeply sloping sides and flat base the pit was filled with ash grey sandy gravel [2024] showing evidence of tree root disturbance. See section F4 Fig.B3 east.

Gulley [2025] was recorded in both trench sections at SK7115/8572. Aligned approx N-S with a width of 4.40m and a depth of 1.30m the gulley had steeply sloping sides and a near flat base. The primary fill [2026] a grey sandy gravel appeared to have been cut to form a later gulley which was filled with a dark grey/brown sandy silt containing occasional small bunter pebbles and charcoal flecks. See section F3 Fig.B3 east.

Approximately 30m west at SK7112/8572 a 2.45m wide x 0.60m deep pit [2028] was recorded in the south facing trench section. The primary fill, a heavily iron-panned orange/red sandy gravel [2030] was partially overlain with secondary fill [2029] a mid-grey sandy gravel containing the occasional lense of yellow sand. See section F2 Fig.B3 east.

Located immediately west of pit [2028] a 'V' section gulley [2031] was recorded in both trench sections. The 1.2m wide x 0.70m deep gulley was aligned approximately N-S and filled by [2032] an ash grey sand containing 50% small-medium rounded bunter pebbles and lenses of yellow sand, sealed by fill [2033] a pale grey sand with up to 50% of 0.01-0.07m rounded bunter pebbles. This fill being partially sealed by fill [2034] a dark grey/brown sandy loam with occasional small bunter pebbles and charcoal flecks. See section F1 Fig.B3 east.

At SK7092/8575 a possible post hole [2036] was recorded in the south facing trench section. Having a depth of 0.50m and a lower diameter of 0.30m and upper diameter of 0.80m the 'T' section cut was filled with a dark grey/brown sandy silt [2035] containing up to 25% of small-medium rounded bunter pebbles and occasional charcoal flecks. See section F.10 Fig.B3 west.

Approximately 20m west at SK7090/8575 the south facing trench section revealed an 0.80 wide x 0.50m deep concave section pit

[2038] filled by a dark grey/brown clayey sand [2037] containing 20% bunter pebbles and occasional charcoal flecks. See section F9, Fig.B3 west.

The following sequence of features are all interpreted as elements of the ancient field system/enclosure group previously recorded by aerial photography.

A 'V' shaped gulley [2039] 2.2m wide x 1.2m deep was recorded in both trench sections at SK7038/8576. This linear feature aligned N-S was filled with a dark grey/brown sandy silt [2040] containing less than 5% small/medium bunter pebbles and occasional charcoal flecks. See Section F8, Fig.B3 west.

Approximately 10m west at SK7082/8575 a further 1.6m wide x 0.8m deep 'V' section gulley [2041] ran parallel to gulley [2039]. The fill of gulley [2041] consisting of a dark grey/brown clayey sand with few small bunter pebbles and charcoal flecks. Two greyware rim fragments were recovered from the gulley fill. See section F-7, Fig. B3 west.

A 0.65m wide x 0.40m deep pit [2043] was recorded in the north facing trench section at SK 7078/8577. With near vertical sides and a flat base the pit was filled with a very dark grey/brown sandy clay [2044] containing light grey sandy clay patches, flecks and fragments of charcoal and very occasional small bunter pebbles. See section F6, B3 west.

Aligned approximately N-S at SK7074/8577 a 1.1m wide x 0.50m deep 'V' section gulley [2045] was recorded in both trench sections. The fill of this gulley a dark grey/brown clayey sand [2046] contained very occasional small bunter pebbles and fragments of charcoal. See Section F5, Fig.B3 west.

A 'V' shaped gulley [2047] of similar dimension to [2045] was recorded in the north facing trench section only. Aligned E-W at approximately 90 degrees to gulley [2045], this feature probably intersected gulley [2045] within the area excavated for the pipe trench as its fill [2048] was identical in colour and composition to fill [2046] in gulley [2045]. See Section F4, Fig.B3 east.

Approximately 8m west of and parallel with gulley [2045] a 0.85m wide x 0.30m deep rounded section gulley [2049] was recorded in both trench sections: Its fill [2050] a grey silty sand containing up to 10% small bunter pebbles was concreted by iron panning. See section F3, Fig.B3 east.

Gulley [2051], recorded in both trench sections at SK7072/8577. With gradually sloping sides and a near flat base this 1.5m wide x 0.7m deep feature was aligned approximately WNW/ESE. The fill consisted of a 0.15m thick layer of dark grey/brown clayey sand [2053] with charcoal inclusions overlain with an iron pan concreted mid grey clayey sand [2052] containing less than 10% small bunter pebbles. See section F2, Fig.B3 west.

The last feature in Area B3 occurred at SK7075/8577. Recorded in both trench sections and aligned N-S the 2m wide x 1m deep gulley [2054] had steeply sloping sides and a near flat base. Its fill [2055] a grey clayey sand containing very occasional small bunter pebbles showed evidence of tree root disturbance. See Section F5, Fig.B3 west.

AREA B4 In LOUND LOW ROAD from its intersection with CHAINBRIDGE ROAD at SK7028/8684 the main was aligned NNE/WSW and contained in the west edge of the road to the mineral conveyor crossing NE of SUTTON GRANGE SK 7006/8549. Fig.B4.

Top soil was not removed in this area, the trench being mechanically excavated through the road surface to a maximum depth of 2.0m.

In this area residual gravel workings exist on both sides of the mains route.

The earliest deposit [2057] again consisted of natural sandstone/gravels similar to that recorded in area B3 but here of a more orange/grey colour and containing small lenses of blue/grey clay. Concentrated lenses of 1-3cm diameter pebbles were also noted together with some cross bedding and horizontal banding. This deposit was directly overlain with the made-up road bed and surface [2056]. See sections S1 to S2, Fig.B4.

The only feature encountered in this area, a 0.50m deep x 0.45m wide post hole [2058], occurred at SK7010/8540. The fill a grey sandy gravel [2059] was markedly iron panned along all edges.

No finds were recovered from area B4.

AREA B5 The pipe trench in this area was generally contained within LOUND LOW ROAD between SUTTON GRANGE SK7006/8549 and the mains alignment junction east of SUTTON at SK6887/8504, passing through an area extensively disturbed by gravel quarrying. Figs.B5 east and B5 west.

The trench again being directly excavated through the road surface to a maximum depth of 2.0m.

The mains route in the west of this area bisects an enclosure group/field system centered upon SK692853.

Natural sandstone/gravels [2063], similar to layer [2057], formed the principal deposit encountered in Area B5. For the most part this layer was directly overlain by road make-up and surface [2062] except for approximately 250 metres at the west extremity of the area where hardcore road bed and macadam surface [2014] formed the overlying material. See sections S1-S2 and S2-S3, Fig.B5 west.

All features recorded in this area are interpreted as modern ground intervention and consisted of:

Pits [2060] and [2064] the respective fills of which [2061]-[2065] contained numerous large roots being indicative of tree bole removal. Sections F5 and F6, Fig.B5 east.

Post hole or small pit [2066] also contained fibrous root material within its fill [2067]. Section F4, Fig.B5 east.

At SK6970/8525 the natural sandstone was cut by a 12.5m wide x 2.0m deep irregular channel [2068]. This feature and its fill material [2070] [2071] and [2072] together with an overlying layer of crushed limestone [2069] and the position relative to adjacent gravel pits are probably indicative of gravel extraction and modern backfill. (Section F3, Fig.B5 east)

The final feature in this area trench [2073] and its fill [2074] contained a mains electric cable supplying the Wetlands Wildfowl Reserve. See section F2, Fig. B5 east.

Shallow pit [2079] and its fill [2080] also gave every indication of being a recent intervention. See section F1, Fig. B5 west.

The lack of evidence for the enclosure group/field system at SK692/853 is probably due to truncation by LOUND LOW ROAD.

No dateable finds were recovered from area B5.

AREA B6 Pipe routed across arable land between LOUND LOW ROAD and SUTTON LANE. (SK 6887485040 to SK 67835/84330). Fig. B6(E) and Fig. B6(W).

The whole route was wayleave stripped, with the open ground and spoil heaps all being walked. Several pieces of pot were recovered. As before all finds were unstratified and later examination showed most to be of post-medieval date, although one fragment is provisionally dated to the 13th century.

Trench machine excavated to a depth of between 1.5m and 2.5m with occasional deeper sections to allow insertion of air valves and washout chambers.

The primary deposit for the area was [2085] a deep red sand containing only occasional small rounded pebbles. This layer was at least 1.5m thick and was present for the whole length of area B6 between Sutton Lane (SK 67835/84330) and Lound Low Road (SK 68874/85040).

Above this was layer [2084] an orange-brown medium compacted sand containing occasional roots and gravel inclusions. The lower context boundary of this layer was quite indistinct and frequently merged with layer [2085]. In the locations where this layer existed as a separate context to thickness was approximately 1.0m, elements of this layer were present for the whole of the area between SK 67835/84330 and SK 68874/85040.

Overlying [2084] was [2083]. This layer was a grey/blue clay containing frequent pebble inclusions and occasional root remains. As with [2084] this layer was present for the whole length of trench from SK 67835/84330 to SK 68874/85040 and was approximately 0.3m thick.

The next deposit [2082], a dark brown clayey peat contained frequent roots and plant remains and also occasional small rounded pebbles. This layer was a maximum of 0.40m thick and occurred intermittently between SK 68874/85040 and SK 68300/84500.

The surface layer for the whole of area B6 was [2081] sandy dark brown topsoil containing occasional small pebbles and grass/crop remains. This layer was between 0.15m and 0.30m thick and was present from SK 67835/84330 to SK 68874/85040.

See sections Fig. B6(E) S1, S2 and Fig. B6(W) S1-S3.

The only feature in area B6 occurred at SK 68500/84690 and consisted of a shallow, possibly circular cut [2086] with dimensions E-W 3.0m, depth 0.5m. This feature was filled with the peat layer [2082] and was cut into [2083]. See Fig. B6(E) F1.

No finds or further features were recorded throughout area B6.

AREA B7 Pipe routed across arable land between SUTTON LANE (SK 67835/84330) and the EAST COAST MAINLINE RAILWAY (SK 67510/84185). Fig. B7.

Area was wayleave stripped with cleared area and spoil heaps being walked, finds recovered were very few in number and of post-medieval date.

Trench was machine excavated to a depth of approximately 2.0m with a small area adjacent to the railway (SK 67510/84185) going down to approximately 3.0m-4.0m to allow for tunneling beneath the railway track.

Stratigraphy for the area mirrored that seen in area B6 with the exception of the peat deposit layer [2082]. The basic stratigraphy covering the whole area was as follows. Earliest deposit red natural sand [2085] overlain by an orange brown sand [2084] above this the grey blue clay layer [2083] was seen with the upper context being topsoil [2081]. All contexts were present between SK 67835/84330 and SK 67510/84185.

Final activity witnessed in area B7 took the form of the Sutton Lane [2014] a modern tarmac road surface and associated hardcore, located at the Eastern extreme of the site (SK 67835/84330) while to the West the area was enclosed by the East coast mainline railway (SK 67510/84185). [2123]

See Sections S1-S3, Fig. B7.

No features were recorded within area B7.

AREA B8 Pipe routed across arable land between the EAST COAST MAINLINE RAILWAY (SK 67510/84185) and BARNBY MOOR PUMPING STATION (SK 67070/84230). Fig. B8.

Area wayleave stripped with ground and spoil heaps walked no dateable evidence recovered. Although site lies adjacent to cropmarks (SK 671843 Barnby Moor) no evidence for a continuation of these into the pipeline route was seen.

Trench machine excavated to a depth of between 2.5m and 3.5m with the deepest section being to the West of the railway (to allow tunnelling to take place).

The stratigraphic sequence for area B8 was basically identical to that seen in area B7. Again the primary deposit was the red sand, context [2085]/[2002]. This deposit was at least 1.0m thick. Above this the orange-brown sand [2084] was again present, up to a maximum of 1.5m thick.

Overlying this layer was [2083]/[2001]. This grey clay layer seen before, this layer was between 0.50m and 1.0m thick and contains inclusions as seen in area B7.

The only layer found to be different throughout this area was topsoil [2000] a dark brown sandy soil with moderate amount of small pebbles, occasional charcoal flecks and small roots/crop inclusions.

The final activity within area B8 was again the railway line [2123]

which enclosed the Eastern side of the site.

See sections S1, S2. Fig. B8.

No features were recorded within area B8.

AREA B9 Pipe routed in verge alongside THIEVESDALE LANE between the CHEQUER BRIDGE PUMPING STATION and the RIVER RYTON (SK 64700/81530 to SK 64550/81575). Fig. B9.

Route in verge walked prior to trenching, no finds recovered due to grass cover.

Trench machine excavated to a depth of approximately 2.0m.

The earliest stratigraphic deposit was context [3012], red natural sand containing occasional rounded pebbles. This layer was at least 0.5m thick at the limit of excavation, and was present for the whole of area B9.

Above this, to the west, adjacent to the river, context [3021] was recorded, this being a loose compacted mid-orange brown sand containing frequent small rounded pebbles up to a maximum of 80% close to the river bed. This layer was up to 1.0m thick and was present from SK 64550/81575 to SK 64600/81550.

Overlying layer [3021] between the River (SK 64550/81575) and the pumping station (SK 64700/81530) was layer [3019] a mottled yellow-brown clayey soil containing occasional small-medium sized rounded pebbles. This layer was approximately 1.0m thick.

Sealing layer [3019] was [3025], red sand containing occasional small pebbles, this 1.0m thick layer was identified as redeposited [3012] and was present from SK 64700/81530 to SK 64550. This layer [3025] was present throughout the whole of area B9, B10 and B12 and reflects the very disturbed nature of the area. This would seem to be the result of excavation and build-up undertaken during the 1930's/40's during construction of the R.A.F. base that previously occupied this site.

The surface layer for area B9 consisted of [3011] topsoil this being a dark brown sandy soil containing frequent medium sized pebbles, roots and plant remains. This layer was up to 0.50m thick and presents from SK 64700/81530 to SK 64550/81575.

The only other activity within area B9 was a modern drainage pipe running approximately N-S. This 0.50m concrete and its associated fill were contained within a shallow square-sided cut and given context [3024]. This feature was cut into [3025] and sealed by topsoil [3011] and located at SK 64710/81530. See Section S4, Fig. B9/B10(E).

No archaeological features were recorded within area B9.

AREA B10 Pipe routed in verge alongside Thievesdale Lane between SK 62950/81805 and SK 64550/81575. Fig. B10 (W), Fig. B10(E).

Route walked prior to trenching, no finds recovered due to grass cover. The pipe route ran to the north of a series of cropmark enclosures (Chequer Bridge SK 641811) though no evidence for a continuation was seen.

Trench machine excavated to a depth of between 1.5m - 2.0m with trench depth increasing to 3.0m adjacent to the River Ryton to enable a crossing to be made.

The earliest deposit was, as in area B9, [3012] the red natural sand. This layer was present at L.O.E. during the crossing of the river (SK 64550/81575) and while red sand was present throughout this area it would appear to be redeposited natural.

Overlying [3012] between SK 64052/8157 and SK 6455/8157 was layer [3021] as seen before within area B9.

This in turn was overlain by layer [3023], a very mixed light grey sand containing dark brown fibrous peat. This context represented only a small pocket (maximum 0.20m thick) and was only seen at SK 6453/8157.

Above [3023] was layer [3020] a mid grey brown clayey sand, approximately 0.40m+ thick, and containing frequent small-medium rounded pebbles. This layer was in evidence from SK 6446/8158 to SK 6455/8157.

Sealing [3020] between SK 6446/8158 to SK 6450/8155 and between SK 6452/8157 to SK 6478/8150 was layer [3019], a medium well-compacted mottled yellow-brown clayey soil containing frequent light grey clay mottles, occasional small-medium sized pebbles, and occasional fine fibrous roots within the upper limits of the contexts. This layer was approximately 1.0m thick.

Above [3019] came [3025] the redeposited natural [3012] detailed previously in area B9. This was present from SK 62950/81805 to SK 64550/81575 and was a maximum of 1.5m thick.

Overlying the redeposited natural was layer [3018] loose-medium compacted light yellow-brown sandy soil containing frequent small rounded pebbles. This layer was a maximum of 0.05m thick and present between SK 6409/8164 and SK 6446/8158.

The surface layer for the whole of area B10 was again topsoil [3011], as seen in area B9.

See Sections S1, S2, Fig. B10(W), S1-S3, Fig. B10(E).

The three features recorded within area B10 were as follows:

At SK 6331/8176 an 8.0m wide, shallow cut [3013] was seen. This cut had concave sides and a flat base, and was approximately 0.4m deep. In turn this cut was filled by [3014], a black compacted ash/brick mixture, and [3015] made up of degraded concrete. These layers were approximately 0.2m thick. [3013] was cut through topsoil [3011] and probably represents a previous trackway into the field. See Fig. B10(W), S1.

At SK 6407/8164, Context [3017] was encountered, a fairly shallow cut with 45 degree sides and a rounded base. This cut was oriented approximately N-S. It appeared to be approximately 1.0m wide and 0.5m deep, and was filled by [3016].

Context [3016] was a medium compacted, mid-brown sandy soil containing occasional small, medium-sized pebbles and fleshy, fibrous roots. No dateable evidence was provided from the fill. See Fig. B10(E), F1.

Finally at SK 64528157 was [3022] a linear cut oriented approximately N-S with sides at 60 degrees merging gently to form a flat base. This cut was 1.2m wide and approximately 1.0m deep, and filled with topsoil [3011]. This would appear to be a probably boundary ditch associated with the arable cultivation of the surrounding area. See Fig. B10(E), F2.

Final activity within area B10 was the River Ryton to the East (SK 6455/8156) as seen before in area B9.

AREA B11 In this area the main route crossed a disused airfield between SK6234/8189 and SK6234/8189. Fig.B11.

The groundwork in this area, which is presently used as a high-hygiene pig farm, was not carried out until October 1991.

The whole of the length of pipe within this area was topsoil stripped, with the area inaccessible for fieldwalking prior to this due to disease precautions. Stripped wayleave and spoil heaps were however, walked, with no finds seen or recovered.

Trench was mechanically excavated to a depth of between 1.5m and 2.0m

The stratigraphy within the area was the same as the basic progression within area B10, with the primary deposit for the whole length of the being the red sand [3012]/[3025].

Overlying this red sand natural, again for the length of the whole area, was topsoil [3011].

There were no features within the whole area and no further stratigraphic deposits were noted.

Area B12 Pipe routed along the edge and in the verge of Hundred Acre Lane between disused airfield SK6234/8189 and a link connection in the B6045 Blyth Road SK6071/8256. Figs.B12 east and B12 west.

Trench mechanically excavated to maximum depth of 2m. No stripping of topsoil and no finds recovered from advance fieldwalking of pipe route.

Medium grained orange/red natural sandstone [3001] formed the primary deposit in area B12. In the west this was overlain with a grey/brown sandy loam [3000] whilst to the east alignment of the pipe trench in the edge of the lane resulted in track make-up and surface [3007] forming the overlying material. See sections S1 and S2, Fig. B12 west.

The only variation to the stratigraphic sequence occurred on the gradual west facing slope of a shallow depression at the west edge of the disused airfield between SK6217/8192 and SK6224/8190. In this area the natural sandstone was overlain with a 1.2m thick and tapering layer of redeposited sandstone/organic mix [3010]. At the lower interface with the sandstone, a thin irregular grey/brown band probably indicates the original ground surface. This redeposited layer probably results from site levelling during the construction of the WWII airfield. See Sections S3-S4, Fig. B12 east.

All features recorded in area B12 are believed to be of recent date and consist of:

Post hole [3008] and fill [3009] cut track surface [3007] and together with the presence of two modern bolts within the fill point to a possible gate post. Section F3, Fig. B12 east.

Features identical to shallow pit [3005] and its fill [3006] occurred at frequent intervals along Hundred Acre Lane, their similar characteristics being indicative of tree stump removal, a view later confirmed by a local farmer who advised the field team that a hedge/tree line was removed some years ago. See sections F2, Fig. B12 west.

The final feature recorded in this area was post hole [3002] and its fills [3004],[3003]. Its position within the now removed hedge line indicating the probable location of a gate or fence post.

No dateable finds recovered in area B12.

2.7 ARCHAEOLOGICAL RESULTS. Contract 'B'.

Fieldwalking

Fragments of pot, tile, brick, glass and clay pipe stems recovered during fieldwalking areas B1 and B2 were all provisionally dated as post-medieval. The well dispersed find spots were not indicative of local occupation in these areas which was confirmed by a negative finds result from excavated spoil.

The made-up/modern nature of Chainbridge and Lound Low roads precluded recovery of displaced surface finds in areas B3, B4 and B5, with no finds recovered from excavated spoil.

With the exception of one fragment of c.13th Century pot all surface finds recovered from area B6 were post-medieval in date.

Surface finds from area B7 consisted of pot and glass fragments and two roof tiles all post-medieval in date. No finds recovered from excavated spoil in this area.

Area B8 did not produce finds from fieldwalking or excavated spoil.

Grass cover along the road verge route of areas B9 and B10 precluded recovery of surface finds. Inspection of excavated material again producing a negative result.

Inspection of stripped easement and spoil across area B11 was also negative.

A combination of grass cover and the made-up nature of Hundred Acre Lane precluded recovery of surface finds and again inspection of excavated spoil produced a negative result.

Trench Excavation.

The trench excavation east of the River Idle, in areas B1 and B2 produced very little evidence for occupation with the only features seen being a pair of shallow ditches within area B2. No datable evidence was recovered, but these ditches would appear to be some form of irrigation associated with an earlier phase of farming.

Several peat deposits were recorded throughout these two areas and these are probably indicative of earlier courses of the River Idle and also possibly give an indication of the extent of wetland areas previously occupying the site.

The trench excavation west of the river Idle (area B3) produced considerable evidence of ancient human activity in the form of gullies and pits.

The main feature group, a sequence of N-S gullies, was centered on the known and now largely destroyed enclosure group at SK708/858 (fig. B3 west), with two 3rd century Romano-British greyware rim fragments being retrieved from the fill of gulley [2041].

A further gulley, pit and post-hole sequence was recorded approx. 200m west of the Idle. These features, again with gullies oriented N-S, probably represent outlying field boundaries associated with the primary enclosure group 400m to the west.

The only feature recorded in area B4 was a small pit or large post-hole [2058] of uncertain date.

All sectionally recorded features in area B5 are interpreted as modern intervention associated with tree bole removal [2060], [2064] and [2066], gravel extraction [2068] and electrical service trench [2073]. It was anticipated that the area B5 groundwork would reveal archaeological evidence associated with the crop-mark recorded site south of Lound at SK692/853, however, any such features as may have been expected were probably truncated by the construction of Lound Low Road.

The only feature seen within area B6 was a shallow cut [2086] filled with the peat layer [2082] seen across the Eastern part of the area. Giving regard to the surrounding topography this would simply appear to be one of several natural hollows etc. that were seen to cover the site.

In areas B7 and B8 there was no indication of any ancient human occupation.

Area B9, again gave no indication of any ancient occupation with any activity recorded being of modern date.

Trench excavation through area B10 revealed only sparse evidence for occupation, with as before all features being modern, tracks into fields, drainage ditches and the like. Such evidence as was present would all seem to be associated with the agricultural development of the area and/or the sites use as a WWII airfield.

No evidence for any archaeological activity or occupation was seen throughout area B11.

The features revealed by trench excavation through area B12 were all recent in origin as evidenced by gate or fence posts [3002] and [3008], tree bole removal [3005], a feature repeated at regular intervals along Hundred Acre Lane, and an area of re-deposited sandstone probably resultant from the construction of the now disused WWII airfield.

2.8 SUMMARY DISCUSSION OF RESULTS. Contract 'B'

As the region traversed by Contract 'B' contains numerous recorded sites of ancient occupation and land use, it was anticipated that that the mains groundworks would yield important information about

known, but as yet uninvestigated, sites, and, in addition, provide evidence of early human activity in previously unrecorded locations. However, the observed archaeological evidence proved to be remarkably minimal with the probable Romano-British features recorded in area B3 providing the only positive indication of ancient land use along the contract 'B' transect.

The groundwork across the flood plain of the river Idle provided useful stratigraphic information of alluviation, base deposits and possible former river channels. The dewatering of this area together with modern land use and erosion has probably reduced the potential for information retrieval from upper levels, however, deeper deposits may well provide conditions favourable to the survival of organic and environmental evidence.

When considering the existing record for the Contract 'B' region the substantially negative result from the 11000m transect is disappointingly less than anticipated. Nevertheless, negative evidence is in itself useful for future reference.

3.0 IMPLICATIONS AND RECOMMENDED FURTHER ACTION

Although no new sites were recorded during the course of this project, the information secured provides useful supporting evidence in relation to known sites together with an indication of the extent of ancient occupation in the localities bisected by the groundworks.

It is unfortunate that ground conditions, trench depth and contractors groundwork methods prevented detailed investigation in the few areas containing ancient features.

Whilst wider investigation of known sites adjacent to the main route is desirable, the scale and nature of the evidence observed within the easement/trench transect would not appear to merit further localised investigation.

Possibly the most significant long term implication arising from this project is the need to re-structure the strategic approach to future projects of a similar nature.

The starting point, at the preliminary route planning stage, being the need to avoid, or at the very least minimise, impact upon known sites with archaeological remains. Following this it is necessary to cater for two primary requirements;

- i) The need to secure a record of archaeological remains which will be destroyed/damaged by groundwork at or adjacent to known sites, including the necessary consent requirements when Scheduled Ancient Monuments are involved.
- ii) The need to cater for the discovery and recording of previously unknown archaeological remains.

The scale and nature of archaeological impact and the necessary response will of course vary from project to project but it is believed that the following three stage procedure offers a balanced solution to many projects in terms of extending our knowledge of the past through efficient, cost effective archaeological research and practice.

STAGE 1 Project Design/Route Planning Appraisal.

A desk-top appraisal of possible archaeological impact in relation to known or suspected sites with archaeological remains should be carried out at the earliest possible opportunity.

It is important that the impact appraisal and resultant response recommendations give due consideration to the proposed groundworks methodology ie, probable extent of top-soil stripped easement and/or direct trench excavation. It is also appropriate to consider trench dimensions, possible areas of unstable ground and any other factors having a direct bearing on the probable conditions under which archaeological recording would be carried out.

An appraisal report would usually include a costed design for field evaluation where appropriate.

STAGE 2 Field Evaluation.

When appraisal has established the possibility of impact on known or suspected archaeological remains it is appropriate to implement a pre-construction field survey.

The field survey, which may include localised excavation, being designed to evaluate the type, quality, scope, state of preservation and archaeological importance of remains and from the information secured produce a recommended response design for implementation during the construction/groundworks phase.

Both appraisal and field evaluation would consider para.21 of PPG 16 where "the developers own research indicates that important remains may exist".

STAGE 3 Archaeological Recording.

When the information secured by appraisal and field evaluation demonstrates the existence of important remains an appropriately designed and costed programme of archaeological recording would be implemented in concert with the contractors groundworks.

The recording programme, usually in the form of an intermittent or full-time watching brief, being designed to secure a record of archaeological remains exposed by groundwork within the constraints of the contractors working methods and construction programme.

It is important that contractual agreements for archaeological recording include an appropriate contingency provision to cater for the possible need to respond to unexpected discoveries without jeopardising the construction programme.

It is believed that such an approach to the GWS project would have provided a more informative archaeological result within the available budget.

4.0 DISPOSITION OF ARCHIVE/FINDS

The archive for the project consists of:

1. Report.
2. Context Record Sheets Contract 'A' - Nos. 1000 - 1100
 Contract 'B' - Nos. 2000 - 2124
 " " - Nos. 3000 - 3026
3. Summary list of Contexts - 5 sheets.
4. Finds record sheets (fieldwalking) Contract 'A' - 1 sheet.
 Contract 'B' - 2 sheets
5. Finds record sheets (excavation) Contract 'A' - 1 sheet.
 Contract 'B' - 1 sheet.
6. Photographic records - 4 sheets
7. 35mm Colour Slides Nos. GWS/A1/CS 001 to GWS/B12/CS 197
8. Finds as per items 4. and 5.

The archive and artefacts are deposited in the Bassetlaw Museum, Grove St. Retford, Notts.

Copies of the archive have been lodged with;

Trent and Peak Archaeological Trust.

Sites and Monument Record, Nottinghamshire County Council.

National Archaeological Record.

5.0 ACKNOWLEDGEMENTS.

To successfully undertake a large scale, long term project of this nature requires the skill, co-operation and support of a great many people, and it is appropriate to acknowledge with particular appreciation the following:

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Kevin Wragg	-	Archaeological Supervisor
Janet Hooper	-	Archaeological Assistant
Ian Brooks	-	Archaeological Supervisor
Trevor Kirk	-	Archaeological Assistant
Fred Coupland	-	Archaeological Supervisor
Ian Gerke	-	Archaeological Assistant

Kevin Wragg and Janet Hooper also made a significant contribution to the post-recording collation of field records and report/archive preparation.

The inevitable constraints on the recording process were considerably eased through the goodwill and excellent cooperation of all concerned with the project with thanks due to Keith Jenkins of Marston Construction Ltd. and Paul Busby of North Midland Construction Ltd., the main contractors for Contracts 'A' and 'B' respectively; and in particular to their various machine operators and pipelaying teams for cheerfully co-operating with people looking over their shoulders at all sorts of awkward times. The same excellent co-operation was also received from David Reader and Mick Allan, Resident Engineers with Severn Trent Water for Contract 'A', and Dick Burden and Jim Adams, Resident Engineers with Watson Hawksley Ltd., Consultant Engineers to Severn Trent Water for Contract 'B'.

Many thanks are of course due to Severn Trent Water Ltd., in particular to Stan Clarke and all his colleagues involved in the administration of the project.

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The invaluable advice and guidance from Dr. Lisa Donel and other professional colleagues and friends too numerous to mention was also most welcome.

Last, but by no means least, many thanks to Shirley Riley for her clerical assistance.

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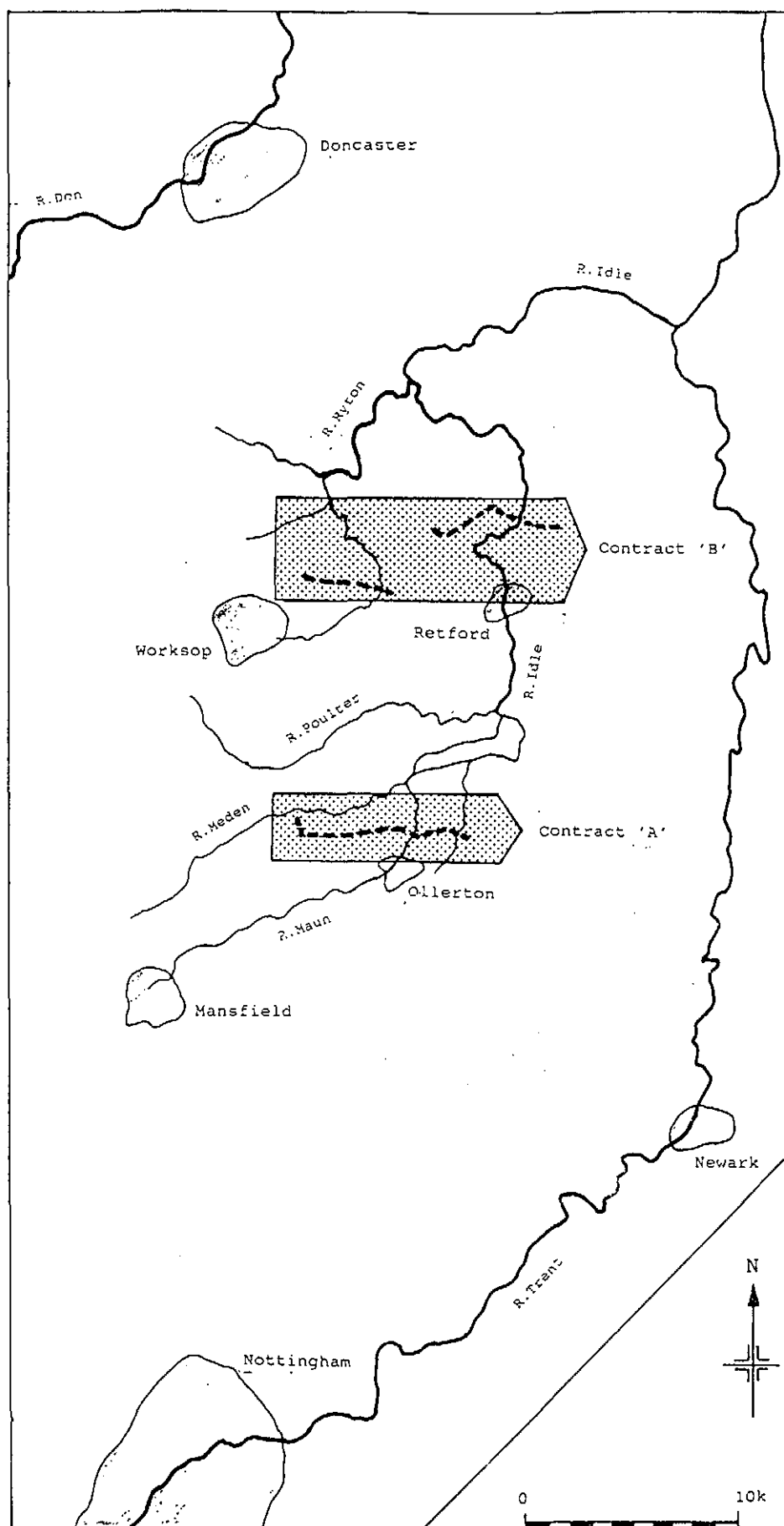


Fig.1 Simplified map of north-east Nottinghamshire showing location of new mains thus — — — —



Fig.2 Contract 'A' - Route of new main - Kirton to Budby Pumping Station

New Main ———

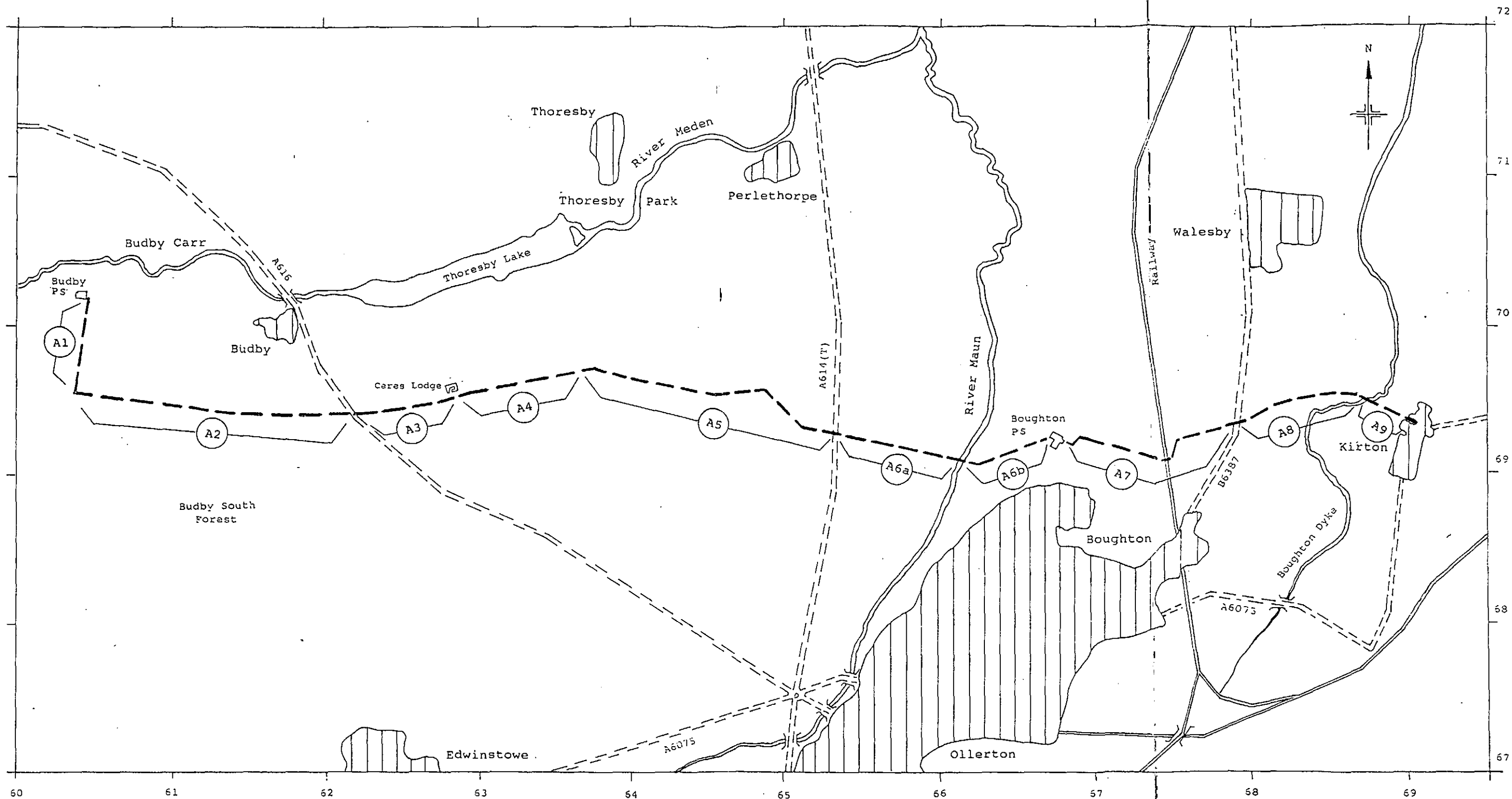



Fig.3 Contract 'A' - Simplified route of new main - Kirton to Buddby Pumping Station showing recording areas A1 through A9.

0 1000m

New Main 

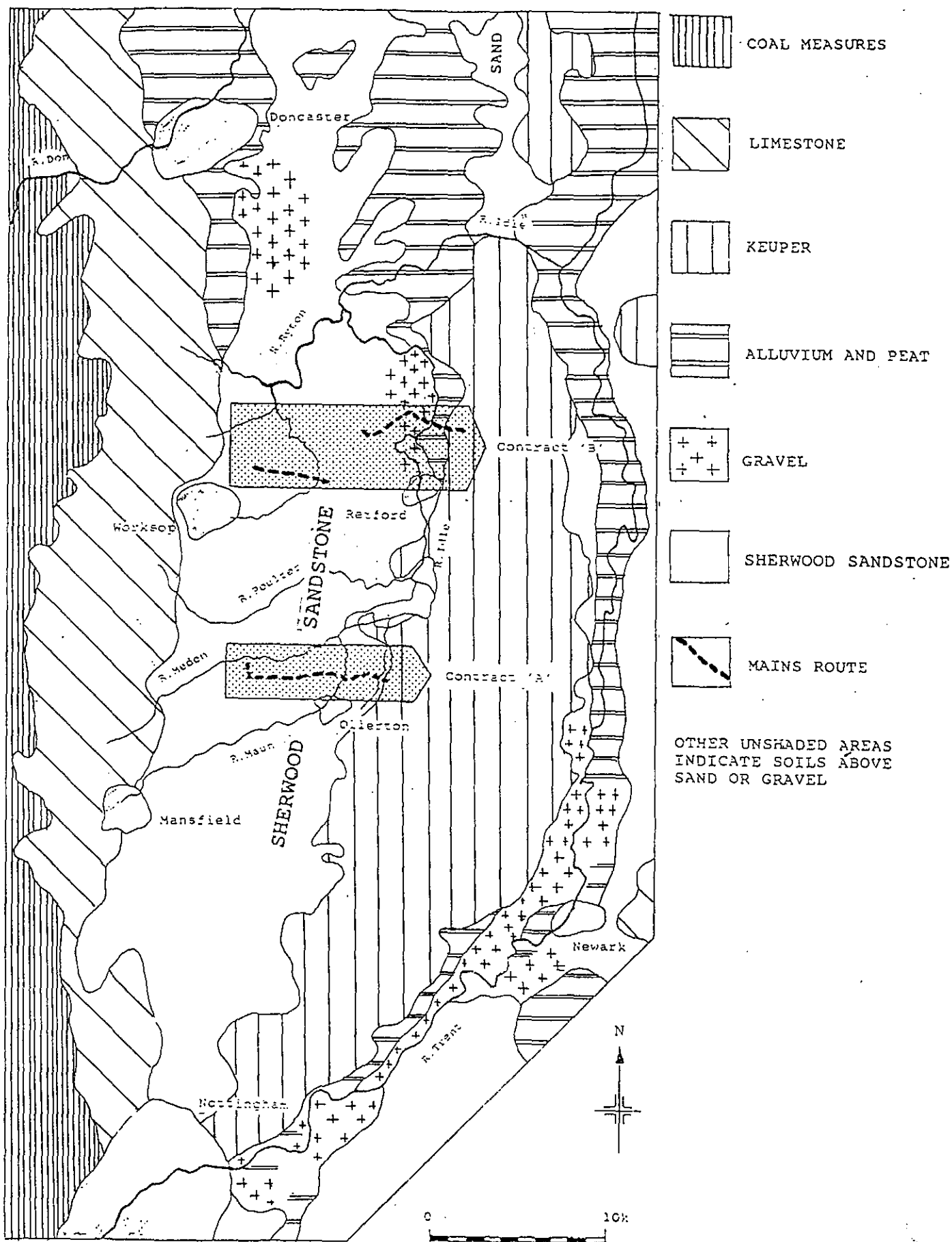


Fig.4 Simplified geological map of north-east Nottinghamshire showing location of new mains.

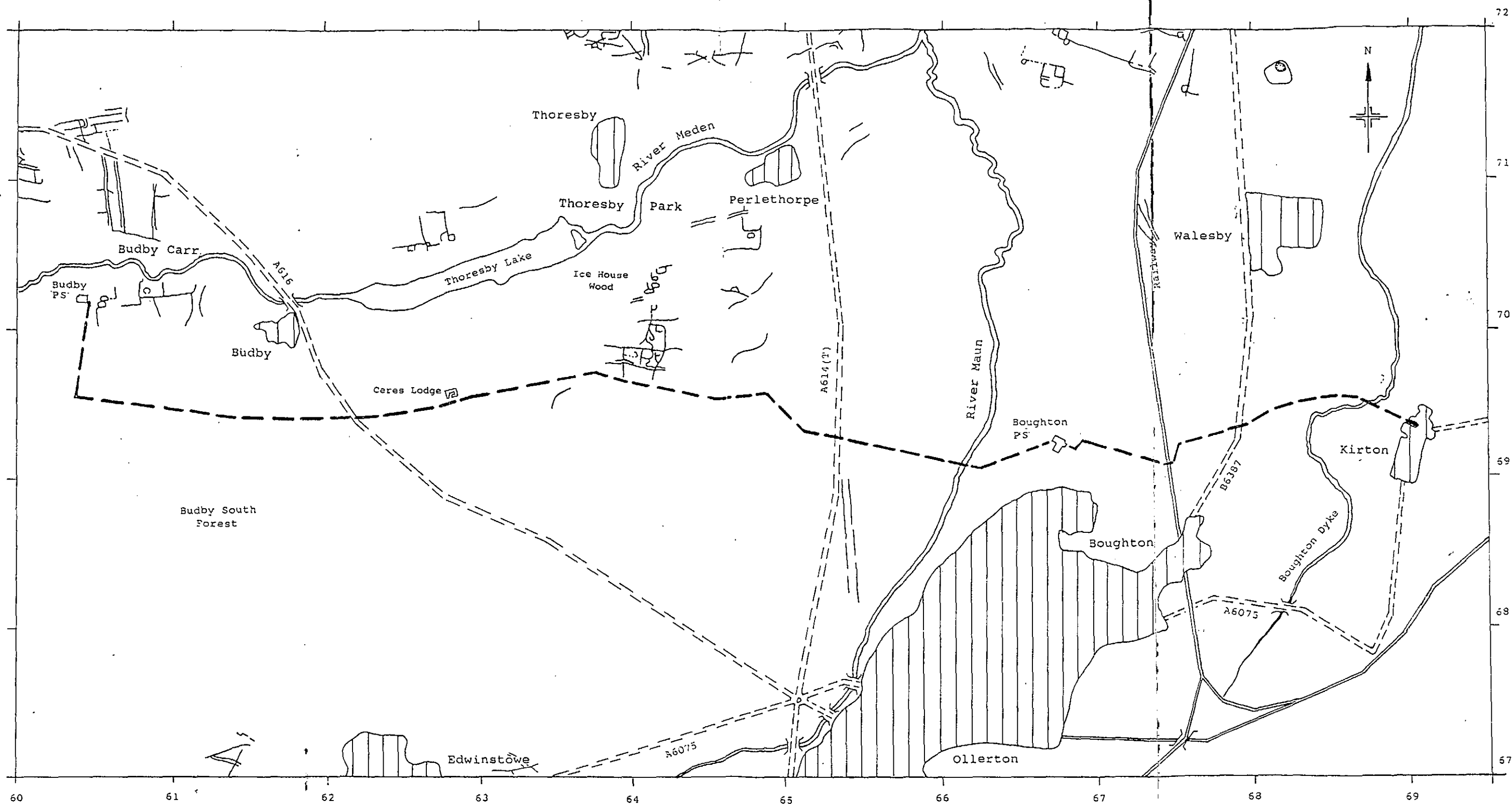


Fig.5 Contract 'A' - Simplified route of new main showing relationship to ancient sites recorded by aerial photography of cropmarks.

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New Main

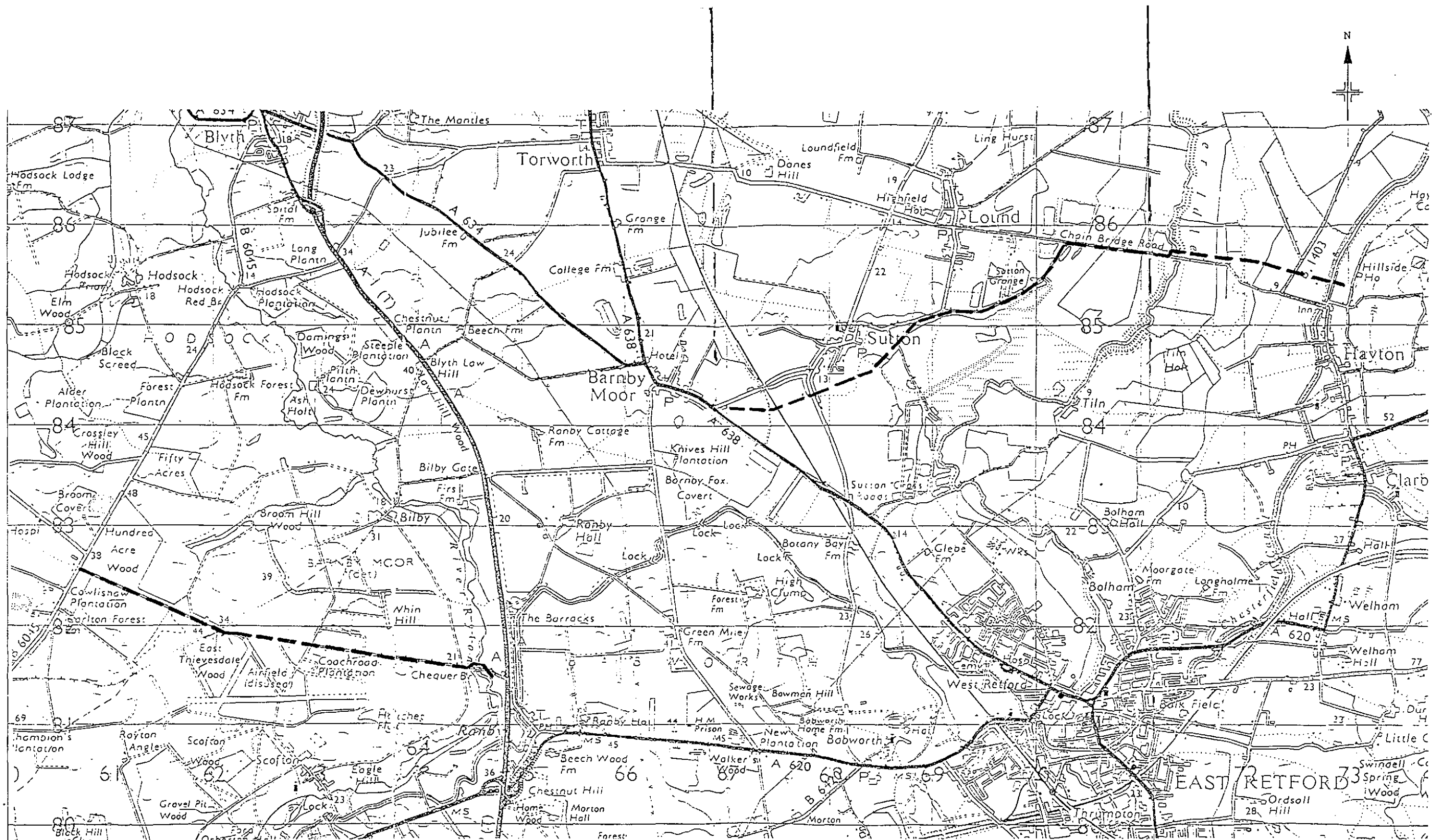


Fig.6

Contract 'B' - Route of new main - Hayton to Barnby Moor and Chequer House to B6045 Blyth Road. Local Topography.

0 1000m

--- New Main

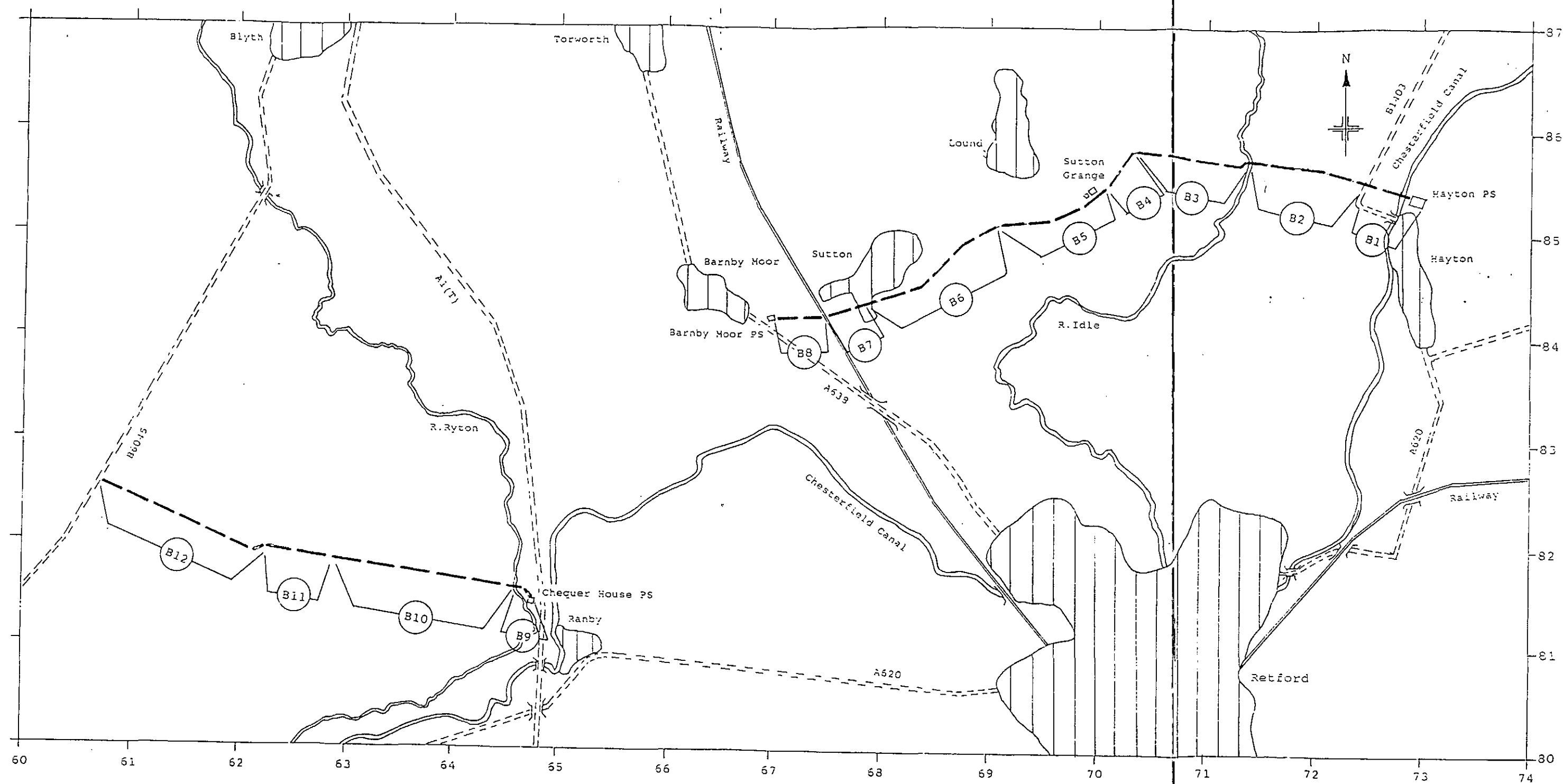


Fig.7

Contract 'B' - Simplified route of new mains showing recording areas B1 to B12.

0 1000m

----- New Main

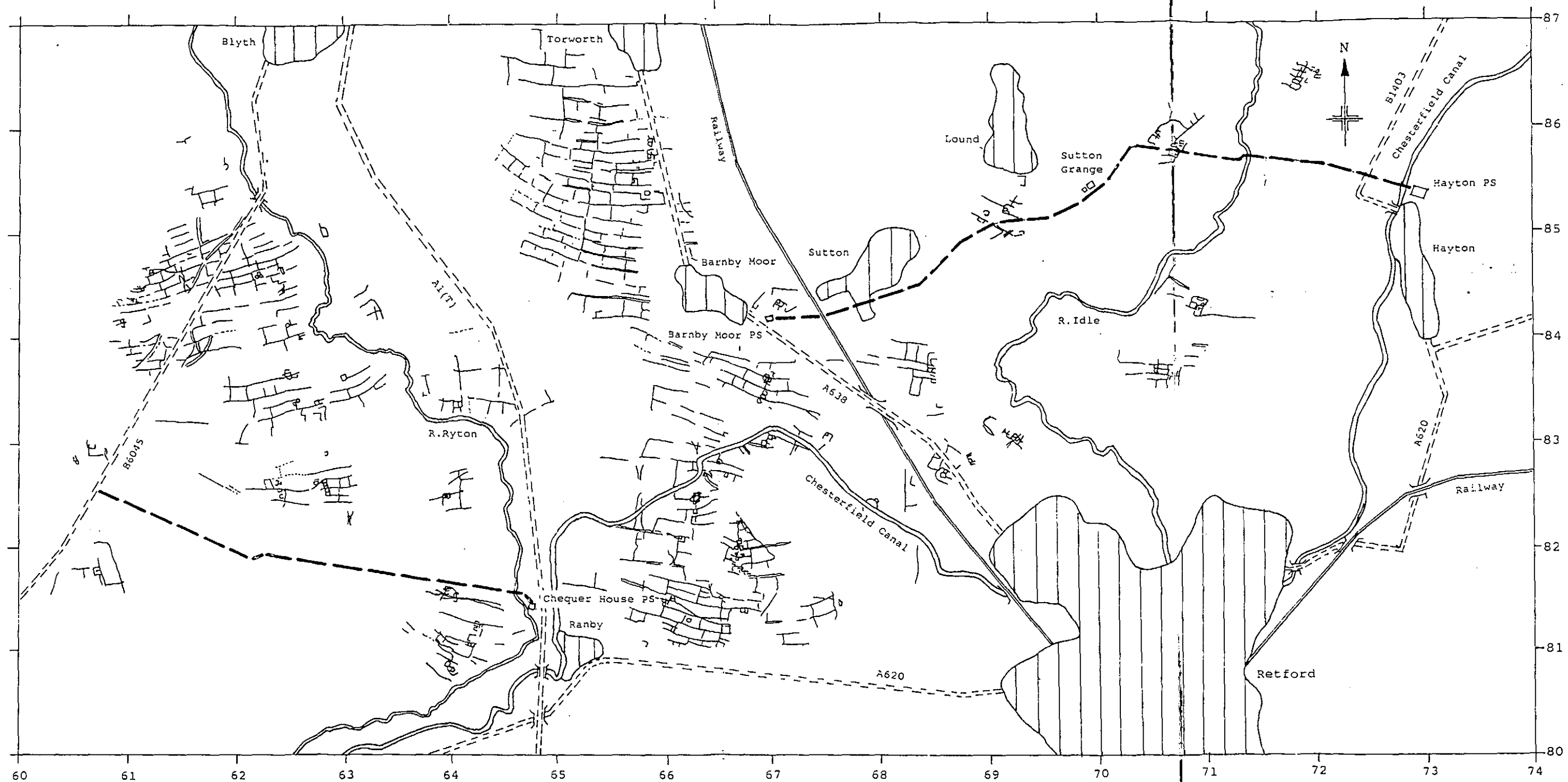
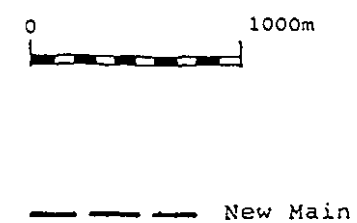


Fig.8 Contract 'B' - Simplified route of new mains showing relationship to ancient sites recorded by aerial photography of cropmarks.



AREA RECORD DRAWINGS - GWS

Scales, Symbols and Conventions

Each area record drawing depicts the following:

1. 1:2500 scale map of recording area showing mains route in relation to local topography and national grid.

Map Symbols



- Mains route - Trench only.



- Mains route - Topsoil strip and trench.



- Ancient sites recorded by cropmark.



- Location of stratigraphic section .



- Location of archaeological feature.

Other symbols generally to Ordnance Survey convention.

2. 1:2500 scale Longitudinal Section through mains route showing principle variations in ground level from referenced datum and locations of stratigraphic sections and archaeological features.

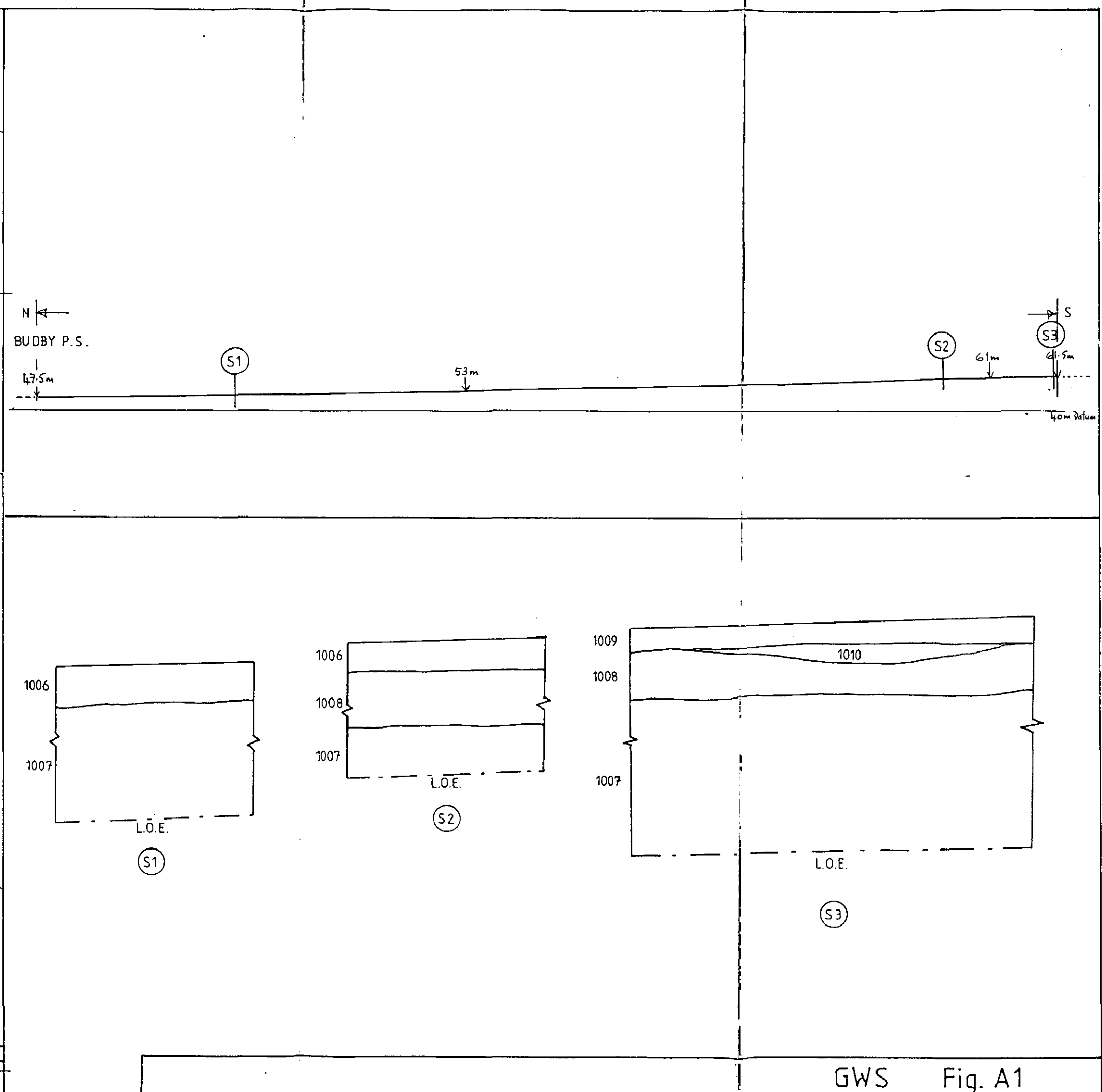
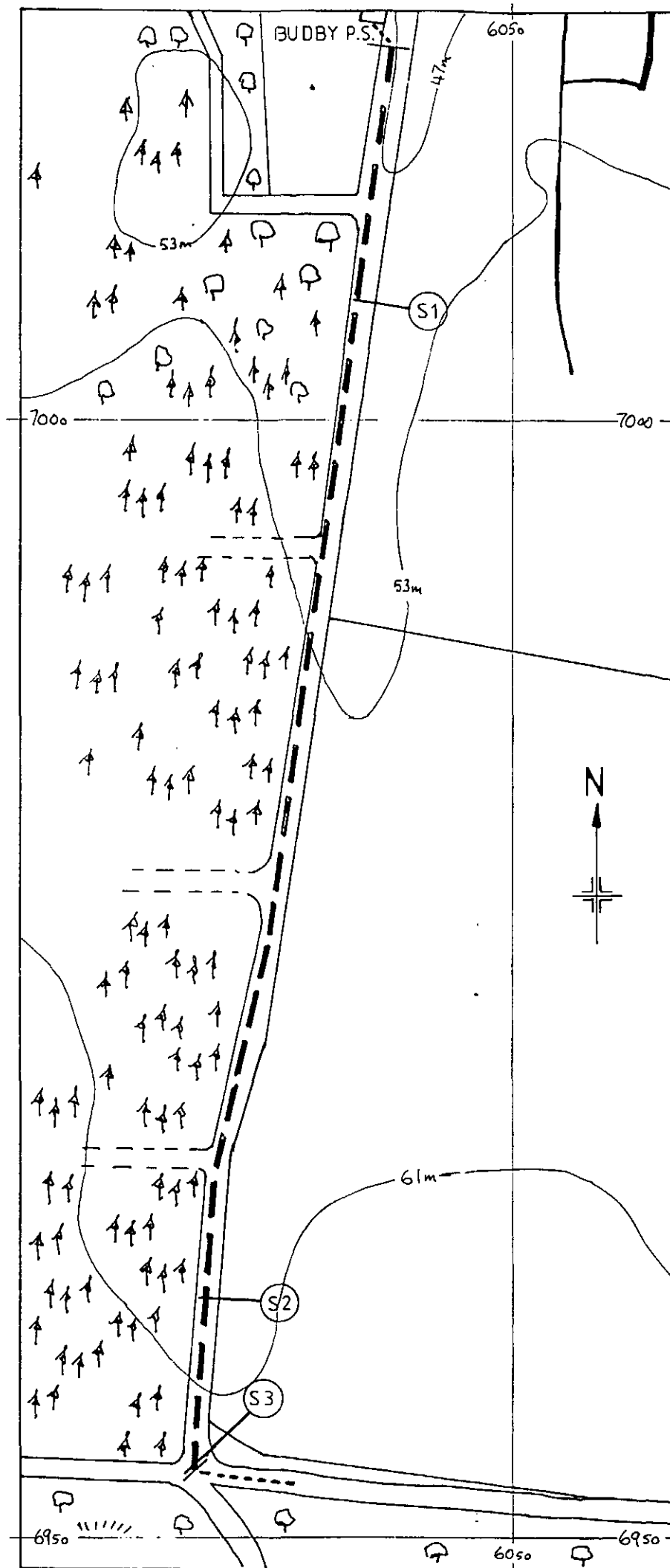
3. Section drawings representing:

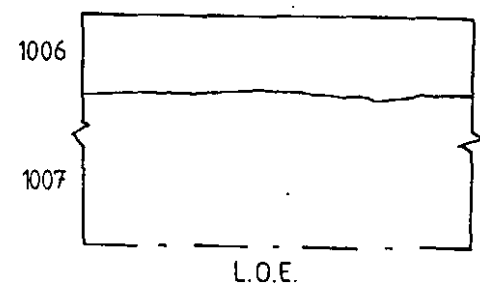
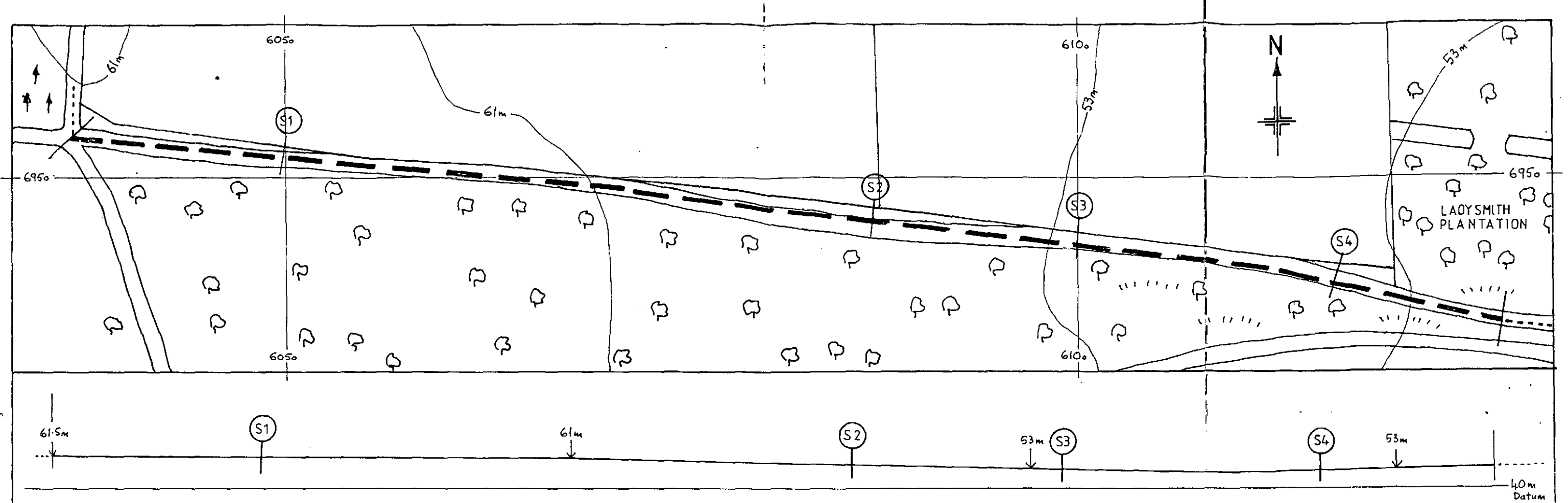
a) Localised Stratigraphy; (S1) , (S2) etc.

b) Archaeological features; (F1) , (F2) etc.

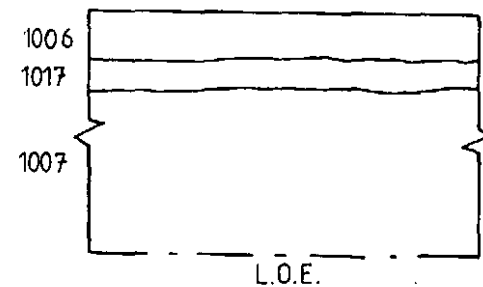
All section drawings 1:50 scale unless shown otherwise.

Plans representing the orientation of linear features are not to scale.

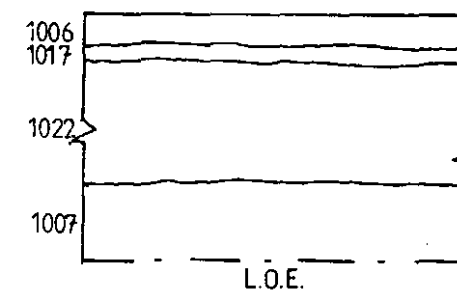




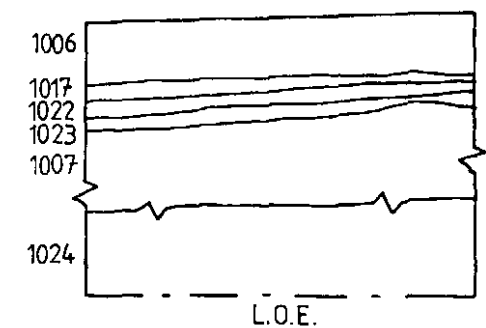
S1



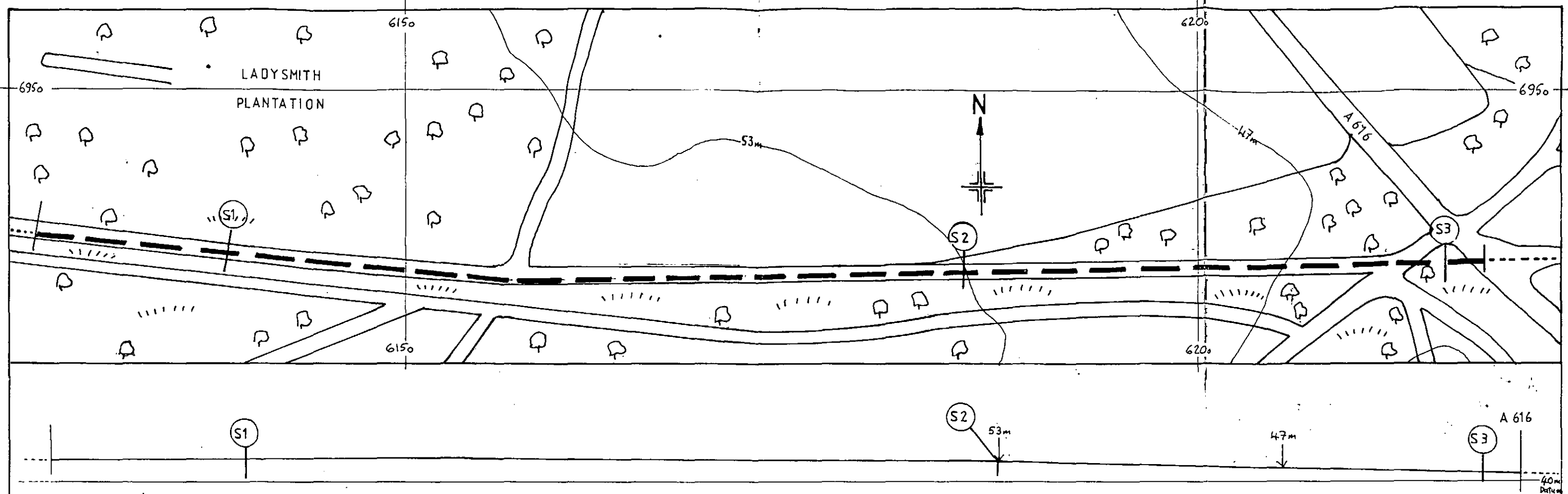
S2

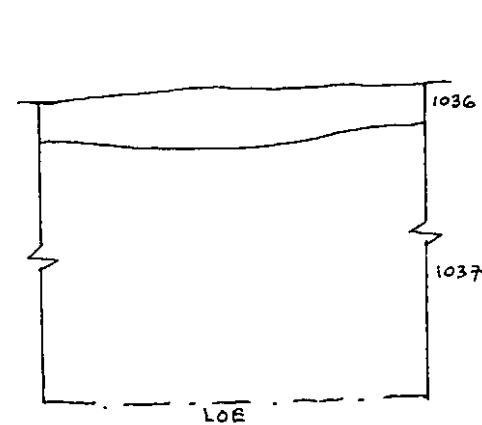
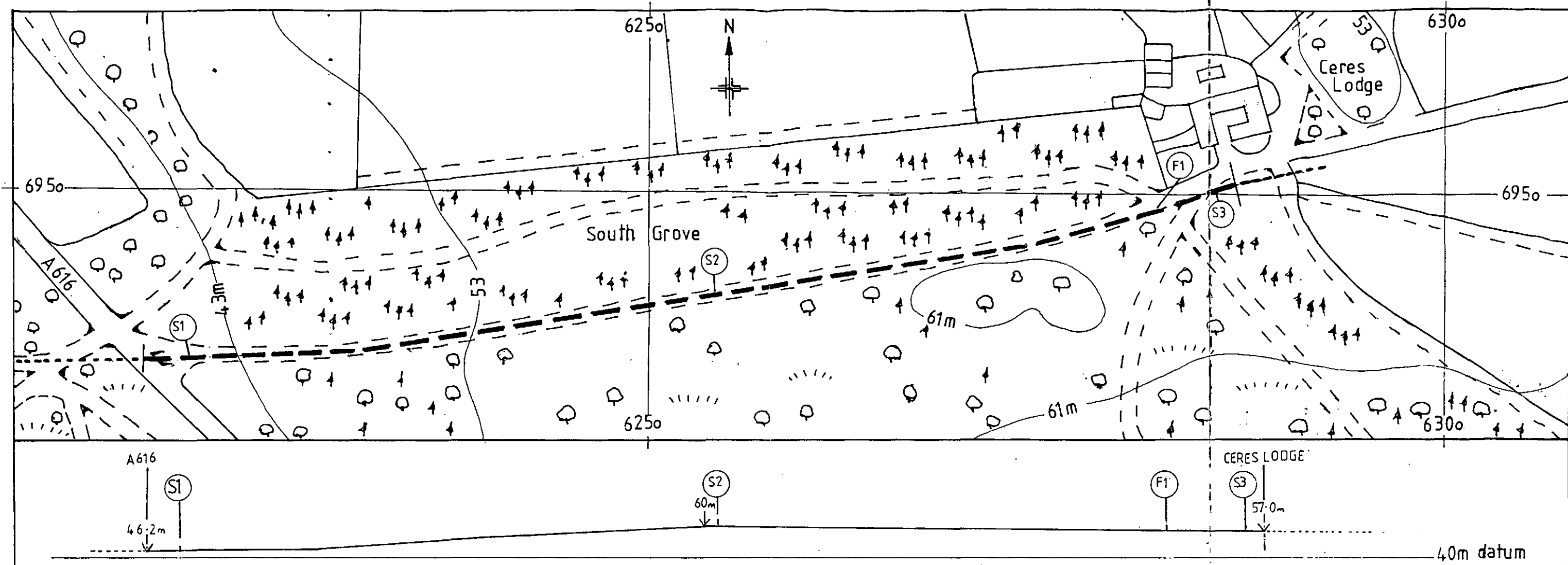



S3

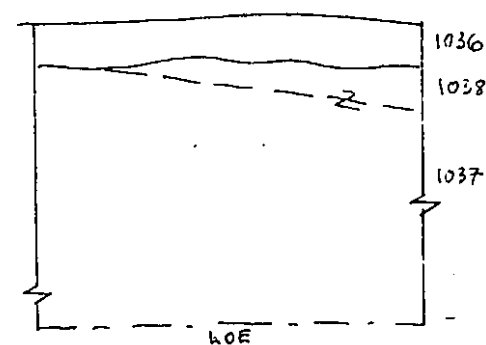


S4

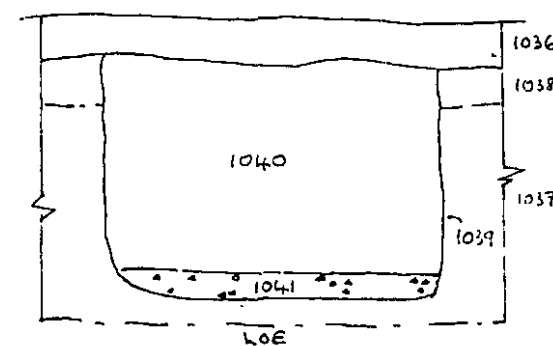




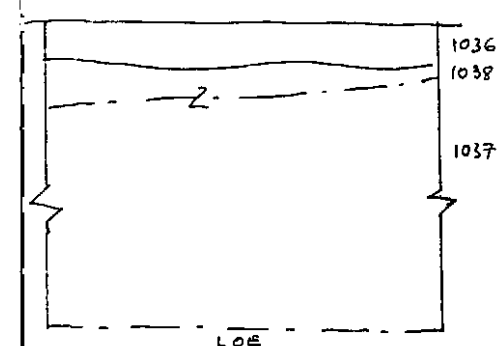




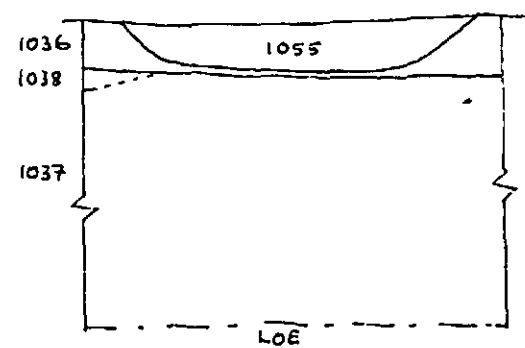
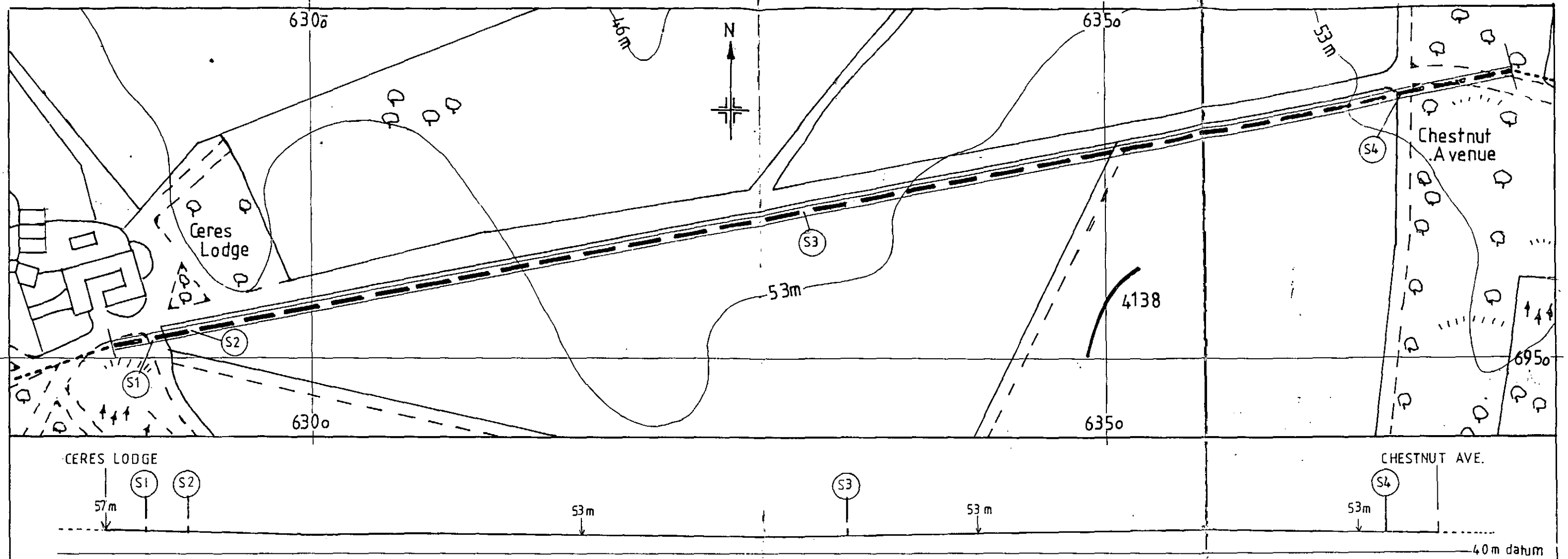
(52)



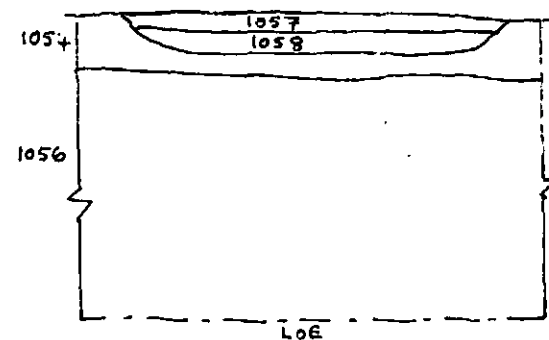
F1



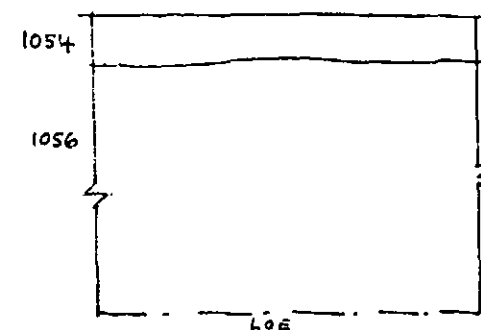
(S3)



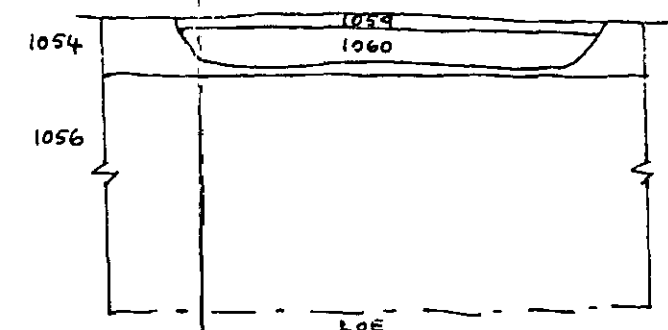
S1



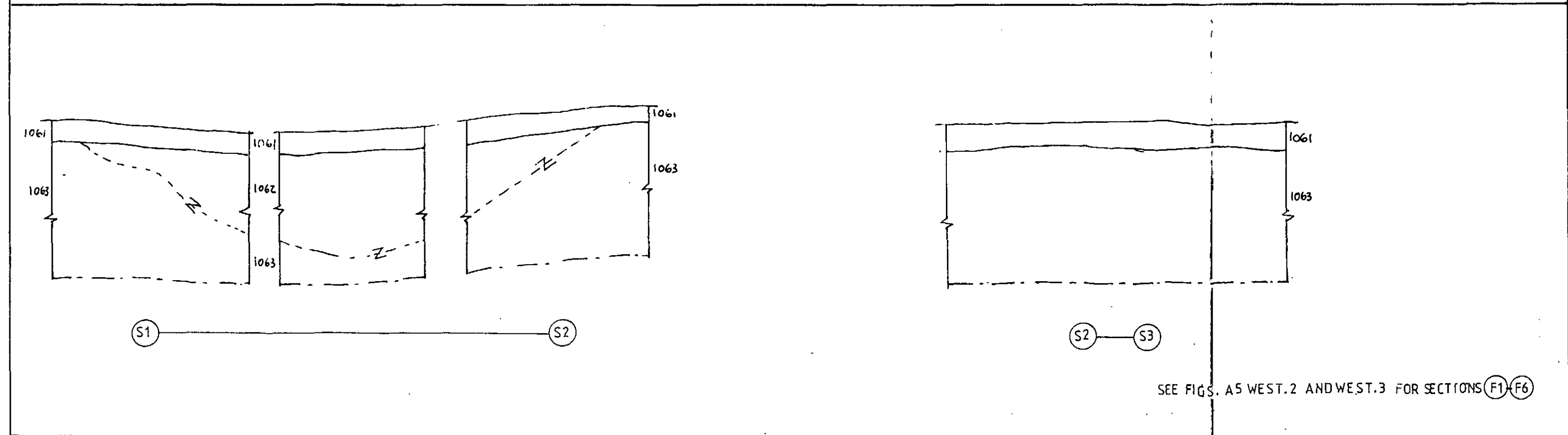
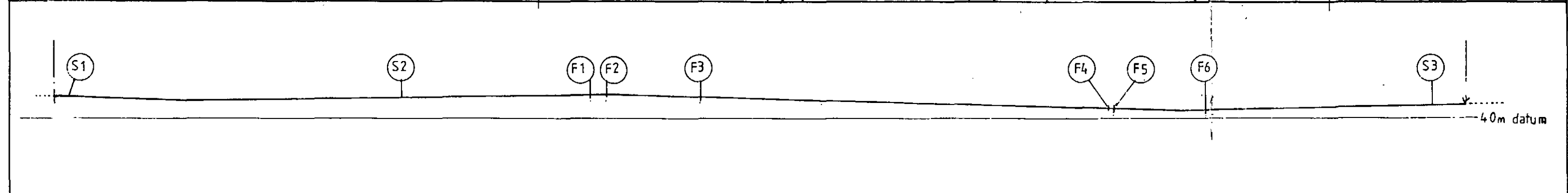
S2



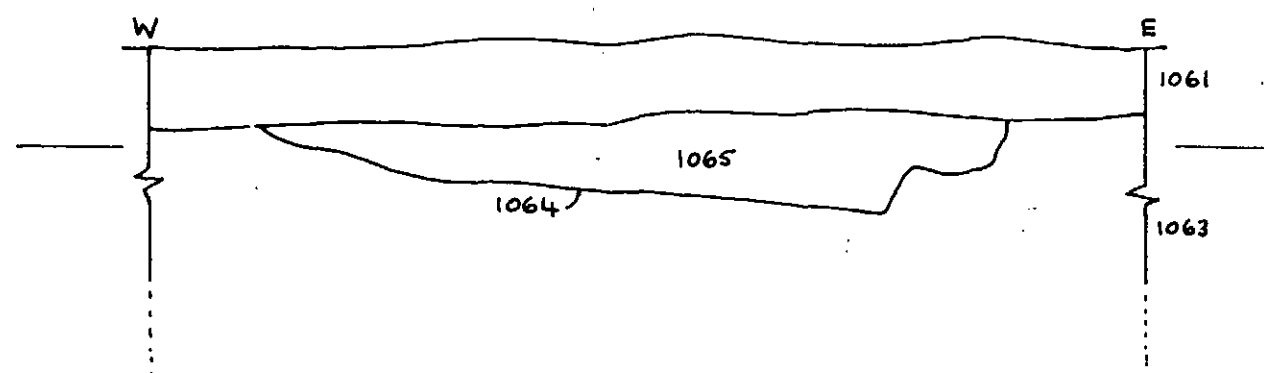
S3



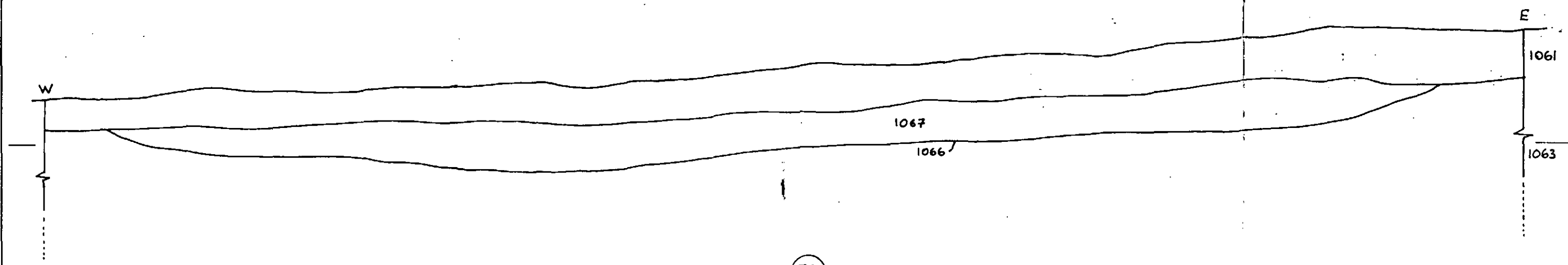
S4



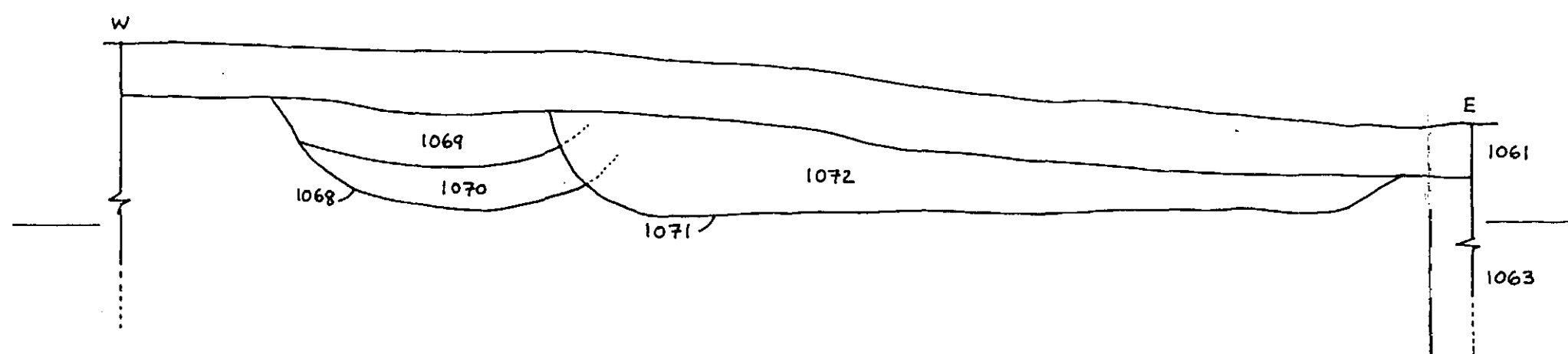
SEE FIGS. A5 WEST.2 AND WEST.3 FOR SECTIONS F1-F6



(F1)

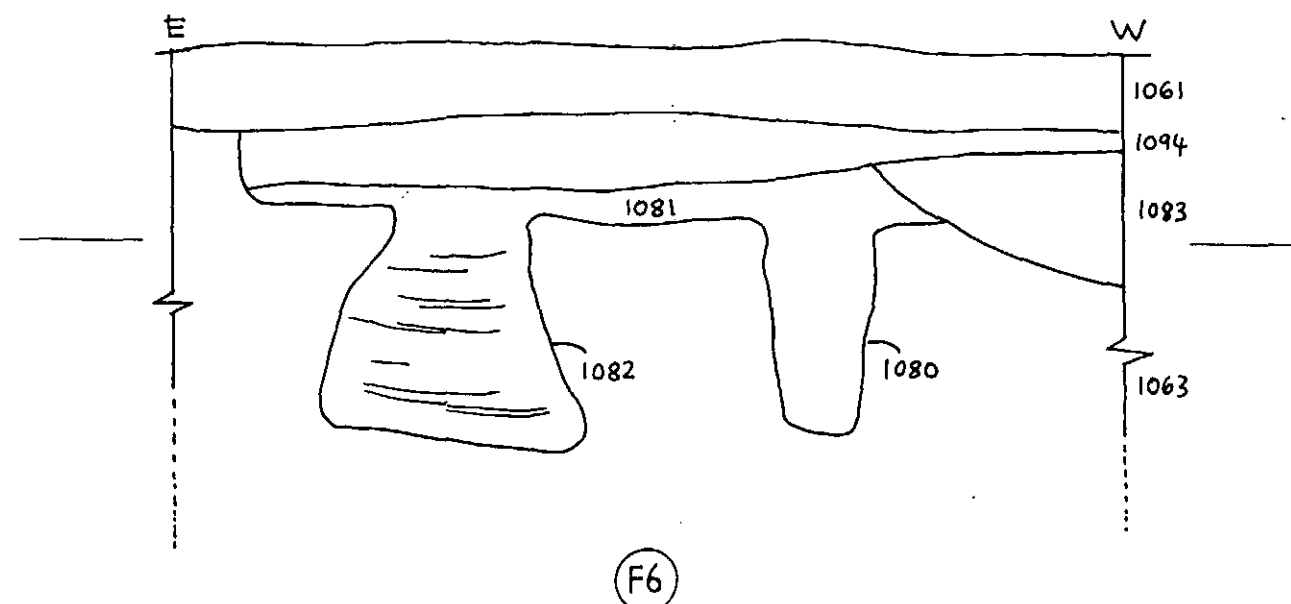
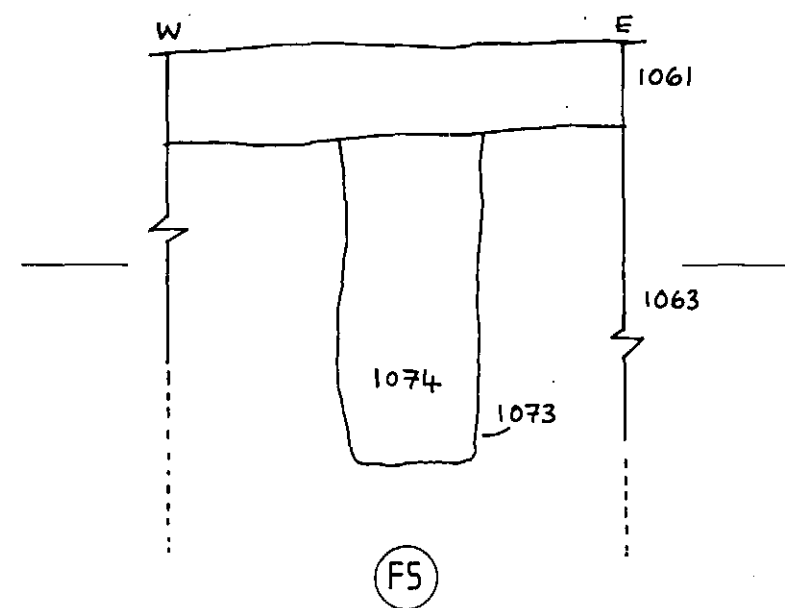
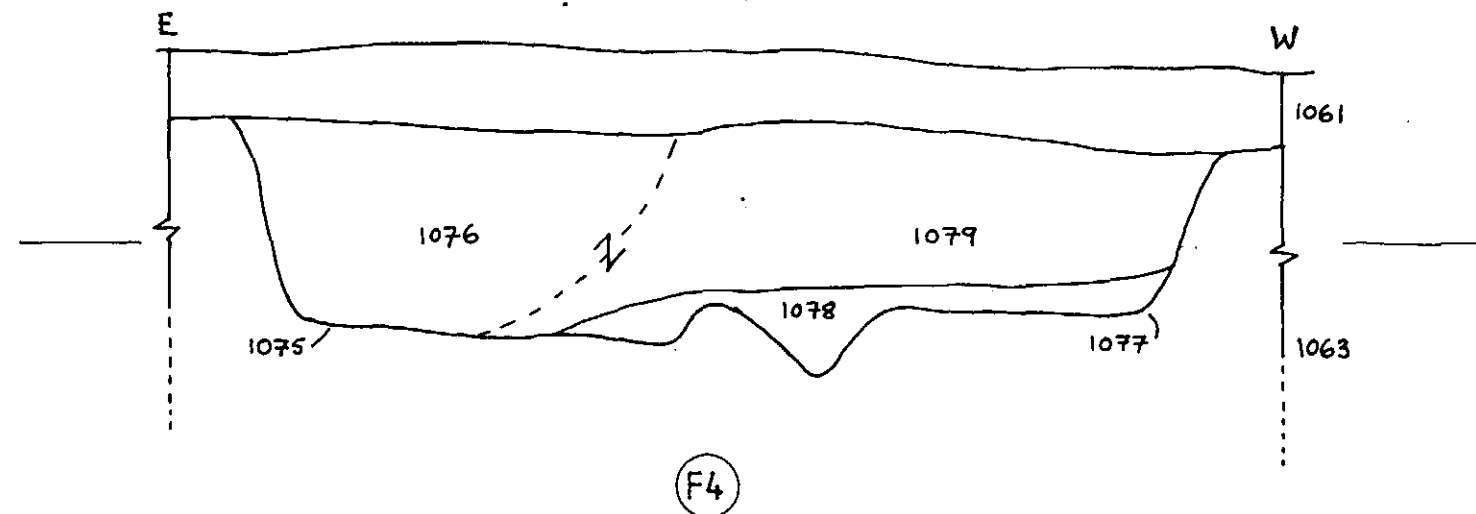


(F2)

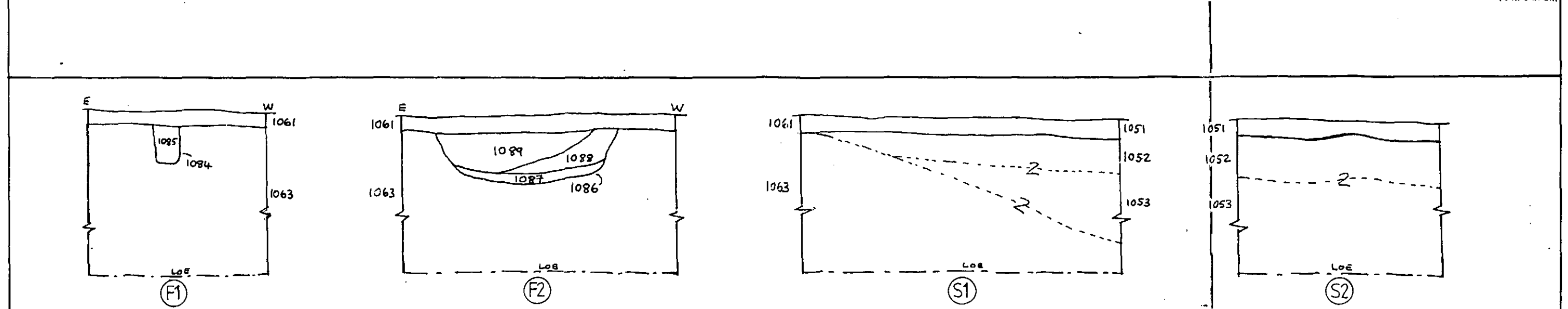
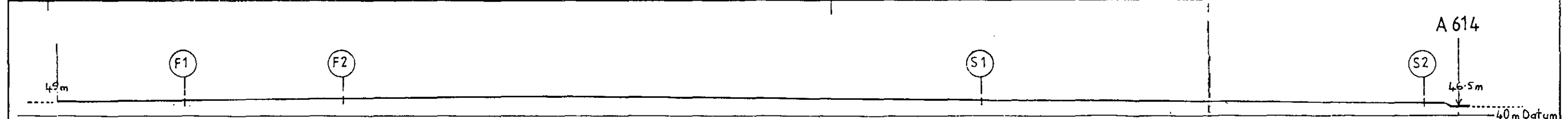
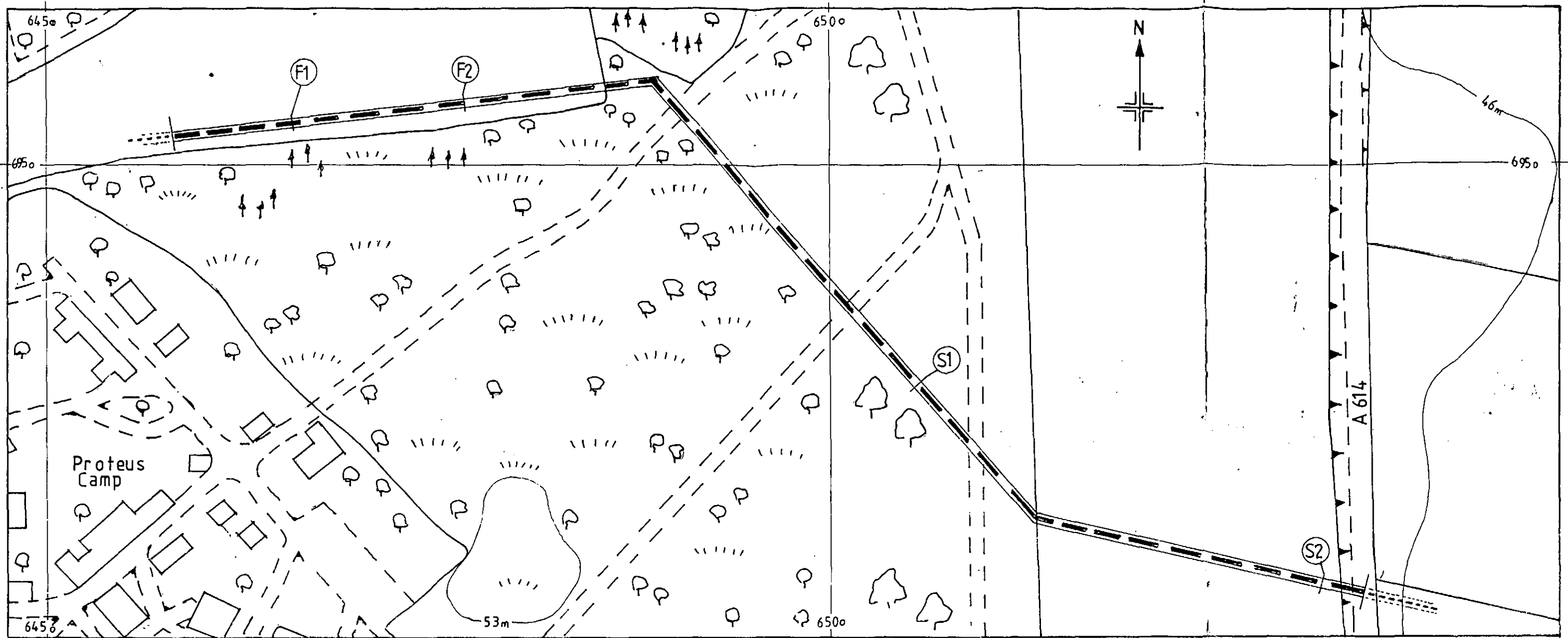


(F3)

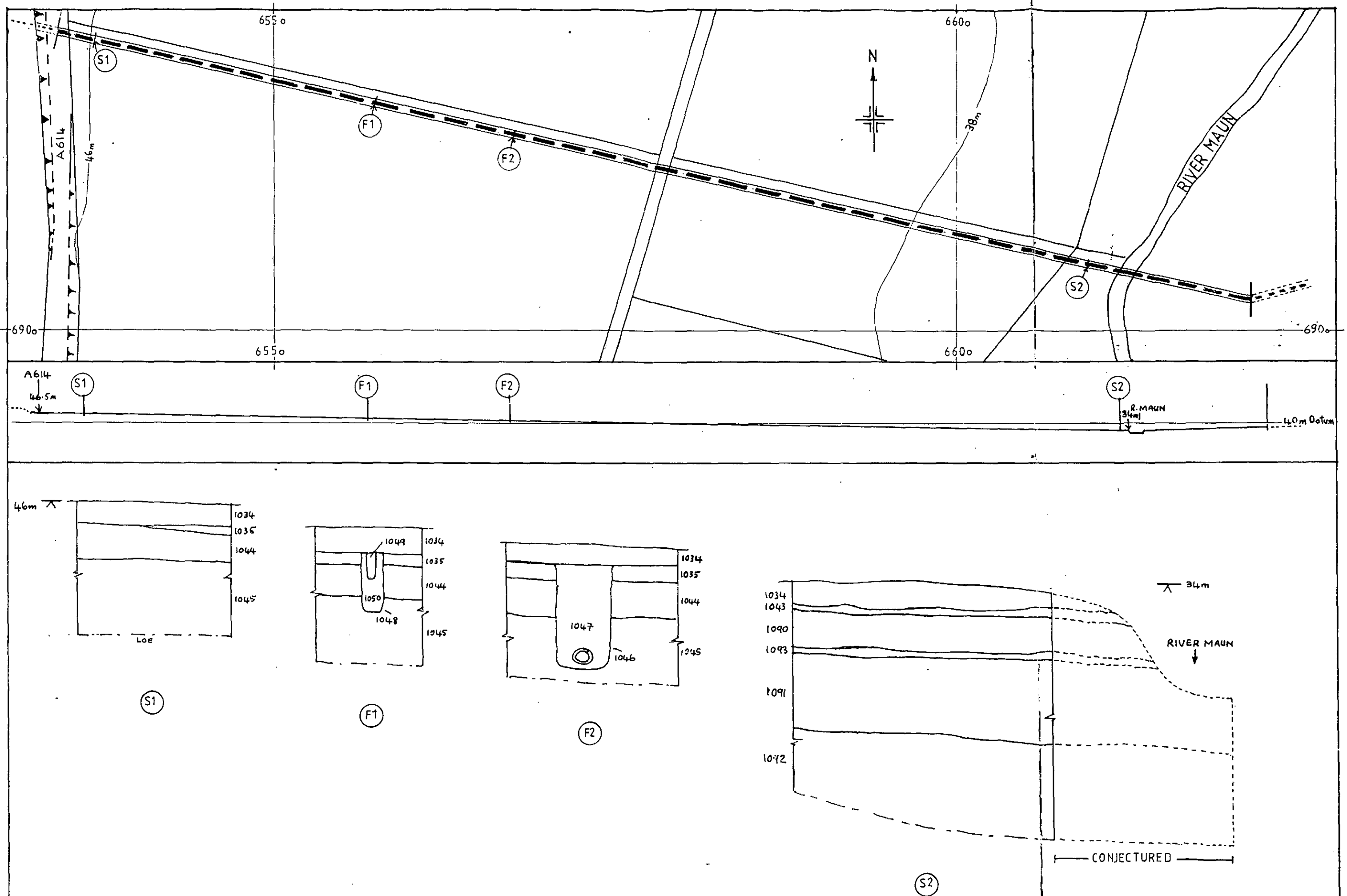
SCALE - 1:20



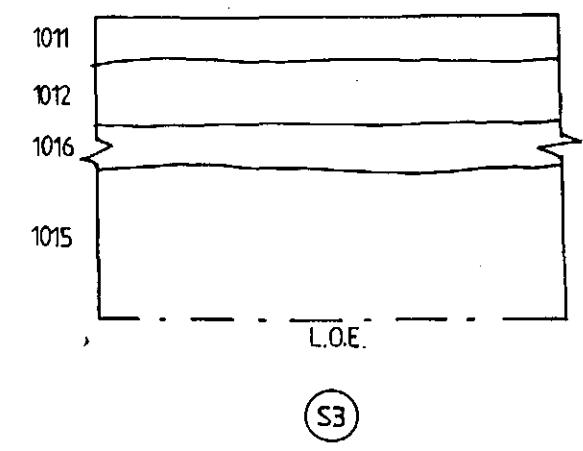
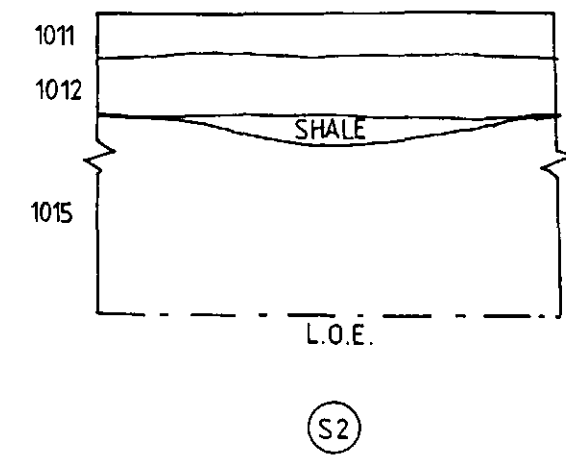
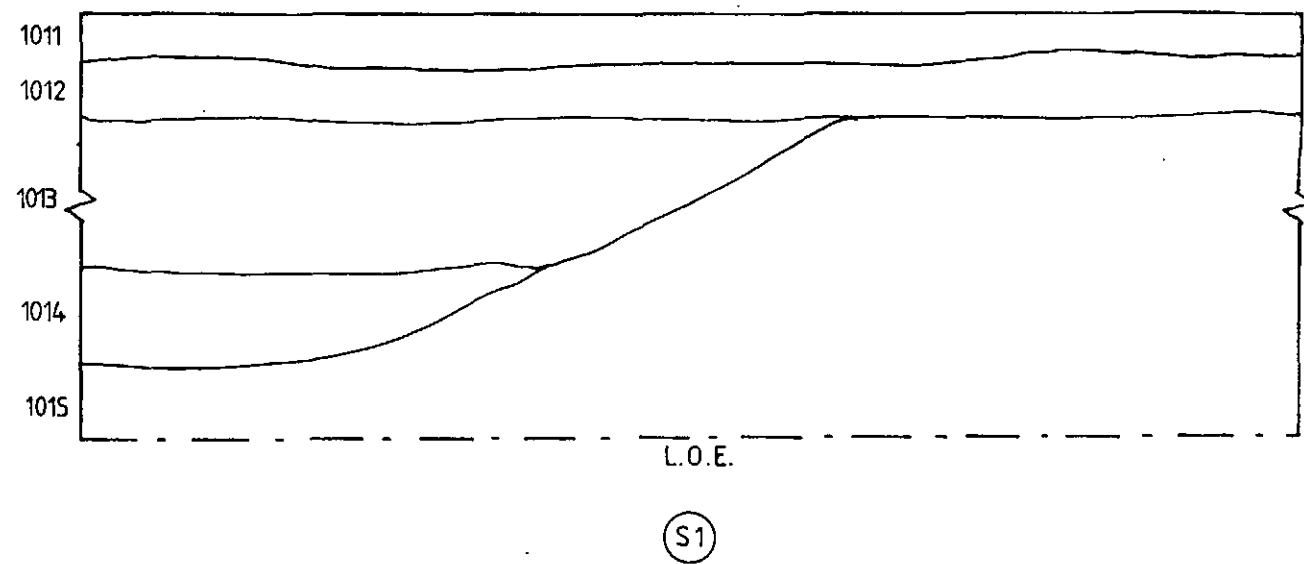
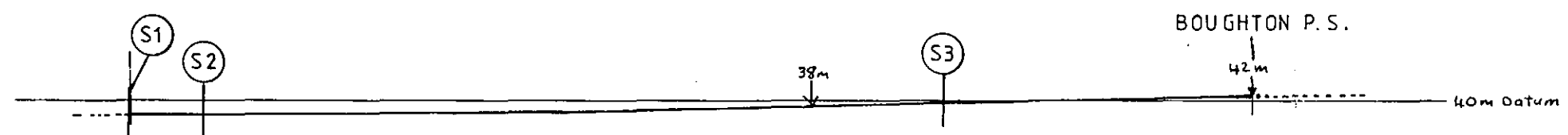
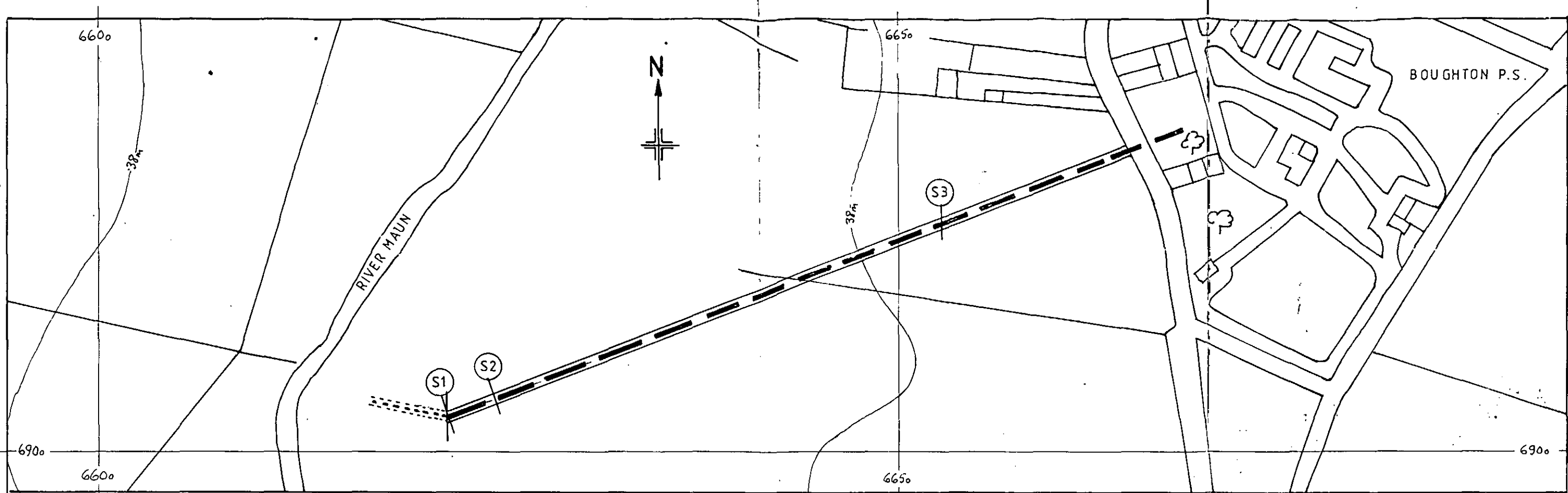
SCALE - 1:20



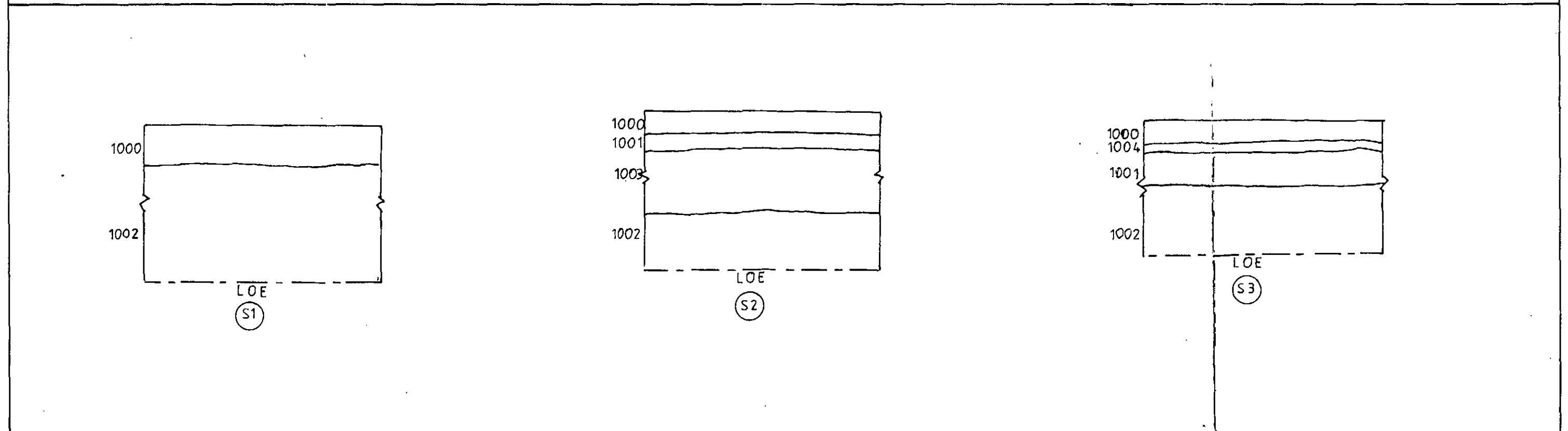
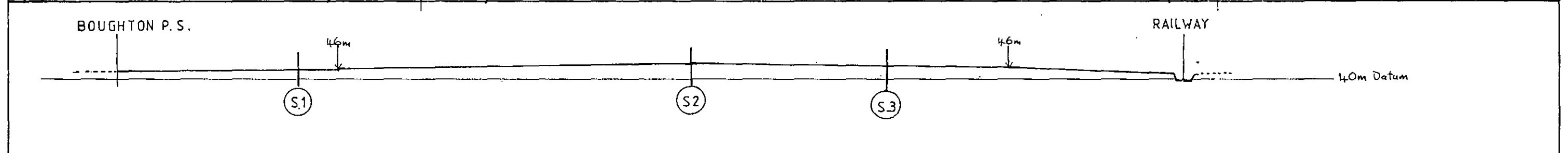
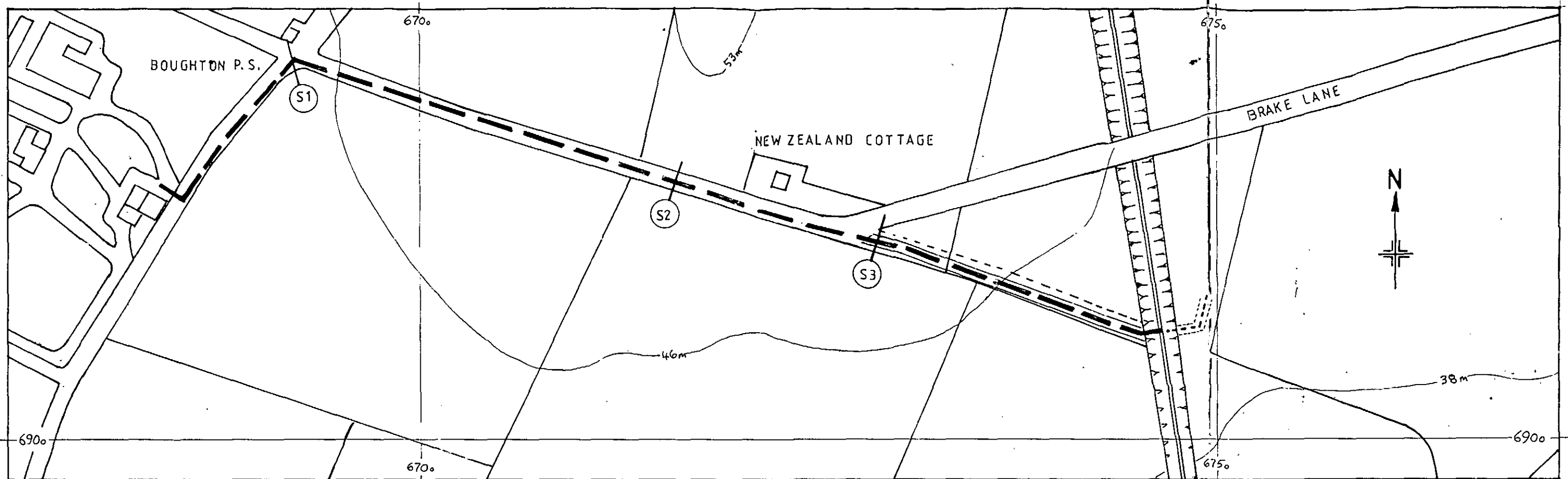
GWS Fig. A5 east

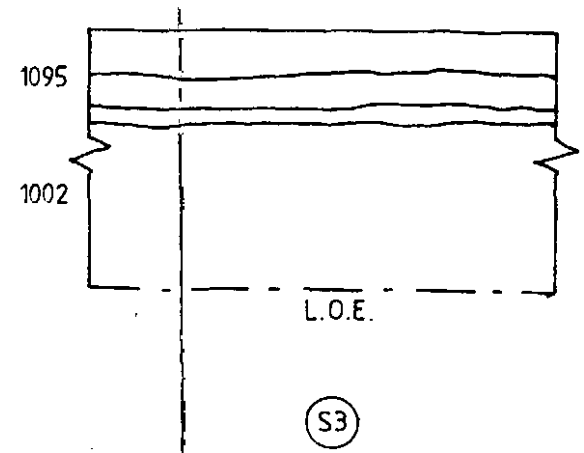
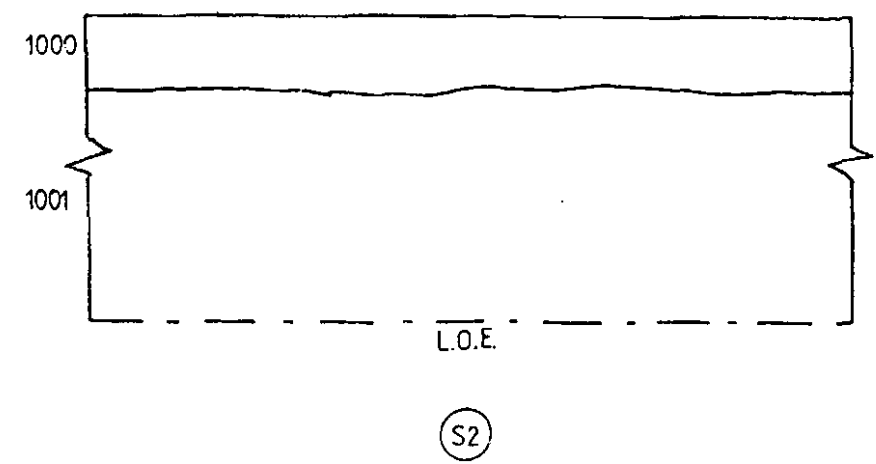
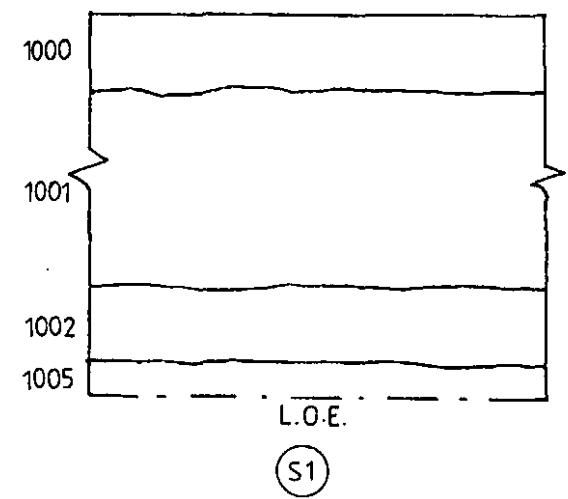
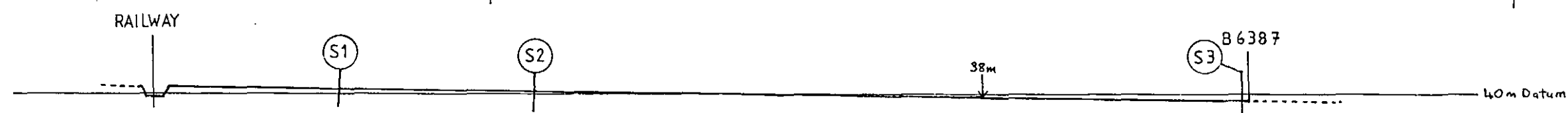
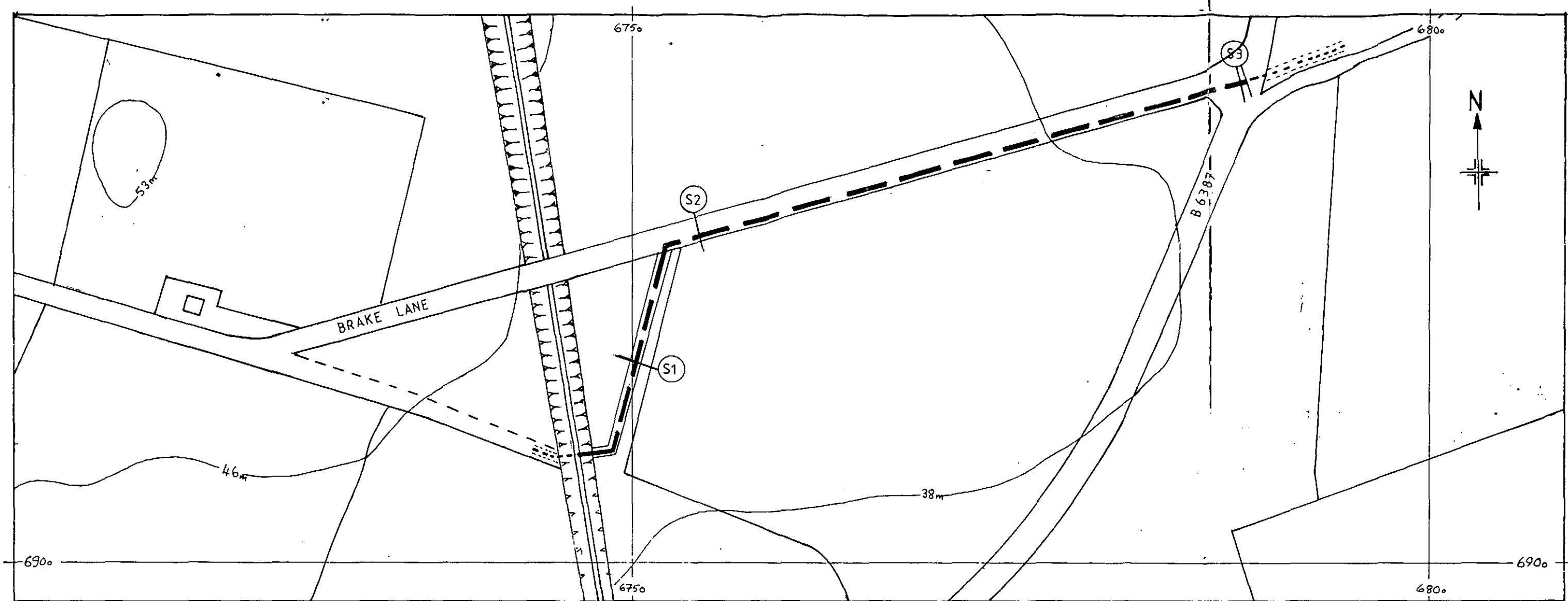


GWS Fig. A6a.

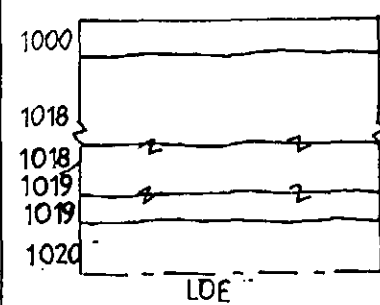
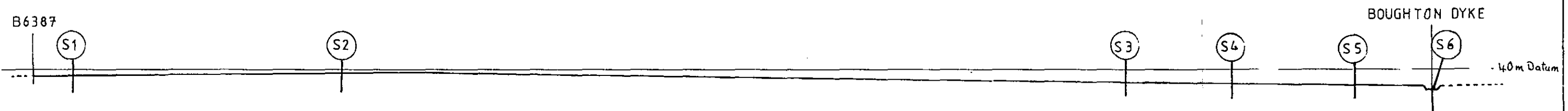
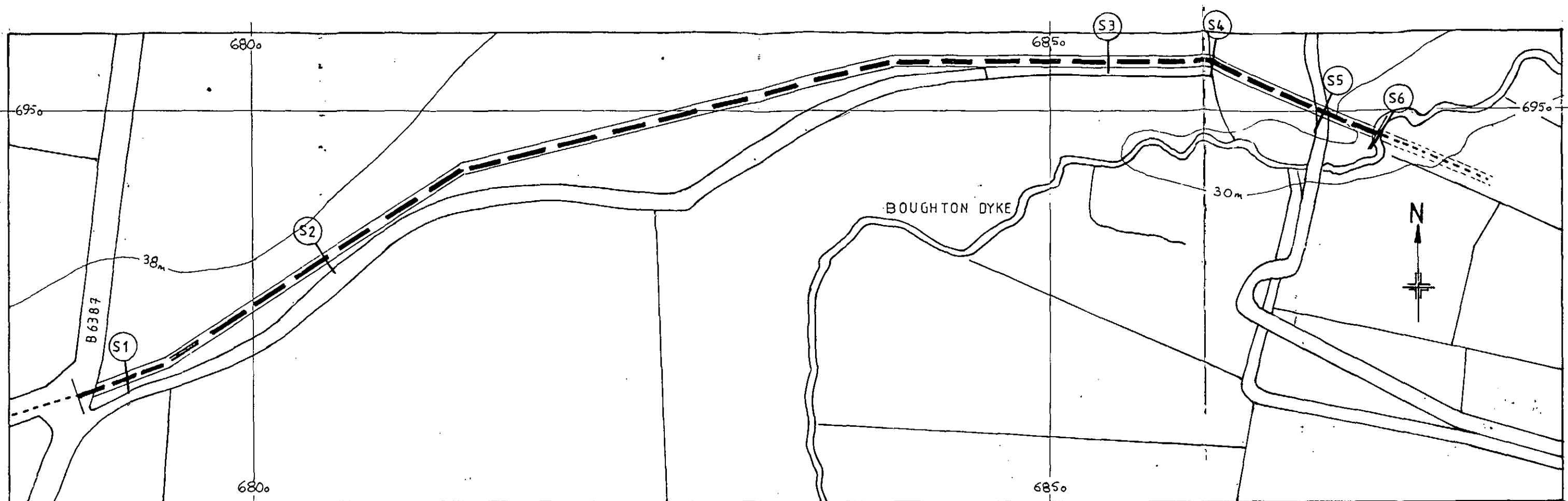


GWS Fig. A6b

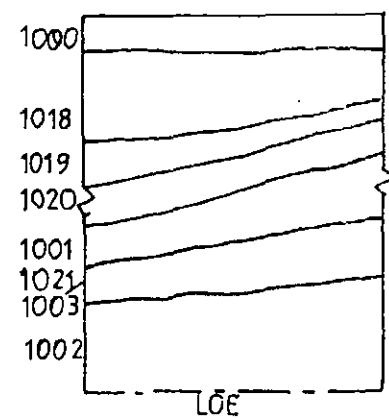




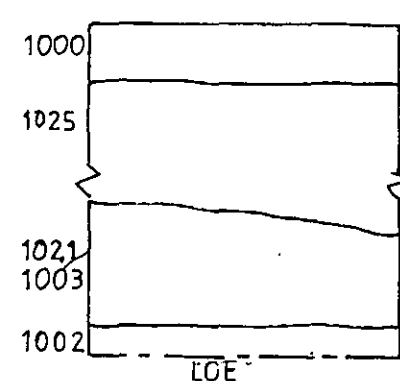
GWS Fig. A7 east.



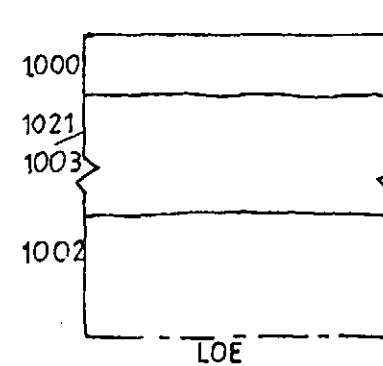
S1



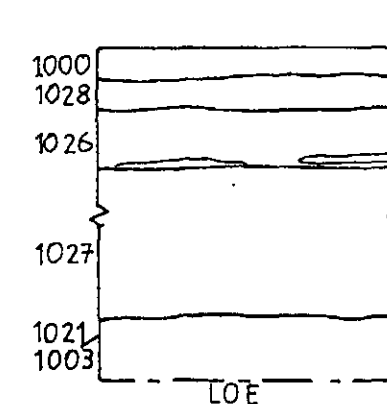
S2



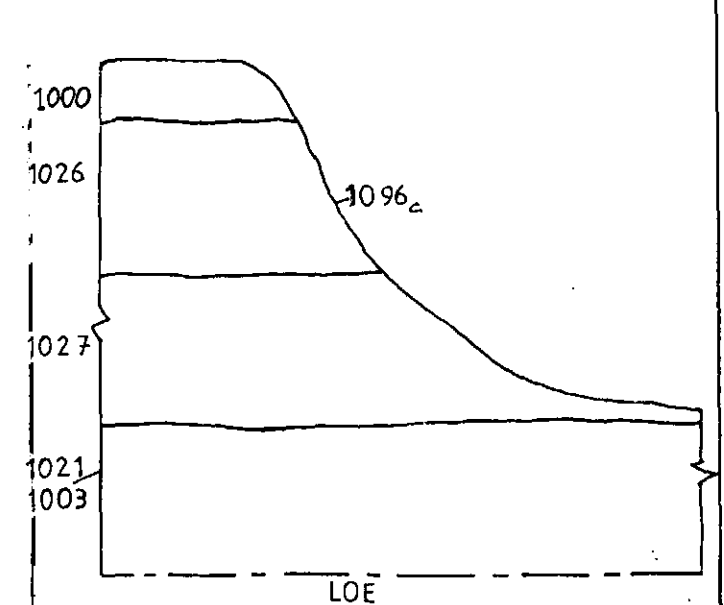
S3



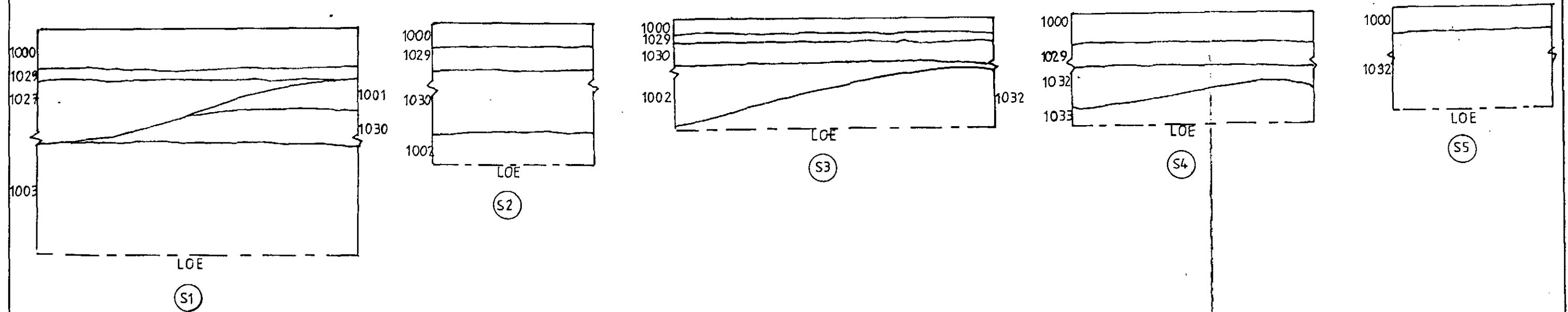
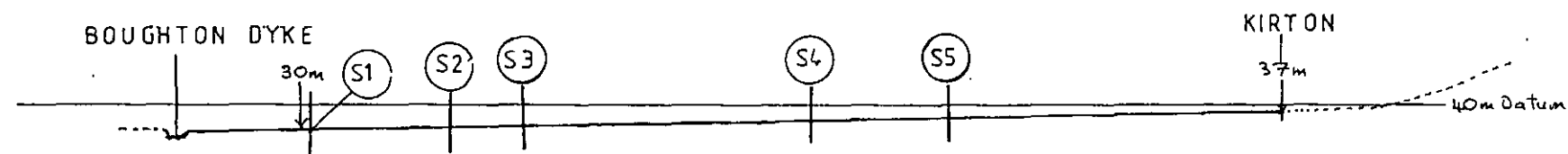
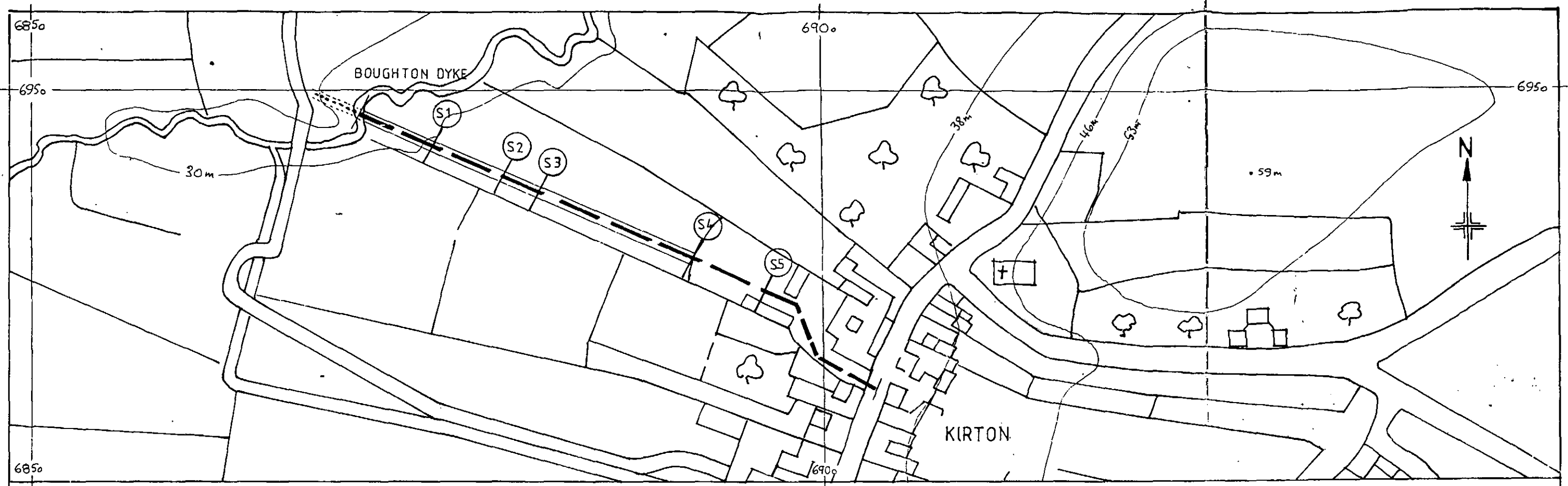
S4

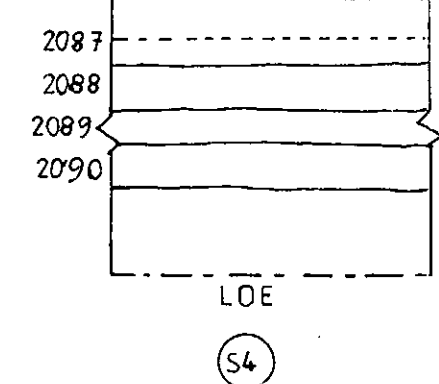
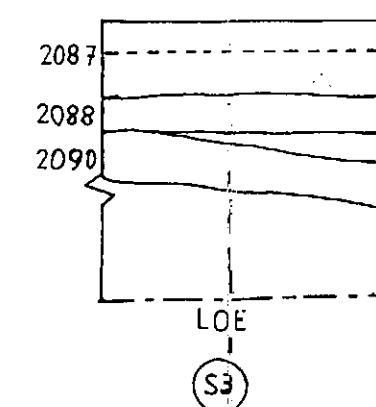
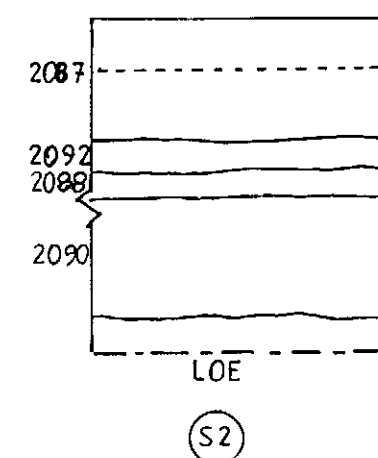
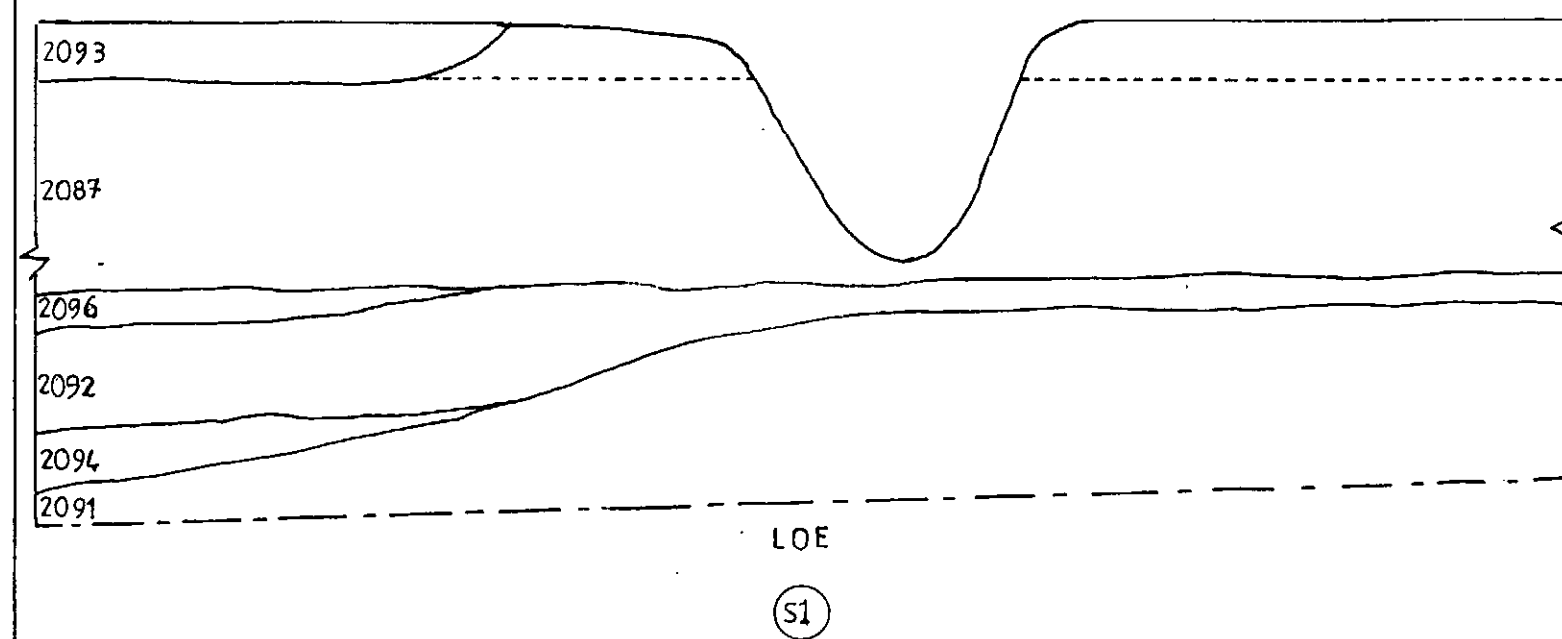
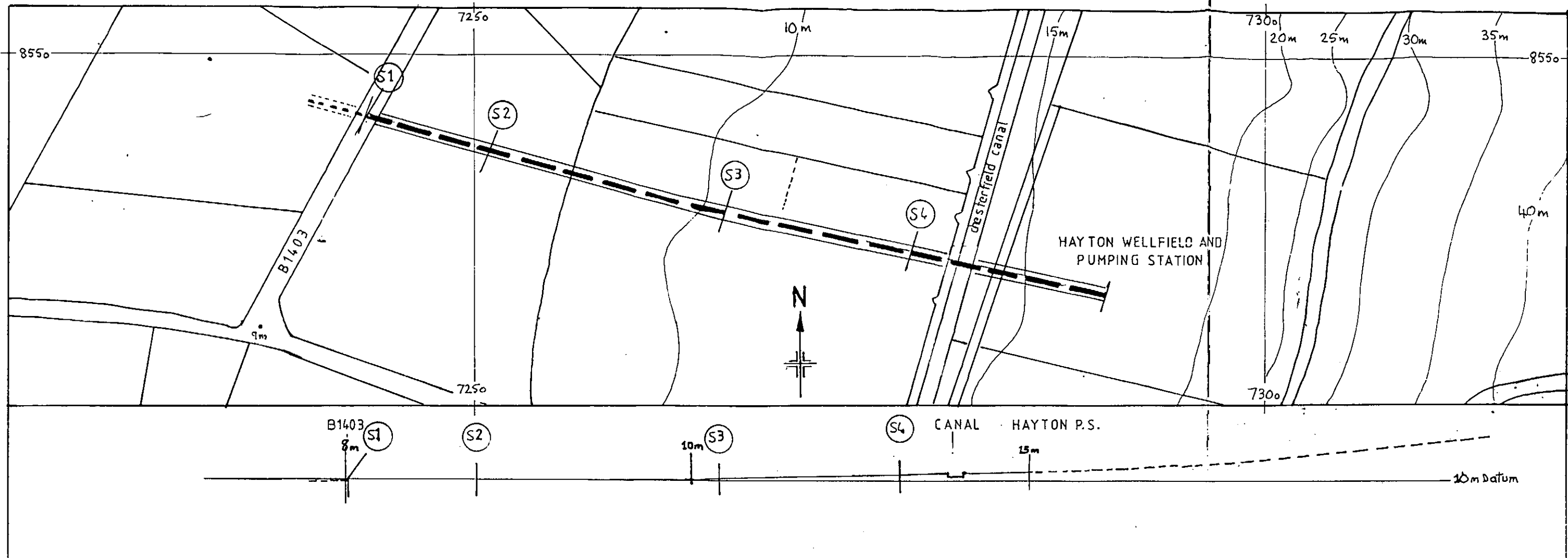


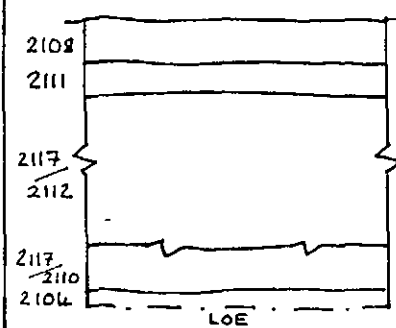
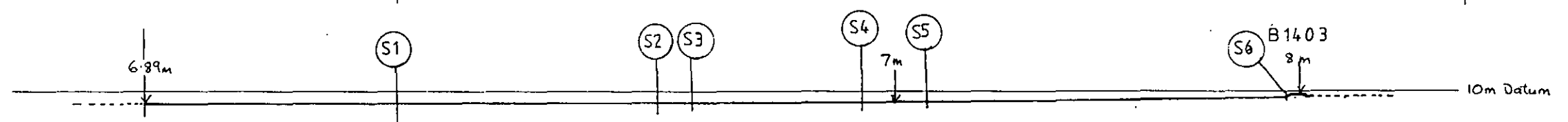
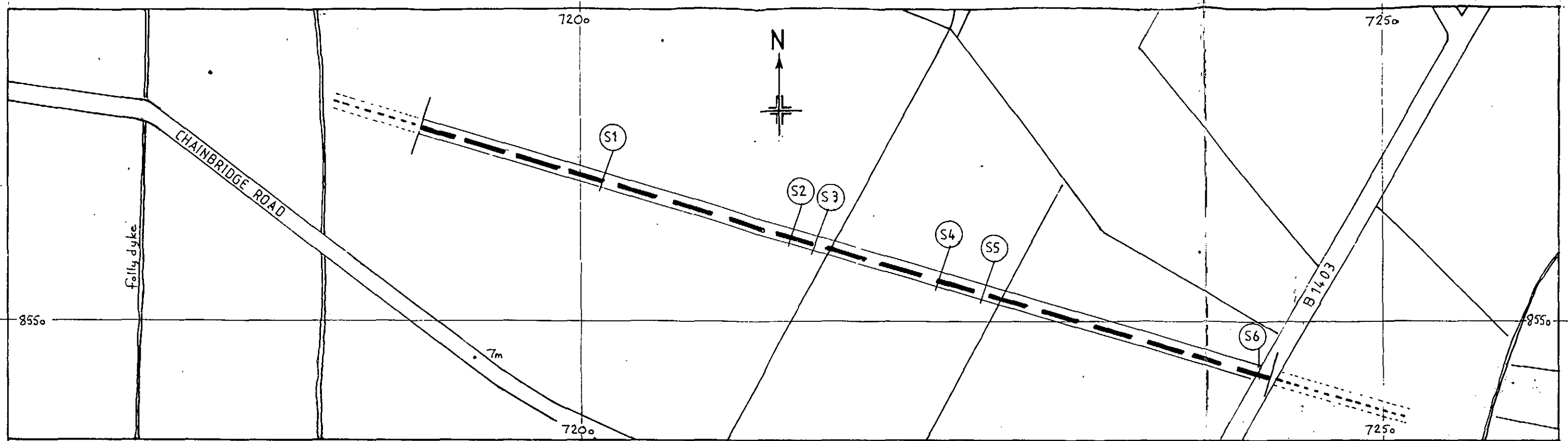
S5



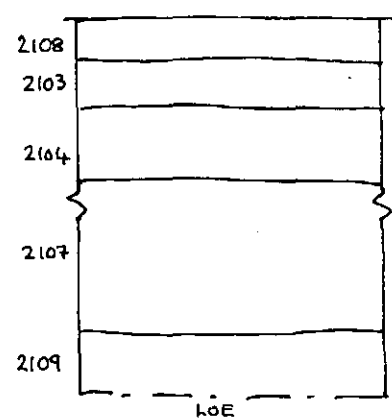
S6



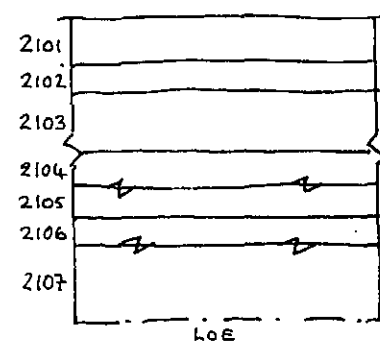




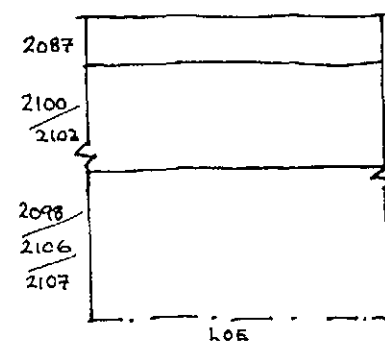
S1



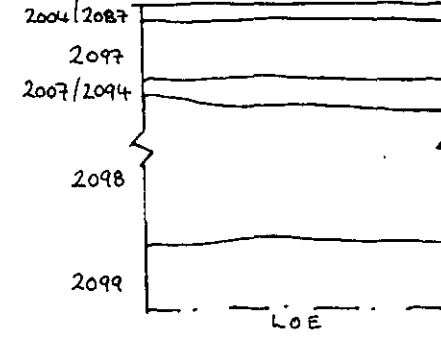
S2



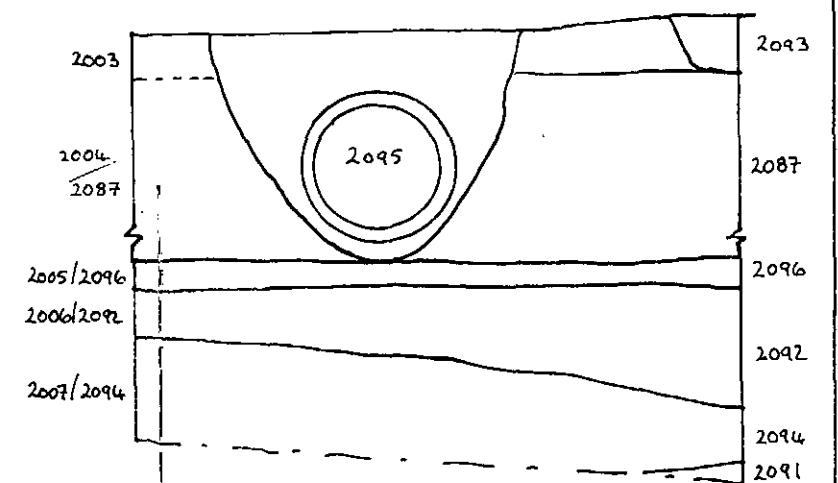
S3



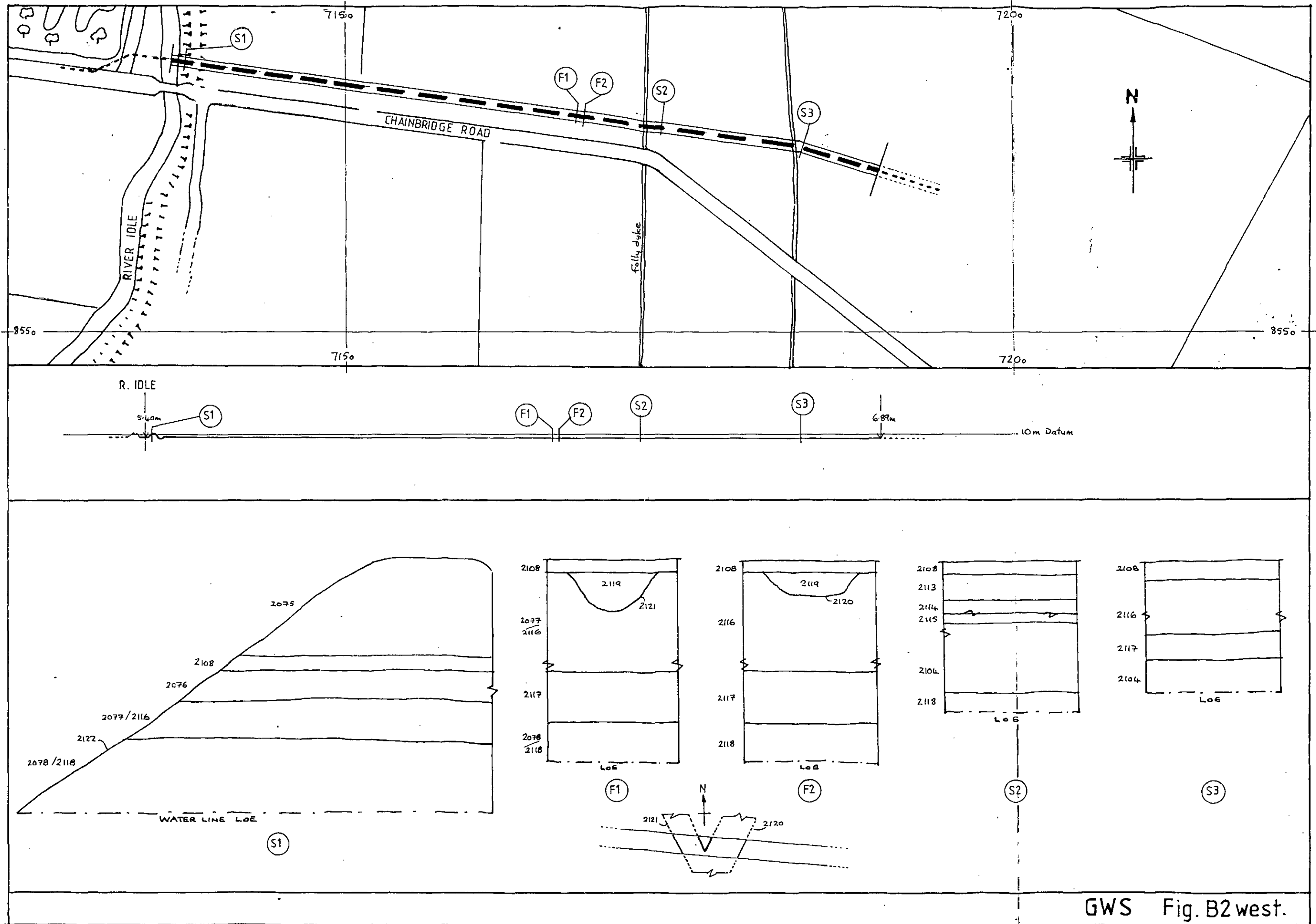
S4



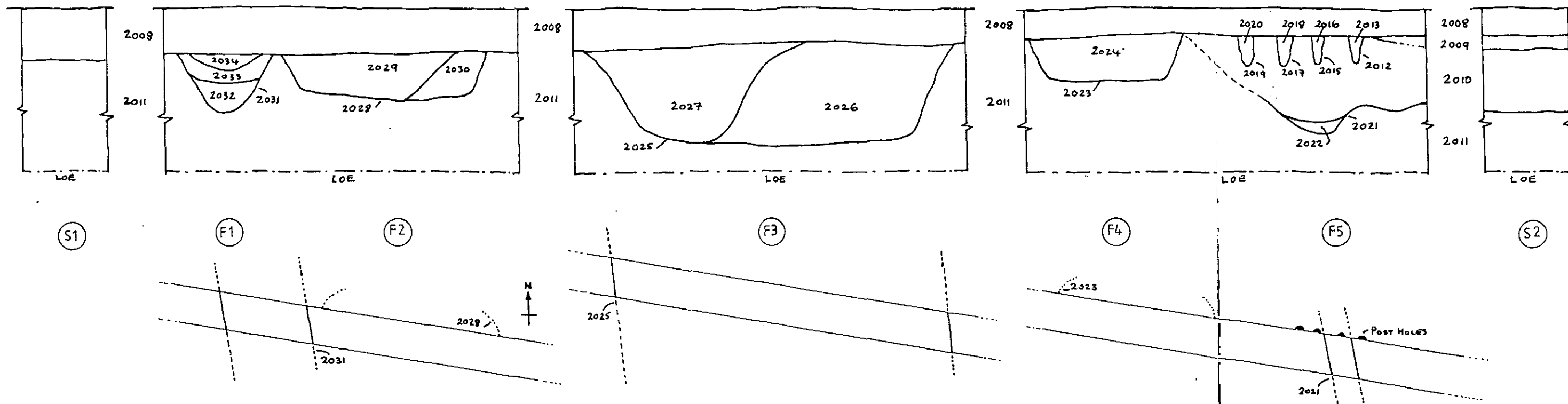
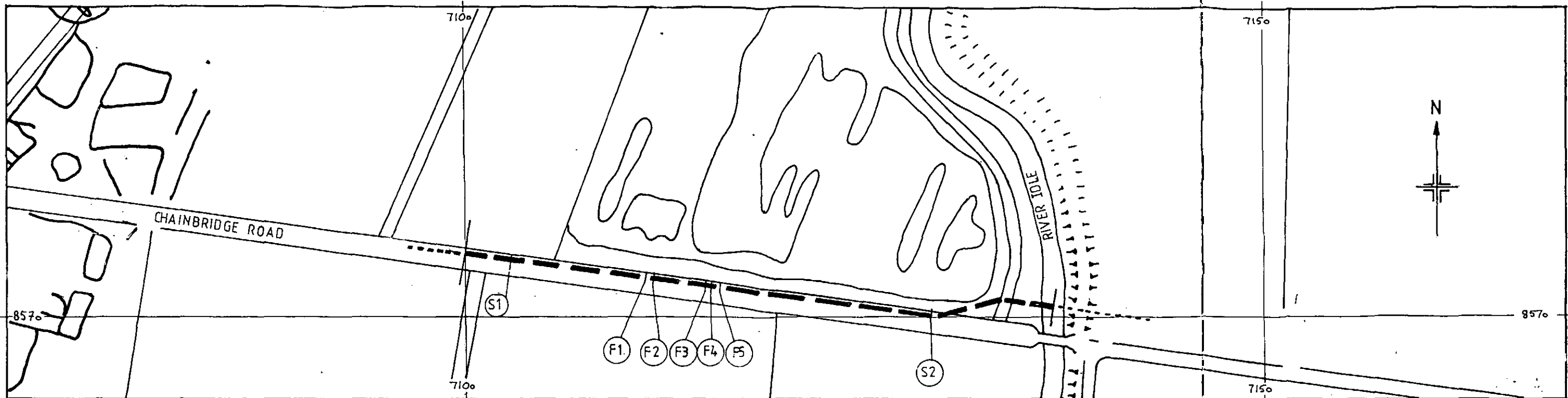
S5

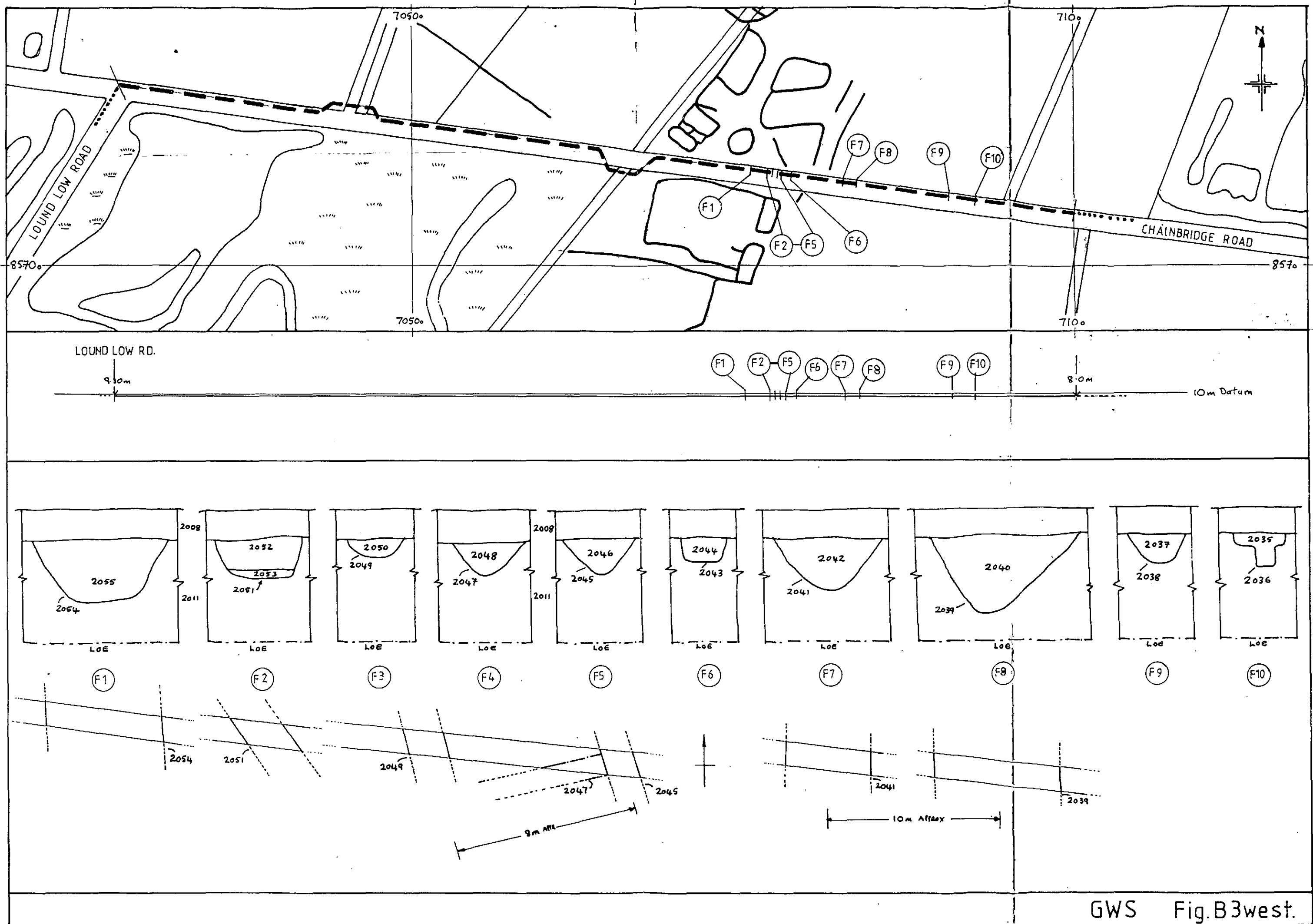


S6

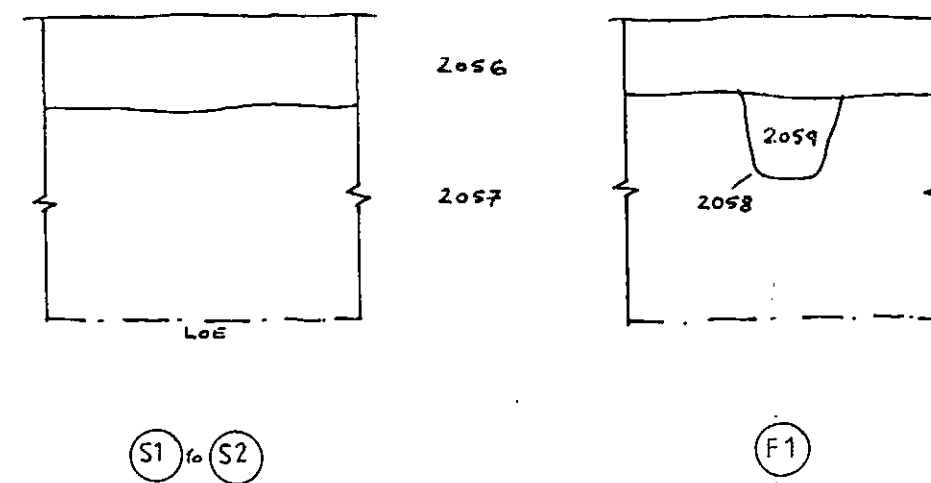
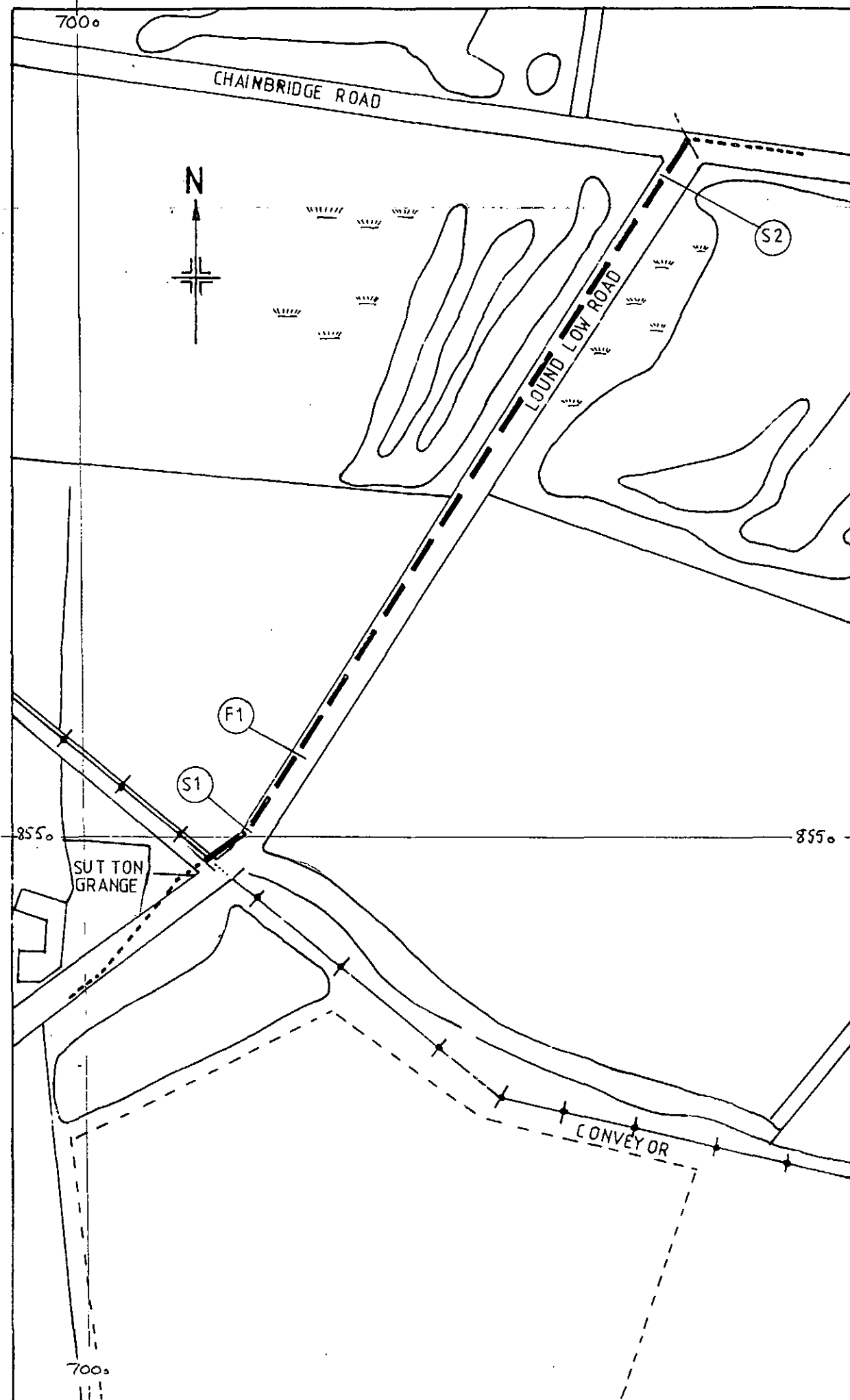


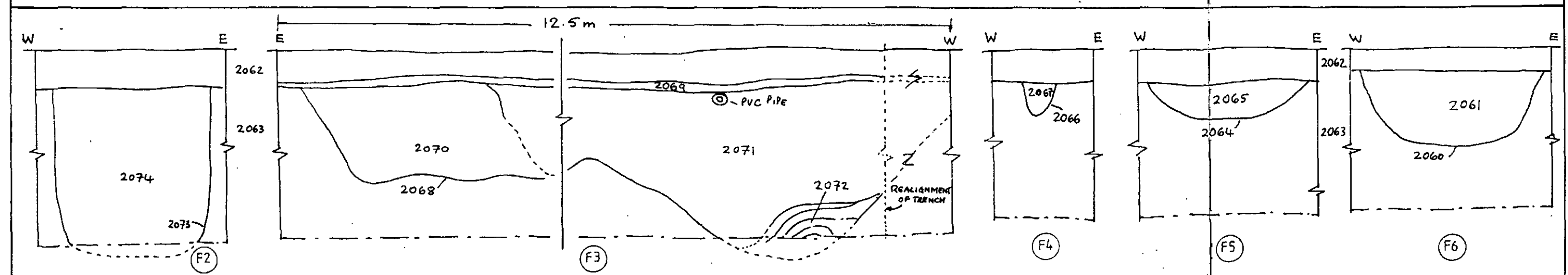
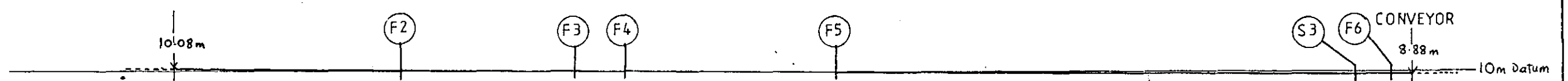
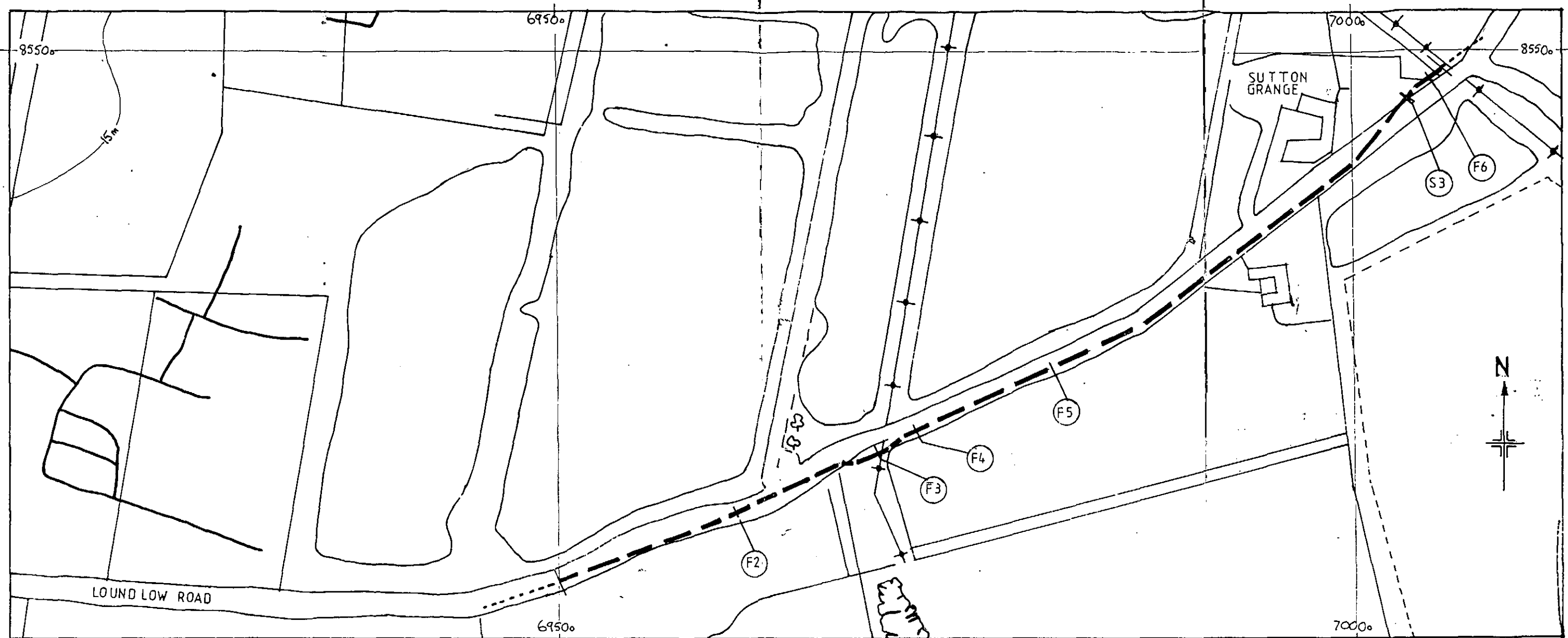
GWS Fig. B2 west.



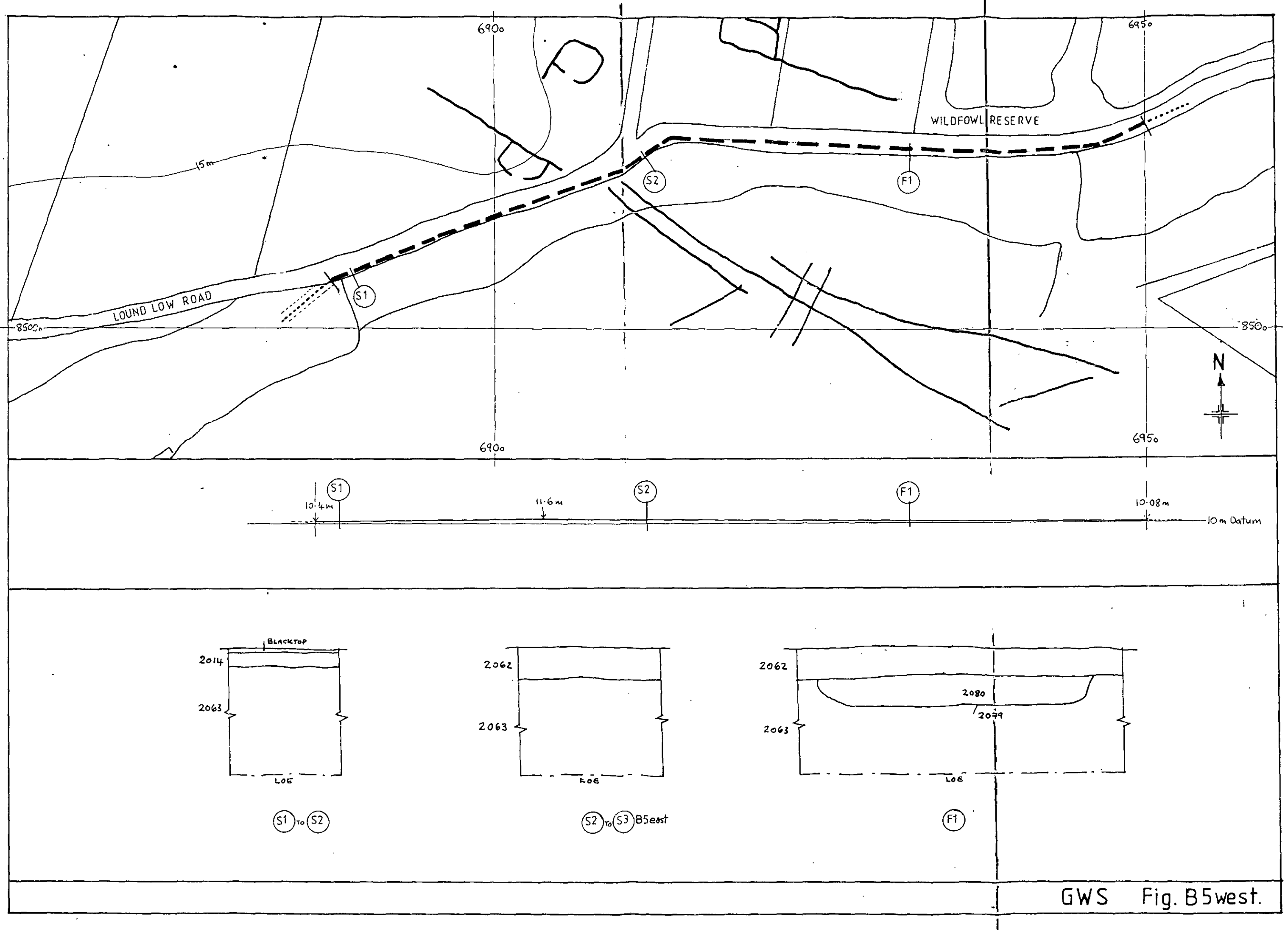


GWS Fig.B3west.

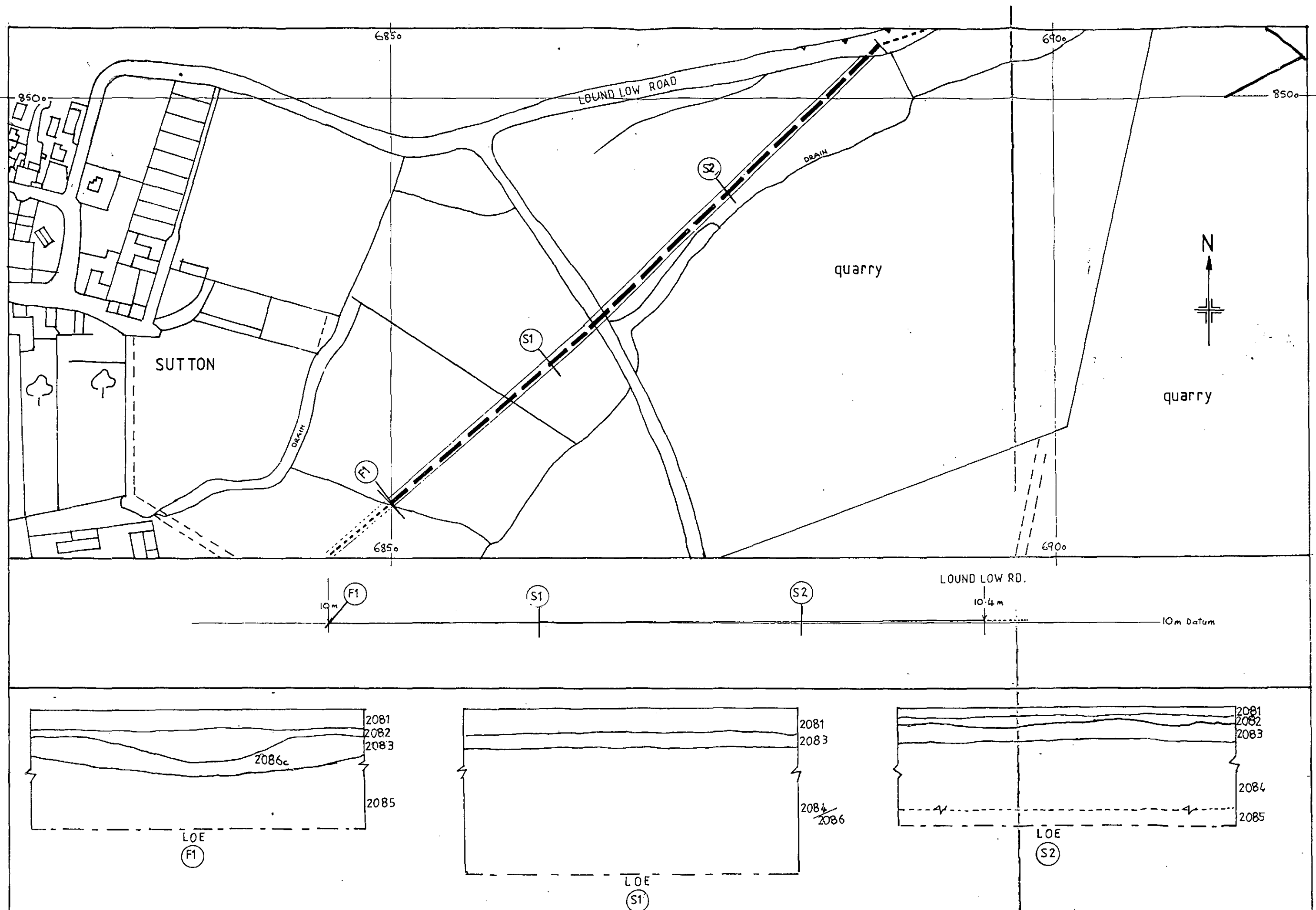




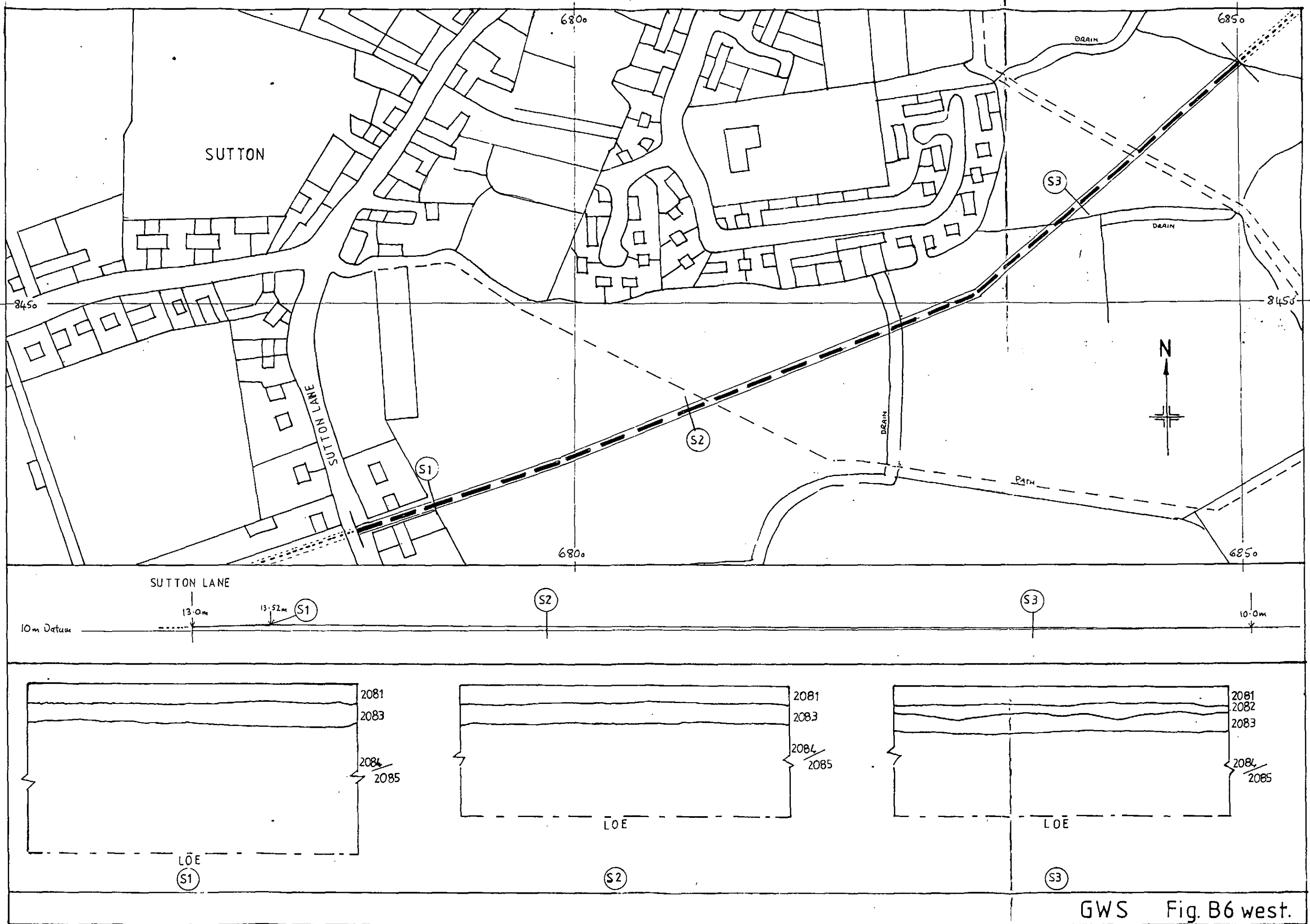
GWS Fig. B5east.



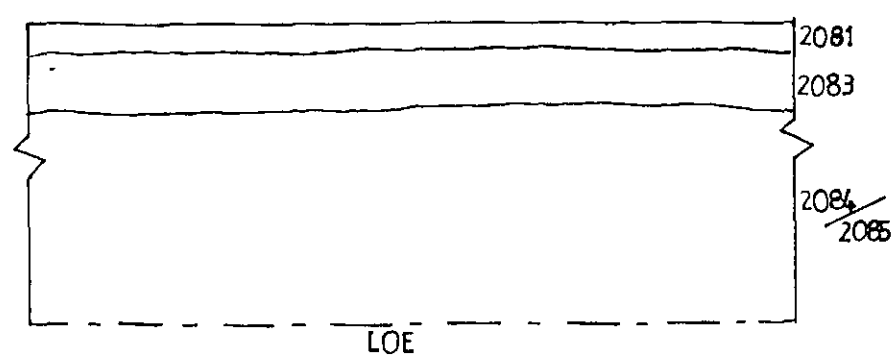
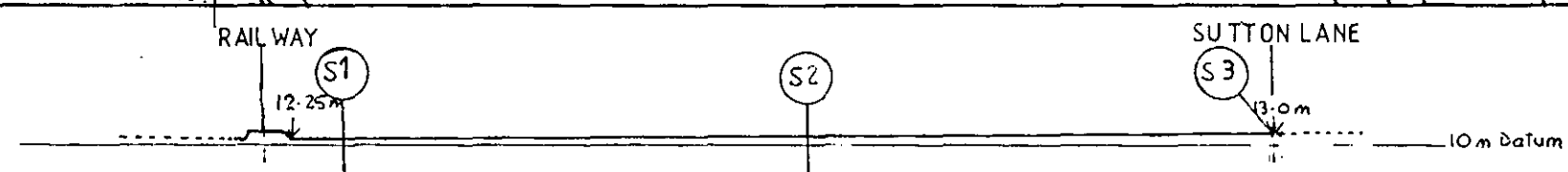
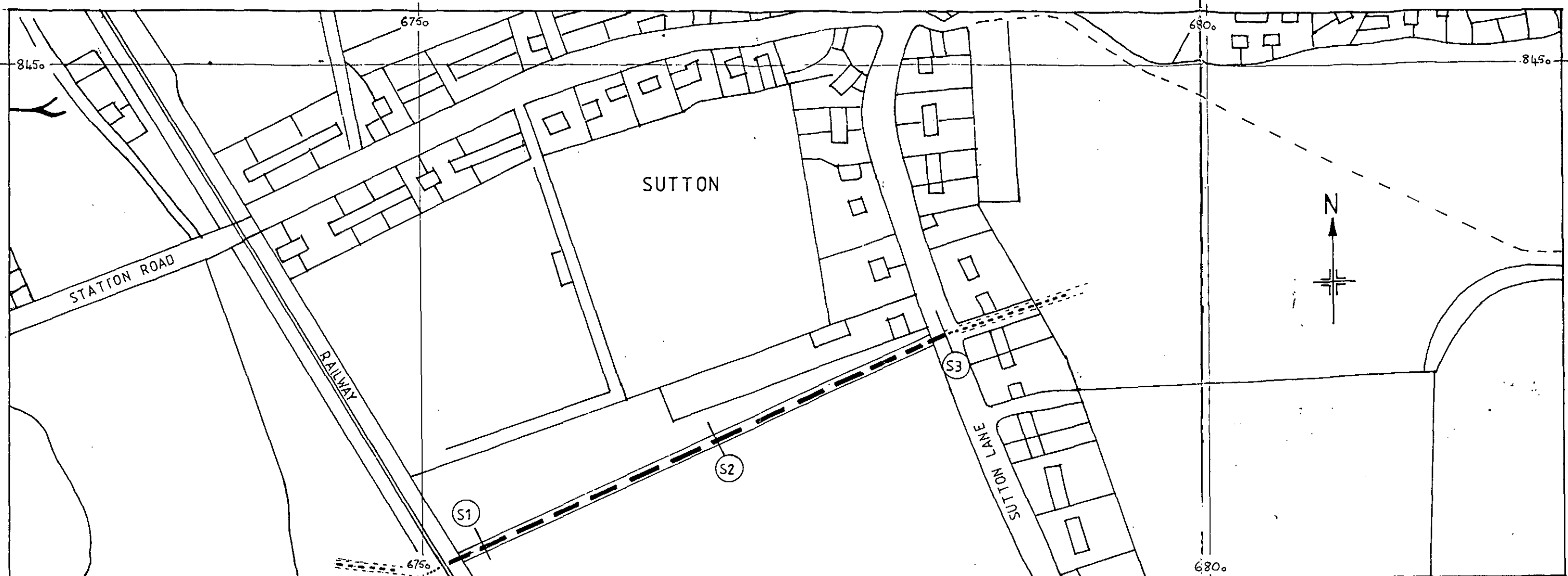
GWS Fig. B5west.



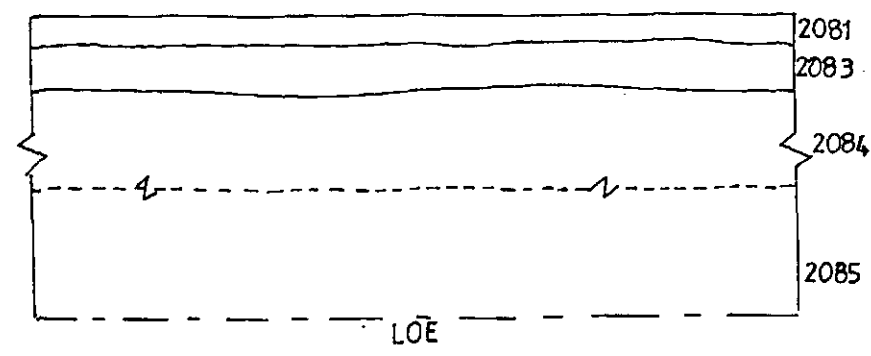
GWS Fig. B6 east.



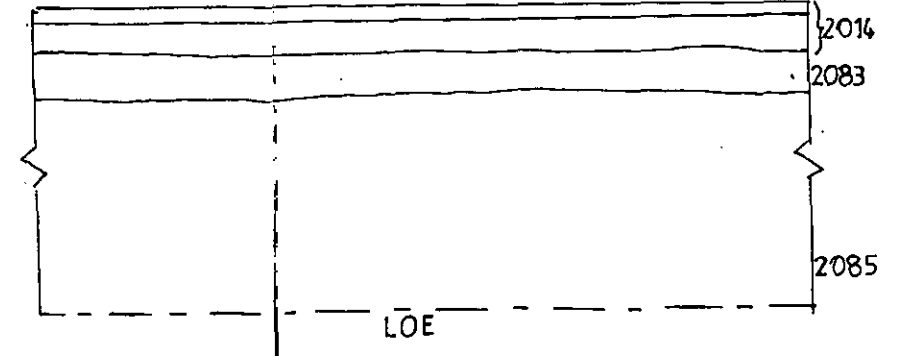
GWS Fig. B6 west.



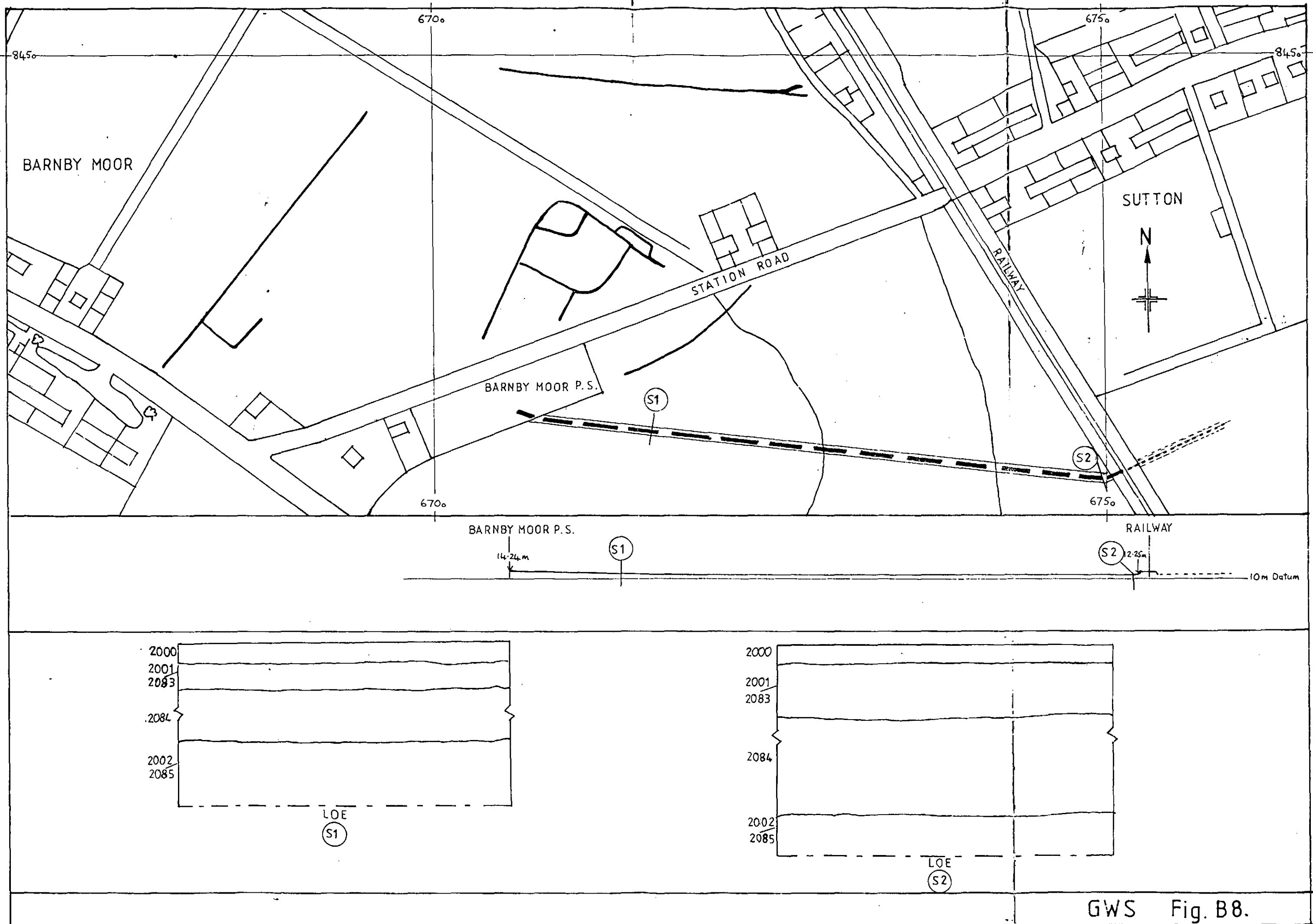
S1



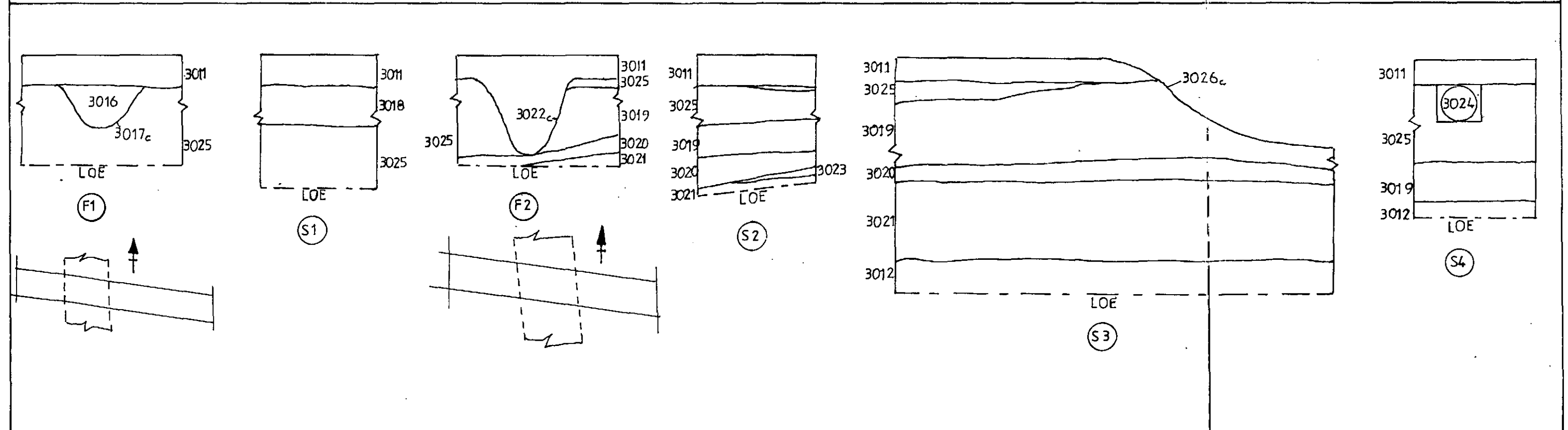
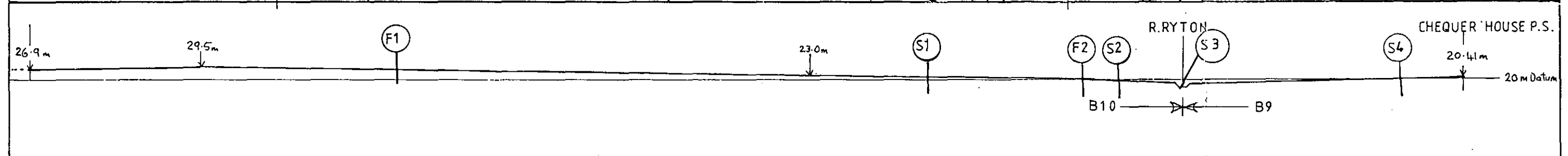
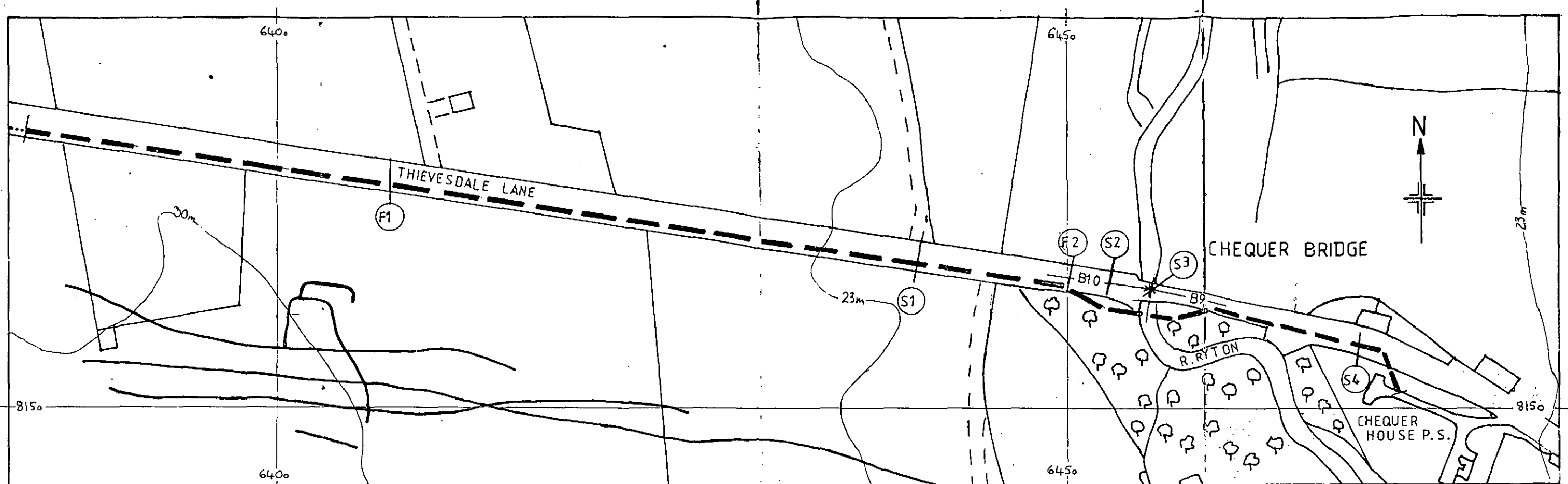
S2



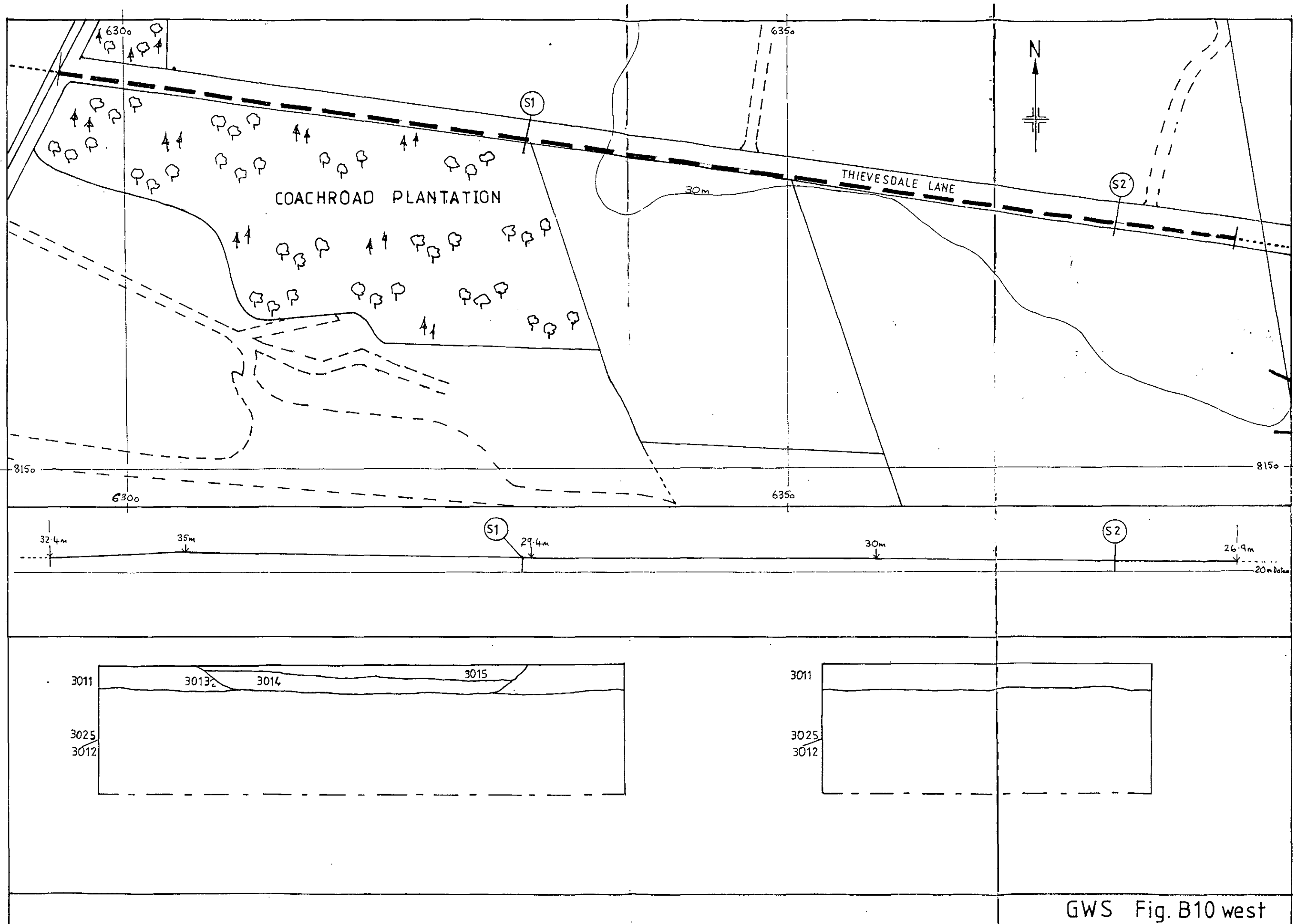
S3

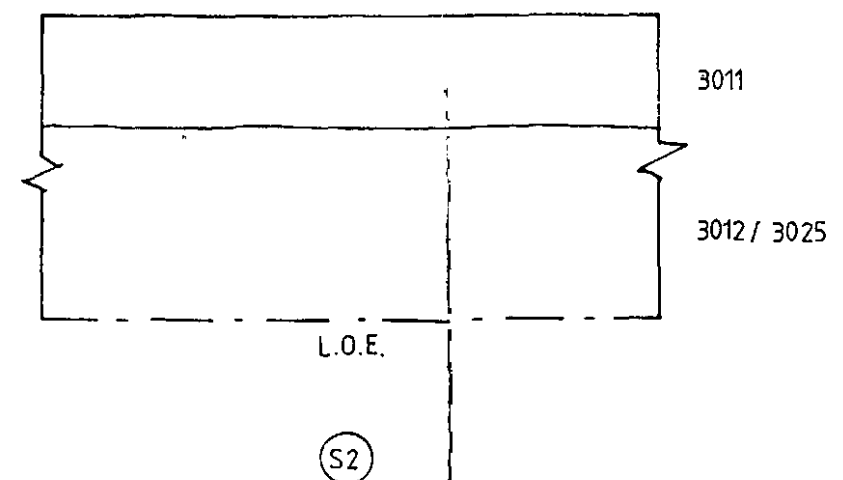
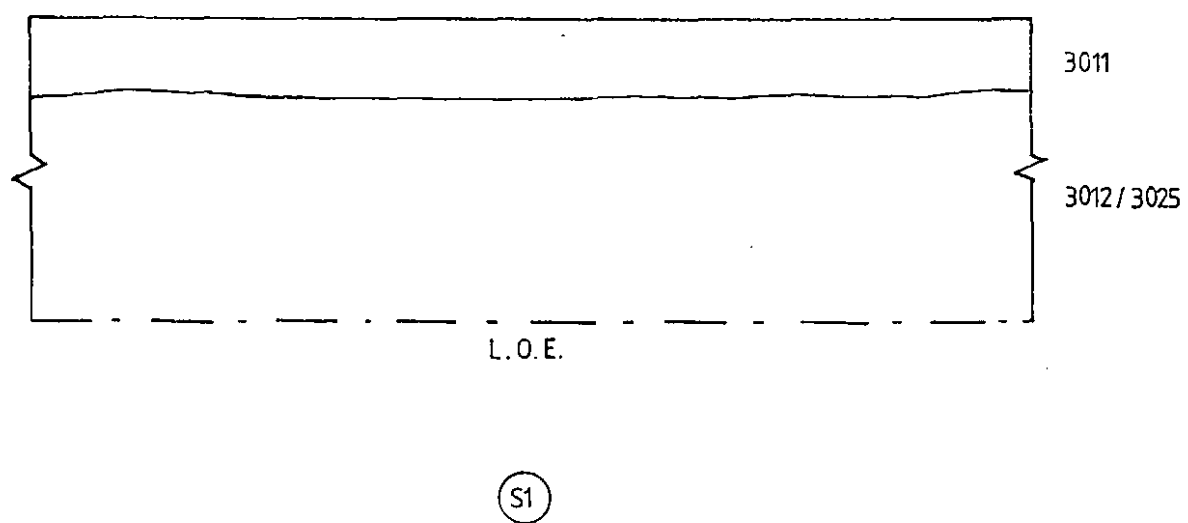
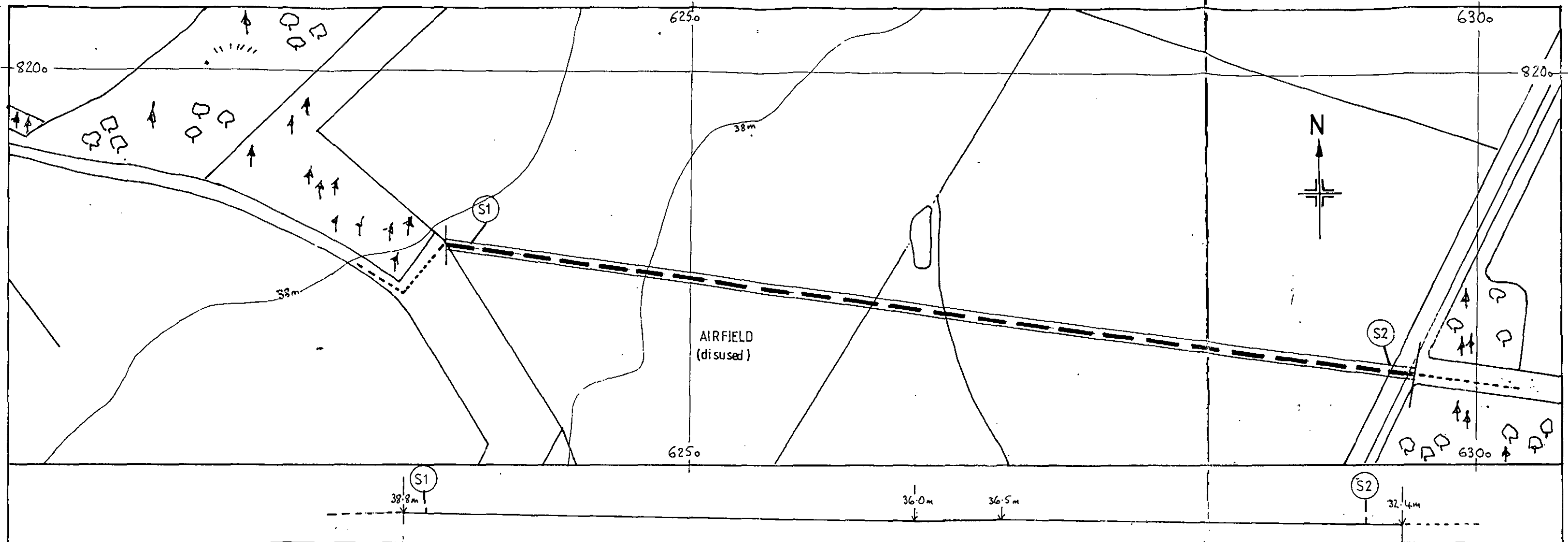


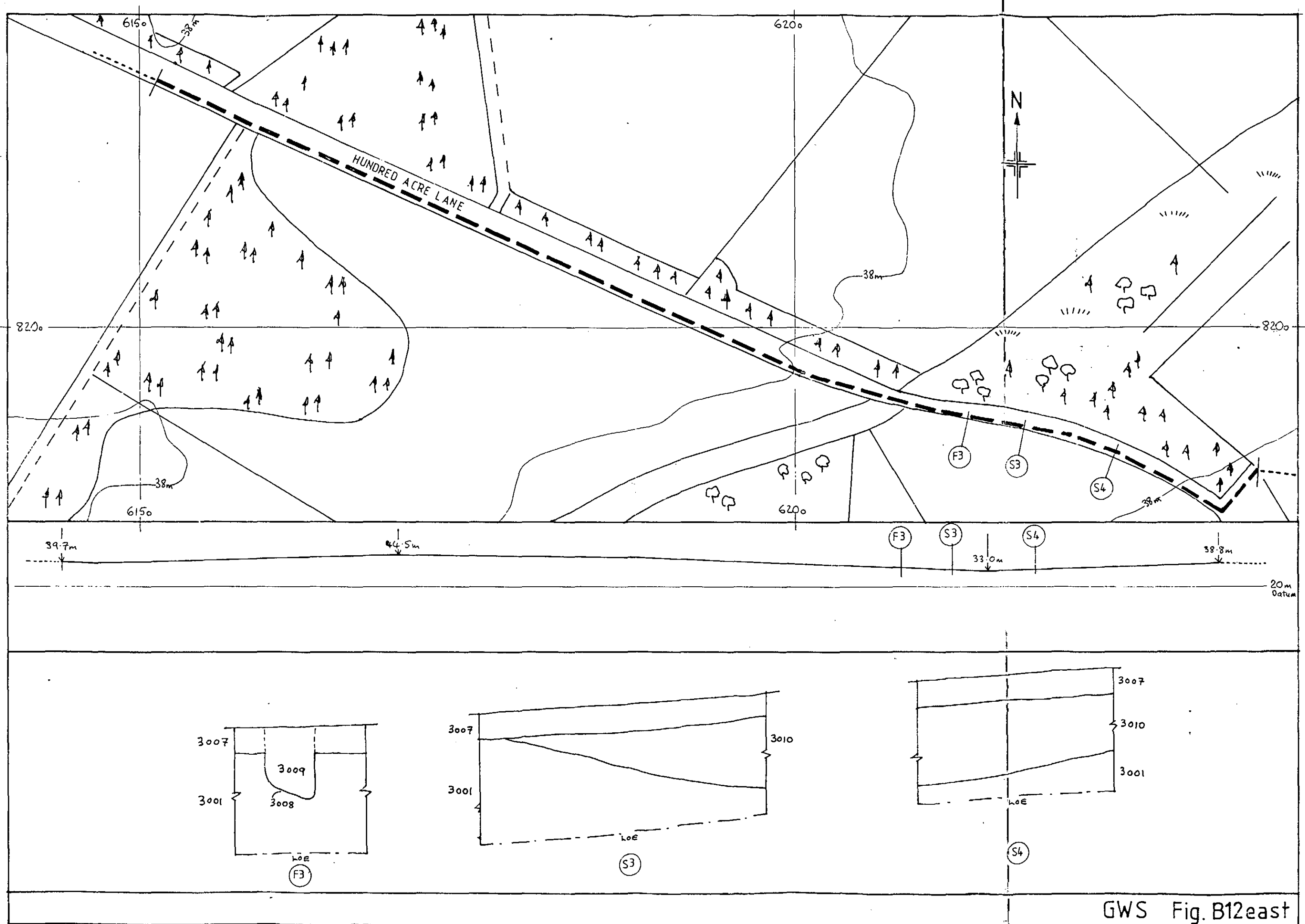
GWS Fig. B8.



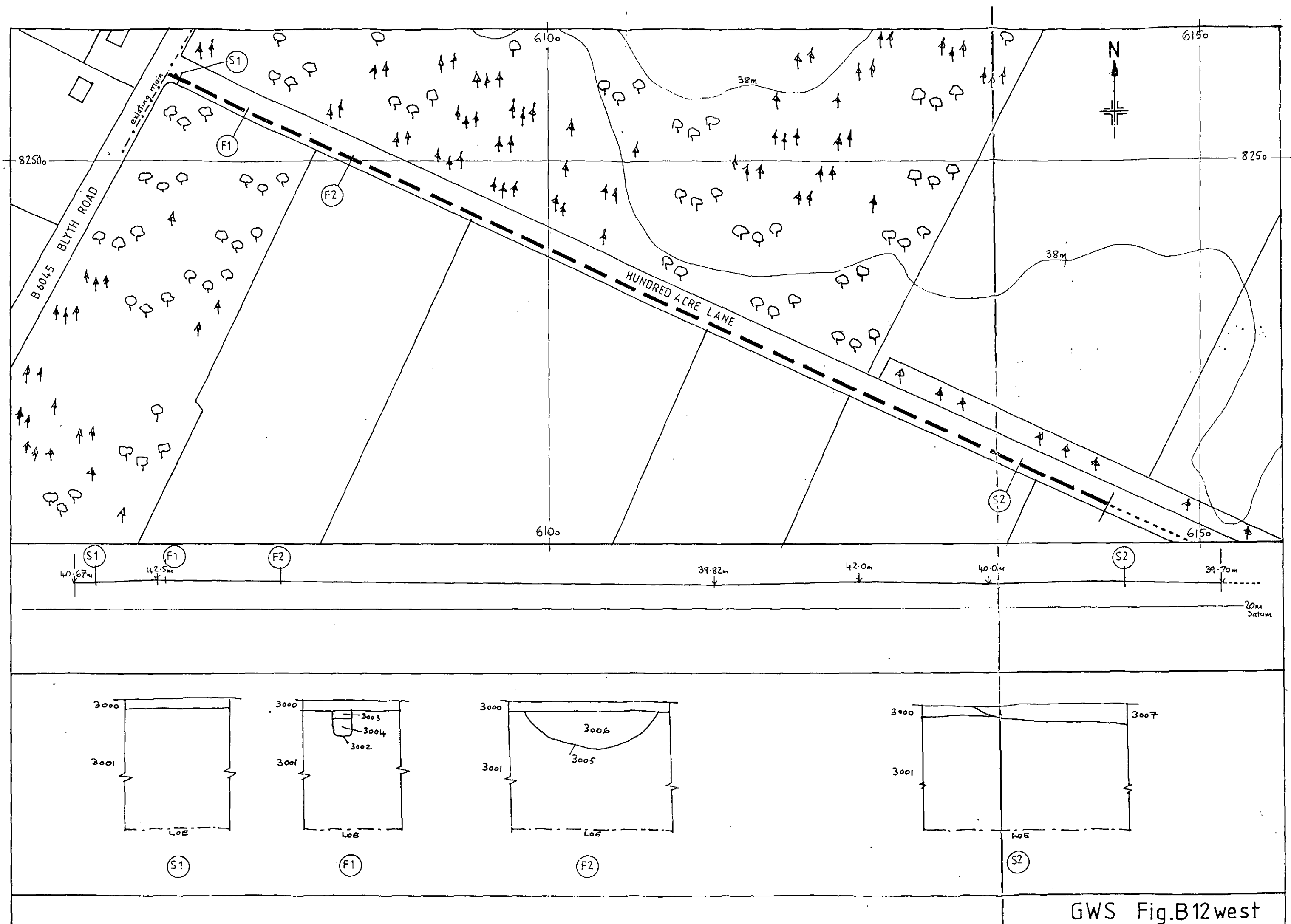
GWS Fig. B9 & B10east







GWS Fig. B12east



GWS Fig.B12west