

SURFACE WATER TRUNK SEWER, LLANELLI, CARMARTHENSHIRE:

ARCHAEOLOGICAL DESK-BASED ASSESSMENT



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Gan / By

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SURFACE WATER TRUNK SEWER, LLANELLI, CARMARTHENSHIRE: ARCHAEOLOGICAL DESK-BASED ASSESSMENT

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SURFACE WATER TRUNK SEWER, LLANELLI, CARMARTHENSHIRE: ARCHAEOLOGICAL DESK-BASED ASSESSMENT

SUMMARY

In advance of a proposed new surface water trunk sewer in Llanelli, Arup commissioned DAT Archaeological Services to carry out an archaeological desk-based assessment. The proposed sewer line runs between NGR SS 5057 9991 and SS 5075 9891 in the southern part of Llanelli town.

The assessment has shown that one recorded archaeological site lies within the proposed surface water trunk sewer route. No scheduled ancient monuments lie within the sewer route, or with within the wider study area. No listed buildings lie within the development site boundary but three are present within the wider study area.

The archaeological assessment has demonstrated that the proposed sewer line lies within a landscape of very few known pre industrial period archaeological remains. However, remains associated with medieval mining may be present within the boundaries of the proposed development, but the potential for this is minimal given the depths of the coal seams in the area.

During the post-medieval period and into the industrial period the land could also have been used for mineral extraction as techniques improved allowing deeper coal measures to be exploited. A number of industrial sites lie within the study area ranging from collieries, to metal working sites and associated transportation links in the form of railways, tramways and a canal. There are no recorded sites of post-medieval or industrial date on the regional Historic Environment Record directly within the line of the proposed sewer although the assessment has indicated that the extents of a number of former metal working sites do encroach upon the route. If present such remains would be considered to be of local to regional importance.

Modern period archaeology is represented by the Church of Latter Day Saints which lies within the study area.

No archaeological or historical remains of national significance which could preclude development of the site have been identified within the proposed sewer route by this desk-based assessment.

1. INTRODUCTION

1.1 Project Proposals and Commission

1.1.1 DAT Archaeological Services were commissioned by Arup to undertake an archaeological desk based assessment of the route of a proposed surface water trunk sewer scheme that would run for c.1km through part of Llanelli between NGR SS 5057 9991 and SS 5075 9891 (Figure 1).

1.1.2 The proposed route of the surface water trunk sewer follows a broadly north – south axis and runs from the junction of Station Road and Lakefield Road to the sewerage works near Northumberland Avenue before entering the New Dafen River (Figure 2).

1.2 Scope of the project

1.2.1 The assessment comprised the examination and collation of available sources of information including:

- Information on known archaeological and historic sites recorded on the regional Historic Environment Record¹ (HER), including a search of available maps, published and unpublished works, and aerial photographs;
- Relevant information held at the National Library of Wales (NLW), the Carmarthenshire Records Office, the Royal Commission on Ancient and Historic Monuments in Wales (via the Coflein online computer database);
- A search of Cadw's Listed Building records and Schedule of Ancient Monuments for designated buildings and sites of archaeological and historical importance lying on or in close proximity to the site;
- A site visit to determine the presence or absence of visible archaeology or evidence for previous ground disturbance within the proposed development area.

1.2.2 The results of the assessment contained in this report are intended to identify the extent and character of the known and potential archaeological resource, to assess the likely and potential impacts of any development on that resource and outline a possible programme of further works to mitigate those impacts. The assessment should be seen only as the first stage of the archaeological process and does not preclude the possibility that further archaeological input may be required prior to, or during, any proposed development.

1.2.3 A buffer zone of 150m from the route of the proposed surface water trunk sewer was used as a study area to provide an indication of the known archaeological remains in proximity to the site area. The results provide an indication of the potential archaeological resource that could be present within the route of the sewer line. This size of the study area was agreed with the archaeological advisor to the planning authority; Dyfed Archaeological Trust Planning Services.

1.3 Abbreviations used in this report

1.3.1 All sites recorded on the regional HER are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Sites recorded by the Royal Commission on the Ancient and Historic Monuments of

¹ Held and managed by Dyfed Archaeological Trust, The Shire Hall, Llandeilo, Carmarthenshire.

Wales (RCAHMW) are identified by their National Primary Record Number (NPRN). Altitude is expressed to Ordnance Datum (OD).

1.4 Illustrations

1.4.1 Photographic images and printed map extracts are included within the report. Note that the printed map extracts are not necessarily reproduced to their original scale and are illustrative only.

1.5 Timeline

1.5.1 The following timeline is used within this report to give date ranges for the various archaeological periods that may be mentioned within the text (Table 1).

Period	Approximate date	
Palaeolithic –	c.450,000 – 10,000 BC	Prehistoric
Mesolithic –	c. 10,000 – 4400 BC	
Neolithic –	c.4400 – 2300 BC	
Bronze Age –	c.2300 – 700 BC	
Iron Age –	c.700 BC – AD 43	
Roman (Romano-British) Period –	AD 43 – c. AD 410	Historic
Post-Roman / Early medieval Period –	c. AD 410 – AD 1066	
Medieval Period –	1066 – 1536	
Post-medieval Period ² –	1536 – 1750	
Industrial Period –	1750 – 1899	
Modern –	20th century onwards	

Table 1: Archaeological and Historical Timeline for Wales

² The post-medieval and industrial periods are combined as the post-medieval period on the regional Historic Environment Record as held by Dyfed Archaeological Trust

2. SITE LOCATION AND TOPOGRAPHY

- 2.1 The site area lies to the south of Llanelli town centre and runs from NGR SS 5057 9991 to SS 5075 9891 (Figures 1 & 2). The area is currently developed with a mixture of 19th century and modern dwellings along with commercial properties of similar dates.
- 2.2 The B4304 Station Road forms the main route through the area and to the east lie the areas of Wern, Bigyn and Ty Isaf whilst to the southwest lies Seaside.
- 2.3 The underlying solid geology of the area is represented by Carboniferous Sedimentary, mainly productive coal measures (British Geological Survey 2003). The surface geology of the area is characterised by less fertile soils over the coal measures.



Figure 1: Location map based on the Ordnance Survey

Reproduced from the 1987 Ordnance Survey 1:50,000 scale Landranger Map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust Ltd., The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF. Licence No 100020930

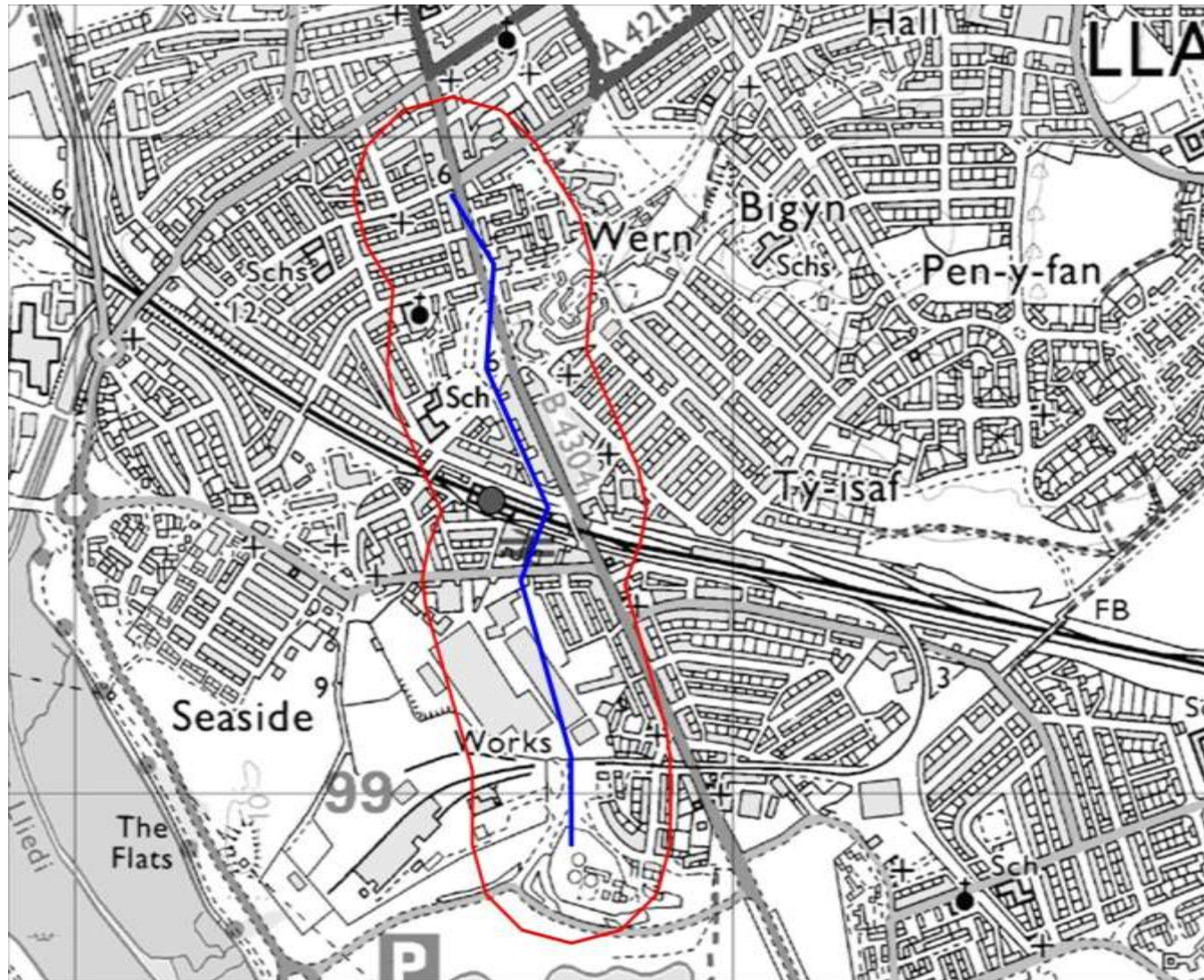


Figure 2: Proposed sewer line route (blue line) and study area (red boundary).

Reproduced from the 1987 Ordnance Survey 1:25,000 scale Explorer Map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust Ltd., The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF. Licence No 100020930

3. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

3.1 Designated Sites and Listed Buildings

3.1.1 No scheduled ancient monuments (SAMs) lie within the boundaries of the proposed route of the surface water trunk sewer or within the wider study area.

3.1.2 Within the study area there are three sites that have been designated as Grade II listed buildings. These comprise two chapels and a recently listed railway signal box. The three listed buildings would not be directly affected by the proposed works. Full descriptions of these are included in Table 2.

3.1.3 The application area does not lie within any Historic Landscape Categorisation Areas but does lie within the Countryside Council for Wales (CCW) Llanelli Historic Landscape Aspect area (CRMRTL39585) which is summarised as:

'Major urban development of Llanelli'

3.1.4 The application area also lies within the CCW Llanelli Cultural Landscape Aspect Area (CRMRTCL024) which is summarised as follows:

'Former prominent industrial town now undergoing wholesale regeneration. The town of Llanelli developed as a direct result of the coal and metal industries. The town also has one of the elite European rugby clubs, the Llanelli Scarlets. Llanelli and its surrounding area supports the greater proportion of the population of the study area, and over time has been subject to a wider range of external influences than many other parts of Carmarthenshire. The Millennium Coastal Park is the largest land reclamation project in Britain.'

3.1.5 No Conservation Areas lie within close proximity to the application area.

PRN	NPRN	Building Name	Summary	Period	NGR	Status
8445	34725	Llanelli Station Railway Signal Box	Llanelli West Signal Box is a unique survivor of the Great Western Railway type 2 Box in Wales. Built in 1877, the box is the fourth oldest signal box left in Wales. Externally it appears in excellent original condition; internally the frame is still in place although all the levers have been removed.	Post-medieval	SS 5080 9940	GII Listed building (Listed 2013 ³)
60856	12091	Lakefield Community Centre (Former Siloh Calvinistic Methodist Chapel) Including Forecourt Gates And Railings	Siloh Calvinistic Methodist Chapel was built in 1878 in the Classical style with a gable entry plan. This expensively-built chapel has a very ambitious and impressive stone show-facade dominating Lakefield Road and designed to be seen to advantage down the length of Heol Siloh opposite. There are six classical half-columns, or pilasters, attached to the neo-classical facade, with tiers of acanthus leaves and scrolled volutes, topping the columns. These columns support the classical entablature (an elaborate lintel), carrying the base of the large triangular pediment of the gable with its central wheel roundel, which also acted as the ventilator for the substantial attic space. This fine detailing is all executed in pink sandstone set within a mass of coursed Pennant sandstone rubble, also used for the much plainer sides and rear of the building. The Italian Renaissance influence on the design is shown by the Florentine tracery or arches at the top of the two central windows, where two tall semicircular lights are capped by a central roundel commonly found in fifteenth-century Florentine palaces. The architect was J.W. Jones of Llandeilo. The seating capacity of 800 (with 150 in the adjoining school-room) meant that despite the elaborate façade this was an average urban chapel in size and the second largest Calvinistic Methodist Chapel in Llanelli after Capel Newydd. Siloh is now Grade 2 Listed despite being converted into Lakefield Community Centre in 1980, by architects W. Griffiths & Son.	Post-medieval	SS 50498 99872	GII Listed building (Ref 11923)
60864	6433	Caersalem Baptist Chapel, Including Schoolroom And Forecourt Railings, Marsh Street -	Caersalem Baptist Chapel was built in 1893 in the Sub-Classical, Italianate style with a gable entry. The chapel closed in the mid to late 1990's and in 2000 was still in a state of disuse. The building is Grade 2 listed. In many ways this is a variant on the earlier classical temple Baptist Chapel designs in Llanelli but with the earlier full-height temple show-front design transformed into a two-storey house-like version. The	Post-medieval	SS 50805 99518	GII listed building (Ref 11932)

³ <http://www.87f.co.uk/page27.html>

<http://www.llanellirailwaygoodsshedtrust.org.uk/signalbox.html>

			<p>simpler decoration of the side-walls of the chapel is reduced to a projecting architrave band around the windows. The upper 'temple' of the show-front has a central window with Venetian tracery set over the large central porch, itself a temple in miniature, carried by free-standing Tuscan columns. This two-storey temple chapel design is not very common in Wales, although Capel Als is a second Llanelli example, but did allow the congregation to use an abundance of cut-stone in the show-front, markedly contrasting with the subdued effect of using the much darker local Pennant sandstone on the sidewalls of the chapel. By this date most English-language nonconformist congregations would have built in gothic. Enclosing cast-iron railings were a common feature of chapels and these were made by Thomas & Clement, founders of Llanelli. At the time of the nonconformist statistical survey of 1905 the chapel could accommodate a fairly average-sized seated congregation of 700 with 250 in the schoolroom. The congregation also had a caretaker's house and a manse for the Minister.</p>			
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Table 2: Listed buildings within study area

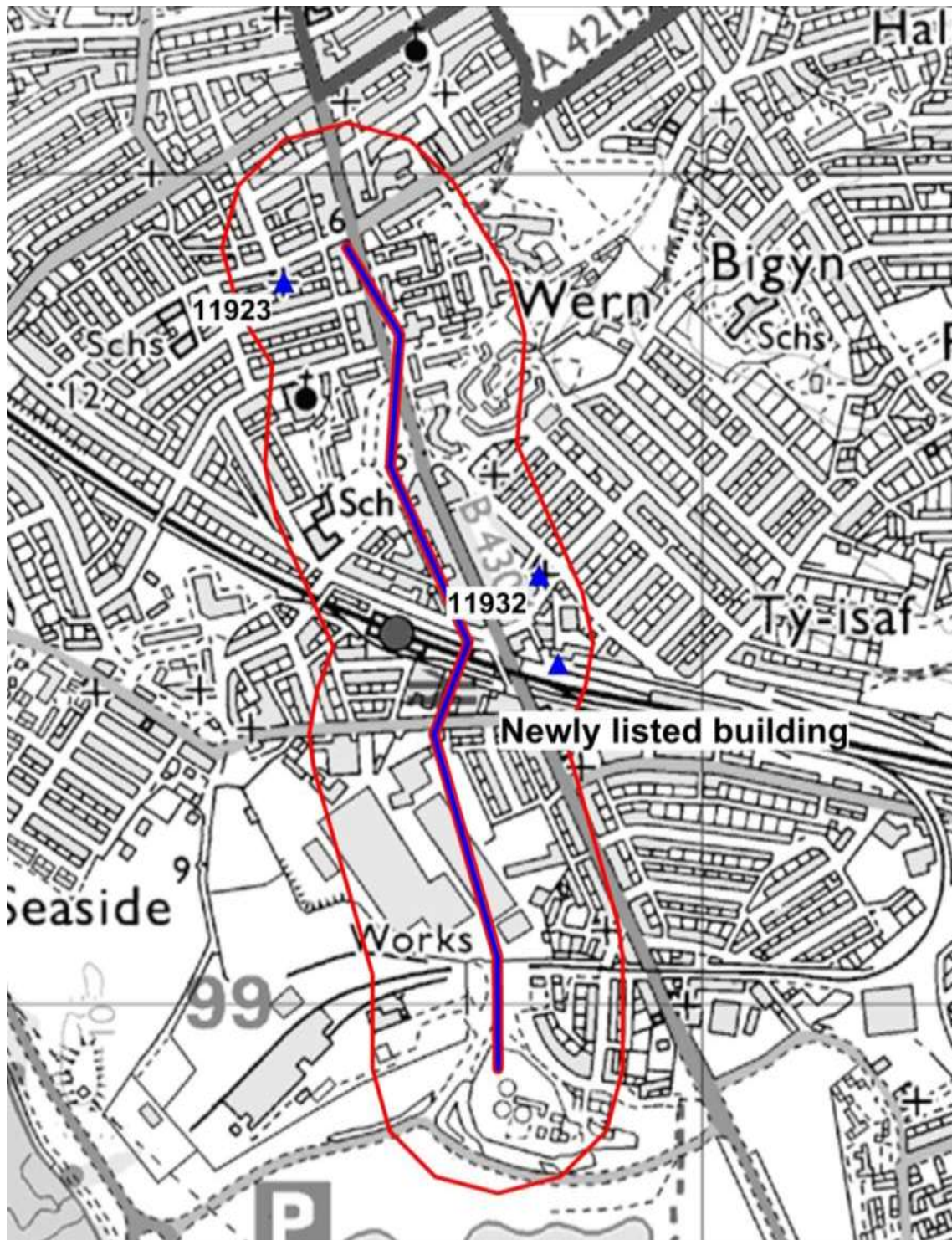


Figure 3: Location plan of listed buildings within study area;
identified by Listed Building No.

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3.2 Known Archaeological Remains and Historical Development

3.2.1 A search of the regional HER revealed a total of 19 sites of archaeological and historic interest located within the study area (Table 3, Figure 4). No archaeological sites are recorded on the regional HER within the boundaries of the proposed route of the surface water trunk sewer.

3.2.2 A search of the same study area was undertaken of the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) National Monument Record (NMR). This search returned ten known sites within the study area (Table 4, Figure 5). A few of these refer to the same sites as recorded on the regional HER. No archaeological sites are recorded on the NMR within the boundaries of the proposed route of the surface water trunk sewer.

Regional HER Information

PRN	Site Name	Summary	Type	Period	NGR
7273	Llanelli St Peter's Church	19th century church built new on de novo site.	Church	Post-medieval	SS 5052 9973
8445	Llanelli Station Railway Signal Box	Constructed in c.1877 and is the only surviving Great Western Railway Type 2 signal box in Wales	Railway Signal Box	Post-medieval	SS 5080 9940
8446	Loughor Railway Bridge	Post-medieval railway bridge	Bridge	Post-medieval	SS 5065 9945
8816	Marshfield Works	Post-medieval iron works	Iron works	Post-medieval	SS 5060 9968
8817	Old Lodge Works	Post-medieval iron works	Iron works	Post-medieval	SS 5065 9980
8818	Wern Works	Post-medieval iron works	Iron works	Post-medieval	SS 5075 9990
16153	Caer Salem	1877-8 former Calvinistic Methodist chapel by JW Jones of Llandeilo.... Included for monumental front elevation, terminating view down Siloh Street	Church	Post-medieval	SS 5050 9987
16154	Capel Soar	Post-medieval chapel	Chapel	Post-medieval	SS 5075 9963
16155		1893 Baptist Chapel in brown snecked rubble with Bath stone ashlar dressings and slate roof.	Chapel	Post-medieval	SS 5081 9952
16156	Trinity Chapel	Post-medieval chapel	Chapel	Post-medieval	SS 5085 9929
16157	St David's Church	Post-medieval church.	Church	Post-medieval	SS 5089 9909
24206	Llanelly Bank	NGR illustrative location unknown	Bank (financial)	Post-medieval	SS 5060 9960
24363	Field House; Glanmor House	Field House (also called Glanmor House) was formerly the residence of the Nevill family. Built in the early 19th Century with 5 bays the end two deeply projecting with windows on both storeys within a single tall blind Arch. The Verendah across centre. The house was demolished in the early 20th Century. The approximate location of the house was determined from the original 1 inch O.S. Map of the area together with the map of known coal Mining activity in the Llanelli Area before 1830 (from Coal Mining in the Llanelli Area by M. V. Symons). This latter map includes the routes of old railroads canals and works superimposed upon the modern street plan of Llanelli.	Dwelling	Post-medieval	SS 505 997
30663	Lord Cawdor's Leadworks; Llanelly Leadworks	Post-medieval lead smelting house.	Lead smelting house	Post-medieval	SS 509 989
30666	Llanelly copperworks co.	Post-medieval smelting works	Smelting works	Post-medieval	SS 506 991
30718	Copperworks Llanelli	Small, unnamed brickworks shown on OS map.	Brickworks	Post-medieval	SS 507 991
34033	Coal Yards	Coal yards with extensive tramway systems, depicted on 1st	Coal yard	Post-medieval	SS 5059 9898

		and 2nd Edition OS. Entire area re-landscaped and developed.			
60854	Lakefield Community Centre (Former Siloh Calvinistic Methodist Chapel) Including Forecourt Gates and Railings	Former chapel	Chapel	Post-medieval	SS 50498 99871
60864	Caersalem Baptist Chapel, Including Schoolroom and Forecourt Railings, Marsh Street -	Chapel	Chapel	Post-medieval	SS 50805 99518

Table 3: Archaeological and historical Sites recorded on the regional HER within study area (Figure 4)



Figure 4: Location plan of regional HER sites within study area.

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RCAHMW NMR Information

NPRN	Site Name	Summary	Type	Period	NGR
466	New Brewery, Llanelli	Brewery established by William Bythway and known as Llanelli New Brewery, Marsh Street. 1875- New Brewery situated behind the civil service social club at the bottom of Station Road. 1896-Buckleys Brewery bought the concern.	Brewery	Post-medieval	SS 50849 99460
6428	Soar Welsh Independent Chapel, Marsh St. and Hick St., Llanelli	Soar Independent Chapel was built in 1887 and enlarged in 1896. The chapel is a very modest and unassuming building, Sub-Classical in style, with a gable-entry type and half-hipped roof . A very modest and unassuming building as was very common among poorer congregations and with its half-hipped roof more nearly resembling the old-fashioned early-nineteenth century hipped-box type of chapel design rather than a chapel that seems to have been built in 1887-88. The design is so low-key that what would be the street show-front, on other chapels of this date, is only enhanced by the raised surrounds of openings decorated to the same simple level as those on the sides of the building, possibly applied during the building enlargement of 1896. The simple round-heads of the upper openings, the raised window surrounds, or architraves, and the attached flat columns or pilasters flanking the central door merit the term 'Italianate' for the rather minimal decoration applied to this simple and economically-built preaching-box. Despite its modest appearance this building could seat 700, almost an average size for a Llanelli Chapel, although it had the second smallest Schoolroom among Llanelli Chapels, only seating 90 pupils.	Chapel	Post-medieval	SS 50754 99636
6433	Caersalem Welsh Baptist Chapel, Marsh St. And Caersalem Terrace, Llanelli	Caersalem Baptist Chapel was built in 1893 in the Sub-Classical, Italianate style with a gable entry. The chapel closed in the mid to late 1990's and in 2000 was still in a state of disuse. The building is Grade II listed. Caersalem Baptist Chapel, 1893 In many ways this is a variant on the earlier classical temple Baptist Chapel designs in Llanelli but with the earlier full-height temple show-front design transformed into a two-storey house-like version. The simpler decoration of the side-walls of the chapel is reduced to a projecting architrave band around the windows. The upper 'temple' of the show-front has a central window with Venetian tracery set over the large central porch, itself a temple in miniature, carried by free-standing Tuscan columns. This two-storey temple chapel design is not very common in Wales, although Capel Als is a second Llanelli example, but did allow the congregation to use an abundance of cut-stone in the show-front, markedly contrasting with the subdued effect of using the much darker local Pennant sandstone on the sidewalls of the chapel. By this date most English-language nonconformist congregations would have built in gothic. Enclosing cast-iron railings were a common feature of chapels and these were made by Thomas & Clement, founders of Llanelli. At the time of the nonconformist statistical survey of 1905 the chapel could accommodate a fairly average-sized seated congregation of 700 with 250 in the schoolroom. The congregation also had a caretaker's house and a manse for the Minister.	Chapel	Post-medieval	SS 50807 99519

6450	Trinity Calvinistic Methodist Chapel, New Dock Road, Llanelli	<p>Trinity Chapel was built in 1858 and rebuilt in 1867 by architect Thomas Thomas of Landore. The chapel was refronted in 1918 then modified again in 1926. The present building, dated 1867, is in Gothic style and of the gable entry type.</p> <p>The sides, rear and interior of this chapel form a late example of a 'hipped-box' design (probably by the architect-minister Thomas Thomas) which was a common early nineteenth-century type with a high pyramidal roof over a square or broad rectangular plan. It represents an intermediate design built between earlier rural 'long-wall' chapels and the more elaborate 'show-front' urban and rural designs but Thomas commonly used it as it allowed the chapel to have a front profile that was more sophisticated than the usual great-shed outline. The often later 'show-fronts' had narrow but expensive facades built towards the street by confident and wealthier congregations after the great 1859 revival. However the Trinity congregation, along with many others, attempted to catch-up with fashion by having an elaborate front added to the earlier chapel with a central gabled bay, flanked by staircase wings which were also gabled to the sides, all with large traceried gothic windows. The modest Georgian-style sash windows of the earlier chapel were retained but on the upper tier had gothic heads added above the simple sashes. William Griffiths was the local architect who added the one-bay deep fully 'church-gothic' facade which at this date had become acceptable to confident Welsh non-conformists, now themselves part of the establishment. The perpendicular tracery of the large elaborate window over the central street entrance represents the one exclusively British type of gothic, perhaps appropriately patriotic after the First World War (the date of the chapel front may be before 1926), and the grey ceramic dressings and tracery are typical of the period. At the time of the 1905 religious census this had a seating capacity of 768 and its adjoining schoolroom had 575 which was the third largest nonconformist Sunday School capacity in Llanelli and it had a 'chapel house' for a caretaker.</p>	Chapel	Post-medieval	SS 50847 99291
12091	Siloh Chapel (Welsh Calvinistic Methodist), Lakefield Road, Llanelli	<p>Siloh Calvinistic Methodist Chapel was built in 1878 in the Classical style with a gable entry plan. This expensively-built chapel has a very ambitious and impressive stone show-facade dominating Lakefield Road and designed to be seen to advantage down the length of Heol Siloh opposite. There are six classical half-columns, or pilasters, attached to the neo-classical facade, with tiers of acanthus leaves and scrolled volutes, topping the columns. These columns support the classical entablature (an elaborate lintel), carrying the base of the large triangular pediment of the gable with its central wheel roundel, which also acted as the ventilator for the substantial attic space. This fine detailing is all executed in pink sandstone set within a mass of coursed Pennant sandstone rubble, also used for the much plainer sides and rear of the building. The Italian Renaissance influence on the design is shown by the Florentine tracery or arches at the top of the two central windows, where two tall semicircular lights are capped by a central roundel commonly found in fifteenth-century Florentine palaces. The architect was J.W. Jones of Llandeilo. The seating capacity of 800 (with 150 in the adjoining school-room) meant that despite the elaborate façade this was an average urban chapel in size and the second largest</p>	Chapel	Post-medieval	SS 50498 99872

		Calvinistic Methodist Chapel in Llanelli after Capel Newydd. Siloh is now Grade 2 Listed despite being converted into Lakefield Community Centre in 1980.			
12388	St Peter's Church, Paddock Street, Llanelli	St Peter's church was erected as a chapel of ease to St Paul's Church (NPRN 107201). The church was constructed in 1867, to the designs of R.K. Penson. The original church has a canted apse and thin square south-east tower with broached spire. The church was enlarged in 1892, when cross-gabled aisles were added. The gables are similar to those at Christ Church (NPRN 12088), and are thought to have been designed by the same architect, E.M. Bruce Vaughan. The arcades have round piers. The roof is open and there is no division before the raftered apse.	Church	Post-medieval	SS 50519 99732
12584	St David's Church, Llanelli	St David's Church was erected as a chapel of ease to St Paul's Church	Church	Post-medieval	SS 50885 99089
17791	Scale House	Post-medieval house	House	Post-medieval?	SS 50831 99033
34723	Llanelly; Llanelli Railway Station	Llanelly Railway Station was opened in 1852 by the South Wales Railway. The SWR was taken over by the Great Western Railway in 1863. From around 1966 the station was renamed Llanelli/Llanelly and later just Llanelli. Following the closure of Swansea Victoria Station (nprn 34874) in 1964, Llanelly Station became the southern terminus of the Central Wales Line (nprn 291119) until 1970 when the service was extended to Swansea High Street Station (nprn 409587).	Railway Station	Post-medieval; 19th Century	SS 50647 99453
34725	Llanelli West Signal Box, Llanelli	Llanelli West Signal Box is a unique survivor of the Great Western Railway type 2 Box in Wales. Built in 1877, the box is the fourth oldest signal box left in Wales. Externally it appears in excellent original condition; internally the frame is still in place although all the levers have been removed.	Railway Signal Box	Post-medieval	SS 50513 99489
40414	Marshfield Works; Western Tinplate Works	In 1863 the Marshfield Iron and Tin Works were built at Llanelli by Messrs. Nevill, Everitt and Company. Initially it seems that only blackplate was made at the works. By 1876 they were trading as The Marshfield Company Limited and operated 4 mills. In 1872 the works were sold to C. Budde and Company Limited, Birmingham. The Marshfield Iron Works closed down in 1879 but in December 1879 the Western Tinplate Company was formed by Messrs. Josiah T. Smith, general manager of the Barrow Steel Company, George Byng Morris, and W. H. Forester. In 1881 the Western Tinplate Works Limited was registered and by 1893 had 9 mills. In April 1939 the works were acquired by the Llanelly Associated Tinplate Companies Limited and ceased to trade as a separate company.	Iron Works	Post-medieval	SS 50613 99678
40417	Old Lodge Works (Iron Foundry)	Post medieval foundry	Iron Works	Post-medieval	SS 50664 99787
40424	Wern Works (Foundry)	Post medieval iron foundry	Iron Works	Post-medieval	SS 50719 99874
97262	Church Of Latter Day Saints	This Chapel was opened in 1996 and therefore is of a late 20th c. design; long-wall entry type. Its present status is as a Chapel	Chapel	Modern	SS 506 995

Table 4: Archaeological and Historical sites recorded on the RCAHMW NMR within study area (Figure 5).

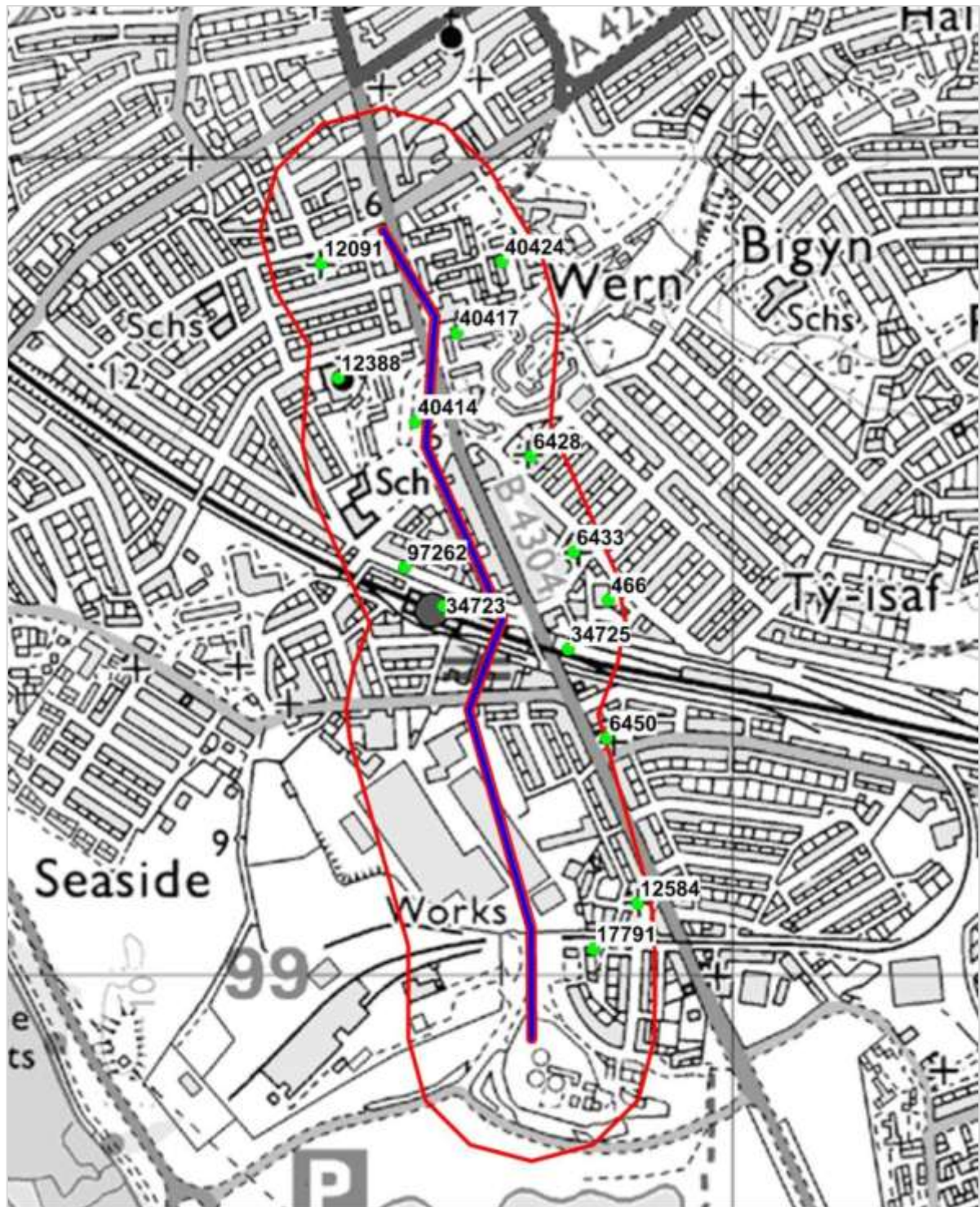


Figure 5: Location plan of RCAHMW NMR sites within study area.

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3.2.3 **Palaeolithic (c.450,000 – 10,000 BC)**

No recorded sites of Palaeolithic date have been identified within the boundaries of the sewer route or within the study area. Such remains are scarce in the region.

3.2.4 **Mesolithic and Neolithic (c. 10,000 – 2000 BC)**

There are no recorded sites of Mesolithic or Neolithic date recorded on the HER or NMR within the boundaries of the sewer route or within the study area.

3.2.5 **Bronze Age (c.2000 – 700 BC)**

No recorded sites of Bronze Age date have been identified within the boundaries of the sewer route or within the study area on the regional HER or NMR.

3.2.6 **Iron Age (c.700 BC – 43 AD)**

No recorded sites of Iron Age date have been identified within the boundaries of the sewer route or study area on the regional HER or NMR.

3.2.7 **Roman (AD43 – c. AD410)**

No recorded sites of Roman date have been identified within the boundaries of the sewer route or within the wider study area on the regional HER or NMR.

3.2.8 **Early medieval (c.AD410 – AD1066)**

No recorded sites of early medieval date have been identified within the boundaries of the application site or within the wider study area on the regional HER or NMR.

3.2.9 **Medieval (1066 – 1535)**

No recorded sites of medieval date have been identified within the boundaries of the sewer route or within the wider study area

It is considered likely that any medieval settlement or activity would be nucleated around either the medieval church (PRN 690; 630m NE of area) or around the motte and bailey castle (PRN 694; 695m NW of area)

There is the potential for medieval coal mining activity within the area. There is some indications that the Llanelli coalfield has been worked since the 14th century but the extent and location of this early mining in the area is unclear (Symons 1979, 26). During the medieval period the use of coal as a fuel was not generally popular, the preferred fuels being wood and peat, suggesting that mining in the period was generally a small scale industry.

Medieval mining techniques would work easily won coal from surface outcrops, shallow adits and the use of bell pits. Bell pits are considered to be amongst the deepest forms of mining utilised during the medieval period and consisted of a vertical shaft sunk to the coal seam and hollowed out at the base to extract the coal. Bell pits are usually closely spaced to allow maximum retrieval of coal, with each pit representing a seasons work. The average working depth of a bell pit was generally in the region of 9m although at Mathley West Yorkshire a series of pits were revealed that were sunk to a depth of 18m (Roe 2008, 29). Medieval mine workings would most likely lie in hilltop locations potentially utilising a series of interconnecting shafts and adits driven into the hillside. Given the topography of the proposed development area, it is considered unlikely that mining was undertaken to significant depths such as these.

Available borehole data from the study area has revealed that to the east of the sewer line route at Great Western Crescent (centred on NGR SS 50620 99510) a 0.25m thick coal seam lies at a depth of 42m with a second seam 0.45m thick lying at a depth of 66m. This borehole data suggests that the coal seams within the development area are at such a depth that it is very unlikely that they were exploited during the medieval period. The potential for archaeological remains associated with medieval coal mining to be present within the proposed development is considered to be low to negligible.

3.2.10 **Post medieval (1535 – 1750)**

No recorded sites of post-medieval date have been identified within the boundaries of the sewer route.

For the purposes of this report the post-medieval period has been split into two with the post-medieval period covering the years 1535 – 1750, and the industrial period the years 1750 and 1900.

During the post-medieval period coal mining was well established in the Llanelli area with an export trade to the West Country, Channel Islands and France (Symons 1979, 27). However, there appears to be no evidence for post-medieval coalmining within the study area.

3.2.11 **Industrial (1750 – 1900)**

No recorded sites of industrial period date have been identified within the boundaries of the sewer route.

Within the wider study area nineteen sites are recorded on the regional HER and fourteen are recorded on the RCAHMW NMR. The majority of these recorded sites relate to the industrialisation and development of Llanelli following the Industrial Revolution. Sites include a brewery, brickworks, railway, former metal production and processing sites and a coal yard. Other sites represented include a number of churches and chapels, a dwelling and commercial premises.

Coal Working (Table 5; Figure 6)

No colliery sites are recorded within the study area on the regional HER and or on the RCAHMW NMR.

Documentary and cartographic research has identified four coal mining operations located within the study area. A further nine coal mining operations lie just outside the boundaries of the study area. In addition, ten airshafts lie within the study area, one of which may lie directly on the route of the proposed sewer, with a further airshaft lying just to the east of it.

Of the thirteen identified coal mining operations within and just outside of the study area only four are named; 'Pwllcornel' (NGR SS 505 999; No. 5 on Figure 6); 'Pwll Cae Pulpud' (NGR SS 507 998; No 6 on Figure 6); 'Engine Pit' (NGR SS 508 000; No 7 on Figure 6) and 'Pwllmelin' (NGR SS 508 999; No 9 on Figure 6). Of the remaining unnamed sites two are recorded by depths, 11 fathoms (c.20m; site 10 on Figure 5) and 17 fathoms (c.21m, site 13 on Figure 5) (Symons, 1979, 347).

Whilst none of the coal mining operations are located directly within the route of the proposed sewer line, the presence of air shafts within the study area indicate that the workings would definitely lie beneath its route. These abandoned workings will lie at significant depths below ground level and are

unlikely to be affected, although the potential for hitherto unknown shafts or pits to be present within the line of the sewer route should not be discounted.

Number on Plan	Colliery Name	NGR	Date
1	Un-named pit	SS 504 999	c.1813
2	Un-named pit	SS 504 997	c.1820
3	Un-named pit	SS 505 998	c.1820
4	Un-named pit	SS 505 999	c.1813
5	Pwlllycornel Pit	SS 505 999	c.1813
6	Pwll Cae Pulpud	SS 507 998	1800
7	Engine Pit / Wern Colliery	SN 508 000	1806 / c.1822
8	Un-named Pit	SS 508 999	1808
9	Pwllmelin	SS 508 999	1806
10	Old pit on the Golden Vein 11 fathoms deep (c.20m)	SS 508 998	1806
11	Un-named pit	SS 508 998	1806
12	Un-named pit	SS 508 998	1806
13	Old pit on the Cae Eithen Vein (also Water Wheel pit) 17 fathoms deep (c.31m)	SS 508 997	1806

Table 5: List of colliery sites shown in Figure 6

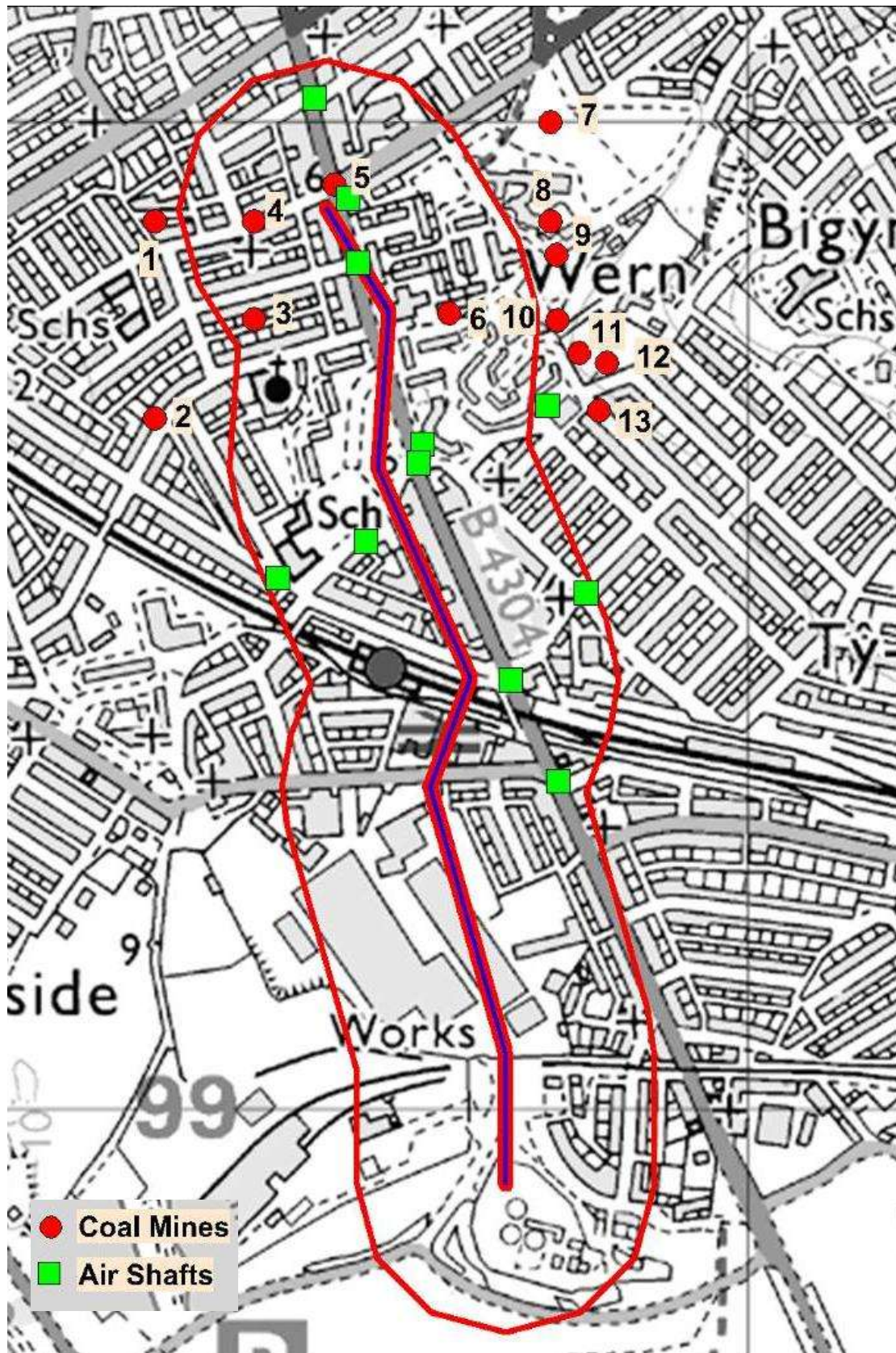


Figure 6: Location plan of coal working within study area
(see Table 5 for more details)

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Metal Working Industries (Figure 7)

The regional HER and RCAHMW NMR record no metal working industrial sites within the route of the proposed sewer, although 5 are recorded in the study area (five on the HER, two of which are duplicated on the NMR). These metal working sites are only recorded as point data and it is clear from cartographic evidence that elements of these metal working sites do lie directly within the route of the proposed sewer line.

In 1854 the Old Lodge Iron Works (PRN 8817; NPRN 40417; NGR SS 50664 99787) was established by Richard Nevill and John Thomas primarily to produce boiler plate for use in the production of stationary steam engine building and engineering at the adjacent Wern Works (Craig *et al* 2002, 153). In 1888 the Old Lodge Works ceased iron production and became a tin plate works under the auspices of the Old Lodge Tinplate Co Ltd. The works remained in production until 1941 (*ibid*, 240).

The Marshfield Works (PRN 8816; NPRN 40414; NGR SS 50613 99678) was established as a wrought iron works in 1863 by Messrs Nevill Everett and Lee specialising in thin sheet iron. The principle markets for its products were tin works and the metal trades of Birmingham. By the late 1860s it was producing 5000 tons of sheet iron a year. In 1868 tin plate manufacture was begun at the Marshfield Works (*ibid*, 157-158). The works ceased to become an independent company in 1947 when they were bought by Llanelli Associated Tinplate Co Ltd. The works were closed in 1953 when under the ownership of the Iron & Steel Holding and Realisation Agency/Steel Company of Wales Ltd (*ibid*, 238). The proposed sewer line crosses part of the Marshfield Works site for a distance of c.105m (between NGR SS 50633 97754 and SS 50638 99619). This area contained a number of structures associated with the works, including offices, fitting shops, a sawmill, boiler houses, tin mills and annealing house.

The proposed sewer line also crosses the site of the rolling mills of Llanelli Copperworks (NGR PRN 30666; NGR SS 506 991) for a distance of c.80m (between NGR SS 50716 99191 – SS 50739 99111). Llanelli Copperworks was established in 1805 and produced 5900 tons between 1807 and 1808, and 18150 tons by 1832-3. The works went on to become the joint third largest in the world (*ibid*, 112-113) and primarily produced locomotive components and heavy copper forgings (*ibid*, 280). The works ceased copper ore smelting in 1896 and production was limited to small scale copper refining and manufacture. In 1923 the works began producing copper wire but this appears to have been short-lived as by 1925 the hot mills closed, as did the works a short time later (*ibid*, 135).

The proposed sewer route also passes through the location of a fourth metal working site not recorded on the HER or NMR. The Penrhos Iron Foundry (NGR SS 50672 99357) appears to have been a modest operation established in 1876 by David Clement. By 1890 Martyn Rogers Waddle owned the works. The following year it became part of the Waddle Foundry Co Ltd, although closed by them in 1892. The site was subsequently used as a scrap yard (*ibid*, 271). The proposed sewer line passes through the site of the former works offices along with a further unspecified building, for a distance of 60m (between NGR SS 50705 9937 – SS 50684 99341).

The remaining two metal working sites recorded on the HER and NMR are the Wern Works (PRN 8818; NPRN 40424; NGR SS 50719 99874) and Lord Cawdor's Lead Works (PRN 30663; NGR SS 509 989). Neither of these would be directly affected by the proposed sewer route.

Transportation (Figures 7 and 8)

No former transportation sites are recorded within the line of the proposed sewer route on the regional HER or RCAHMW NMR.

One site recorded on the HER within the study area is Loughor Railway Bridge (PRN 8446; NGR SN SS 5065 9945). This appears to be a mis-located point, as the railway bridge that crosses the Loughor Estuary lies c.5.5km to the south east (SS 56027 98021).

The NMR records Llanelli Railway Station (NPRN 34723; NGR SS 50647 99453) in the study area. The station was opened by the South Wales Railway (SWR) in 1850-1 and passed to the Great Western Railway (GWR) when it took over the SWR in 1862. On nationalisation of the rail network in 1948 the station became part of British Railways Western Region. The proposed sewer line route would cross the present main railway line between SS 50717 99430 and SS50705 99397.

On August 17th 1911 the station became involved in a bitter industrial dispute when railway workers went on strike and were joined in solidarity by local colliers and tin plate workers who blocked the railway line to prevent trains passing through. The army were called in to support the local police and on Saturday 19th August the situation escalated when soldiers from the Worcestershire Regiment bayonet charged to clear the line to enable a train to pass. Once the train had resumed its journey it was pursued by strikers who stopped it a short distance along the line in a cutting. The soldiers arrived to disperse the strikers, but were met with a hail of stones. The order was given to fire leaving John John, 21 and Leonard Worsell, 19 dead and two others injured. Rioting ensued and four more deaths occurred that evening following the explosion of a railway waggon containing detonators which had been set alight by strikers. One person died instantly and three others died from their wounds the following day (Edwards, 1998). This event and the site is one of considerable interest and importance to the local community.

The proposed sewer route would cross a further sixteen railways/tramways, most of which served the industrial complexes and a coal yard in the south of the area. Further research has also revealed that the line of the former Wern Canal crosses the application area between NGR SS 50643 99623 and SS 50636 99611. The canal was constructed by Roderick in 1795 for Roderick & Co to transport coal from their Wern Colliery to a shipping place at Seaside. The canal was replaced by a tramroad by 1811 and is believed to have been disused at this point. The route of the Wern Canal is described as follows:

'from just below what is now Copperworks Dock, the canal ran past the copperworks, then crossed the present railway line just west of the station, followed Glanmor Road, crossed Station Road, went up Ann Street, turned right into Robinson Street, and followed it into Wern Road where it ended by Capel Als⁴. A branch probably left the main line at Robinson Street, and ran past what later became the gasworks to end near Murray Street' (Hadfield, 1967, 32-33)

⁴ Stands at the junction of Wern Road and Marblehall Road (NGR SN 51128 00338)

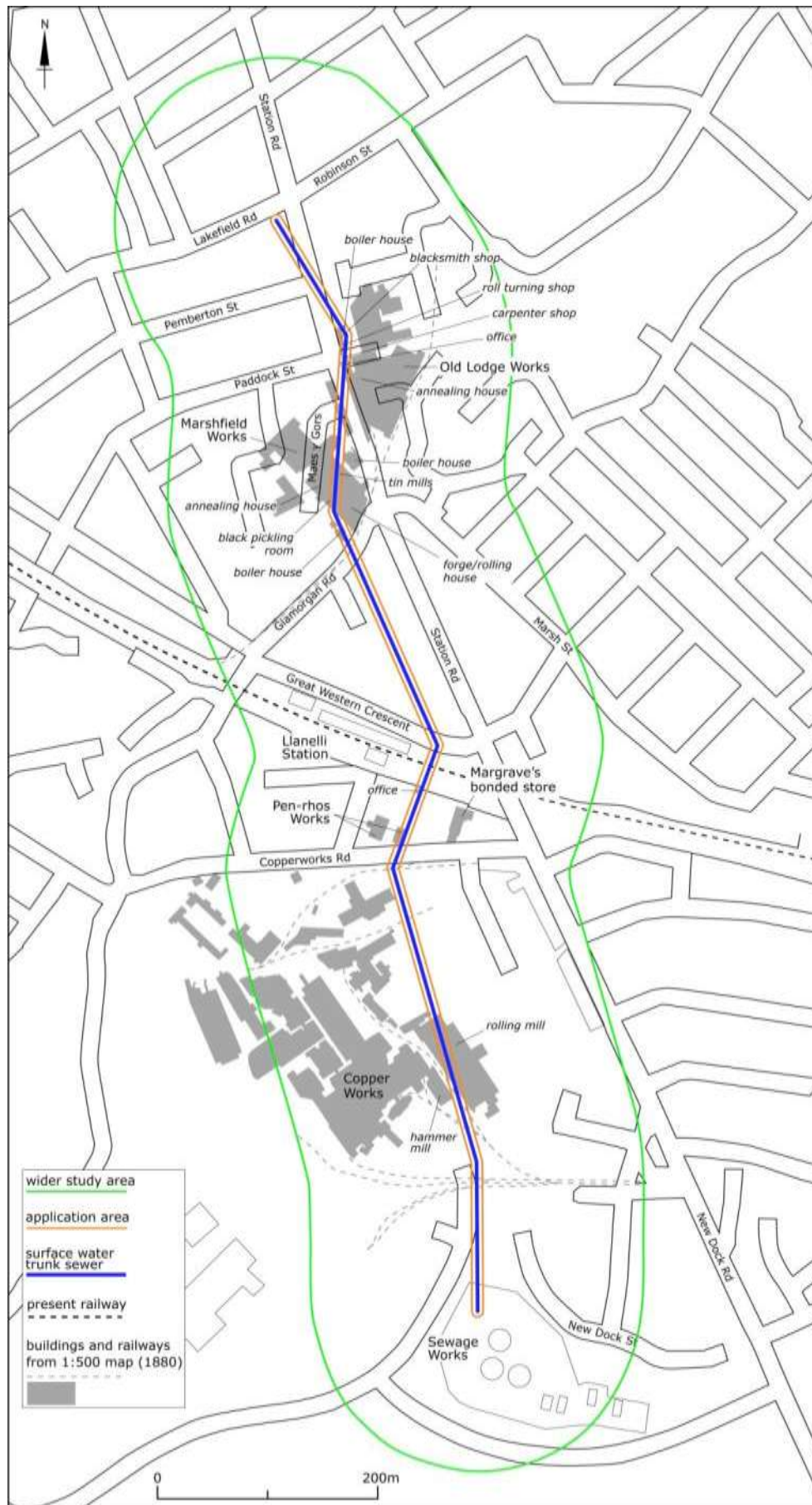


Figure 7: Location plan of metal working sites and rail/tramway sites

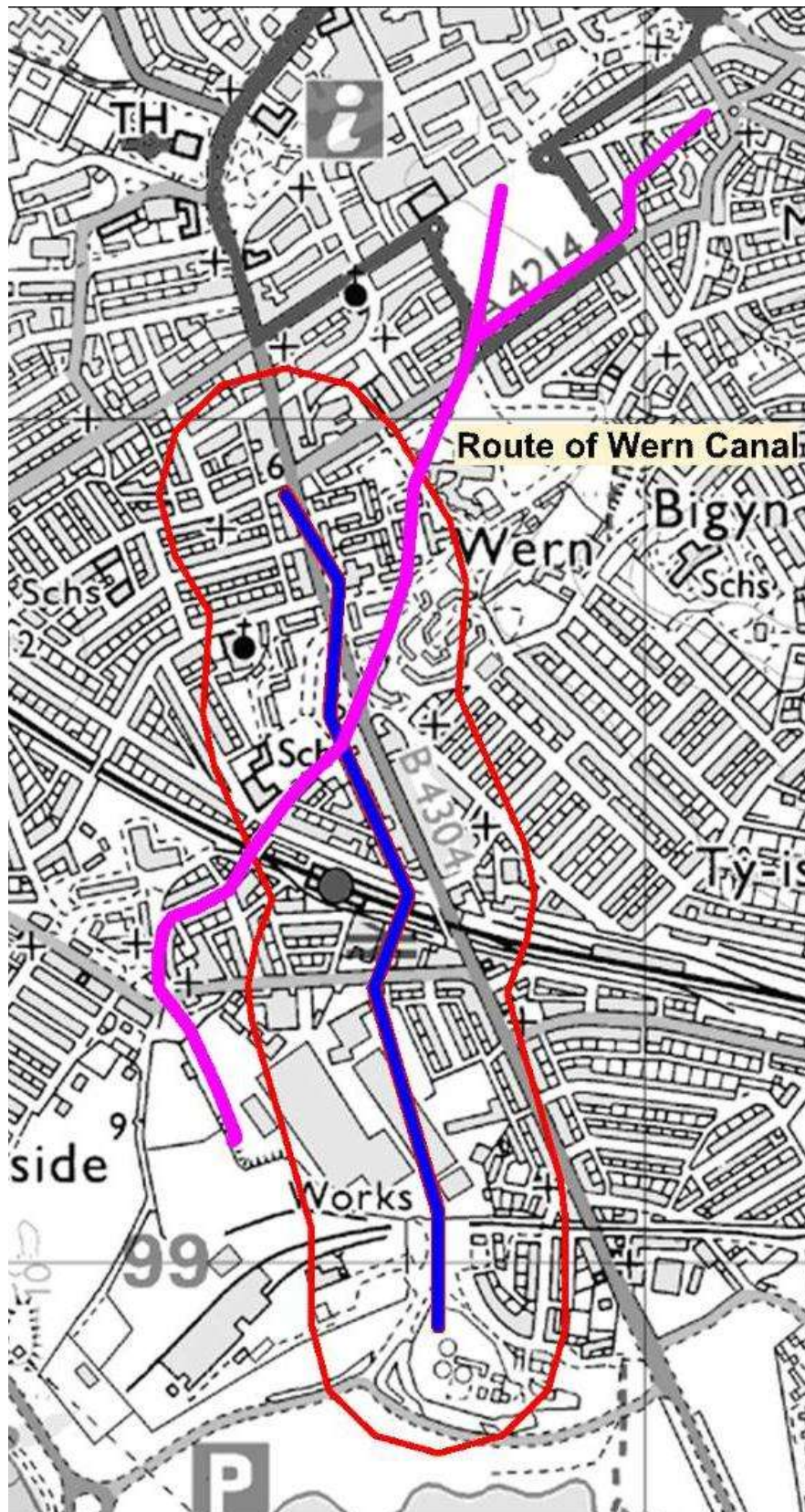


Figure 8: Route of Wern Canal

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Other Industrial

Two further industrial sites are recorded on the HER and NMR in the study area. These are the Copperworks brickworks (PRN 30718; NGR SS 507 991) and New Brewery Llanelli (NPRN 466; NGR 50849 99460).

The Copperworks brickworks was established in 1868 to manufacture firebricks for the adjacent copperworks using fireclay from various collieries owned by the Llanelly Copper Works Company. The works closed sometime in the period 1878-1905 but reopened as the Penrhos Pottery in 1927 manufacturing refractory and firebricks using clay from Glyngwernen Colliery, Felinfoel. Brick making ceased in the 1960s but imported clay was milled on the site up until its closure in 1990 when owned by Goricon Metallurgical Services (Craig *et al*, 2002, 332). No brickworks is shown at the location recorded on the regional HER on any historic Ordnance Survey Maps, but one is shown at NGR SS 50818 99127 c.130m to the east.

Opened in 1875 the New Brewery Llanelli was established by William Bythway former manager of Buckley's Brewery in the town and was built on a site to the west of Marsh Street. By 1895 Bythway indicated that he was willing to sell the New Brewery which gained the interest of his former employers Buckleys, to whom Bythway refused to give firm production details or the size of the brewery estate. Buckleys offered to buy the New Brewery for £70000 on the basis that it produced 13000 barrels of beer a year. Bythway counter offered and indicated the brewery was producing 13500 barrels per year and owned an estate of ninety public houses for that he wanted £80000 and a position as a director of Buckley's Brewery. This was agreed, although a few days later Buckley's received documentation indicating that the production figures had been inflated by Bythway and many of his pubs were of little or no value. Buckley's sought legal advice about the validity of the sale and wanted compensation from Bythway. The case was settled out of court when a sale price of £74000. Bythway was also not given a position as director of Buckley's Brewery (Glover, 1993, 141-142).

Neither the Copperworks brickworks or the New Brewery sites would be directly affected by the proposed sewer route.

Non Industrial

Non industrial sites are represented by two churches and three non-conformist chapels all of which lie within the study area and not within the proposed sewer line. These sites date from the 19th century and were built for the increasing population of Llanelli who moved into the town to work at growing number of industrial sites.

Two recorded dwellings (Glanmor House and Scale House) also lie within the wider study area. Glanmor house (PRN 24363; NGR SS 505 997) was demolished in the early 20th century for terraced housing to be constructed along the south side of Glanmor Road and for the a new road called Nevil Street. A more accurate grid reference for the site would be SS 50495 99682. The second dwelling recorded is Scale House (NPRN 17791; SS 50831 99033). The present condition of this house is not known.

The final non industrial site located within the wider study area is Llanelly Bank (PRN 24206; NGR SS 5060 9960). The NGR provided on the HER for this site is indicative and the precise location of the business is not known. Little is recorded about the history of Llanelly Bank except that a renewal licence was issued in 1812 to Richard Pemberton, the Elder, of Barnes, Durham; Ralph Steven Pemberton of Llanelli, Carmarthenshire; and Richard Pemberton the Younger, of Castle Street, Holborn, London (House of Lords Sessional Papers, 1801-33, p 27).

3.2.12 Modern (20th century to present)

One site of modern date is recorded on the NMR within the study area; the Church of Latter Day Saints, Morfa, Llanelli (NPRN 97262; NGR SS 506 995) which was built in 1996.

3.3 Cartographic Information

3.3.1 The earliest cartographic source consulted for this assessment was Saxton's map of Carmarthenshire from 1578 (not illustrated), which depicts 'Llanelthye' and shows the church (although the scale of the map is such that no further detail is given).

3.3.2 The earliest detailed map of the area is that of the Ordnance Survey Surveyors Drawing map of 1813. There is an indication of field boundaries dividing the proposed development site but detail is lacking. The Copperworks are marked along with Wern Colliery and a property known as Rheol Fawr. The 1841 Tithe Map for Llanelly Parish also fails to show the area in any detail with much of the study area being depicted as blank. However, the Copperworks are marked, as are Pembertons and Carmarthenshire Docks.

3.3.4 The 1st edition Ordnance Survey map 1:2500 scale map of 1880 (Figure 11) provides more detail of the landscape than the earlier cartographic sources. The area is shown to be heavily developed with industrial sites interspersed with terraced housing and railway/ tramways. Further industrial and residential development is shown on the 2nd edition 1908 1:2500 scale Ordnance Survey Map.



Figure 9: Extract of 1813 original OS Surveyors Drawing.
Study area outlined in red.

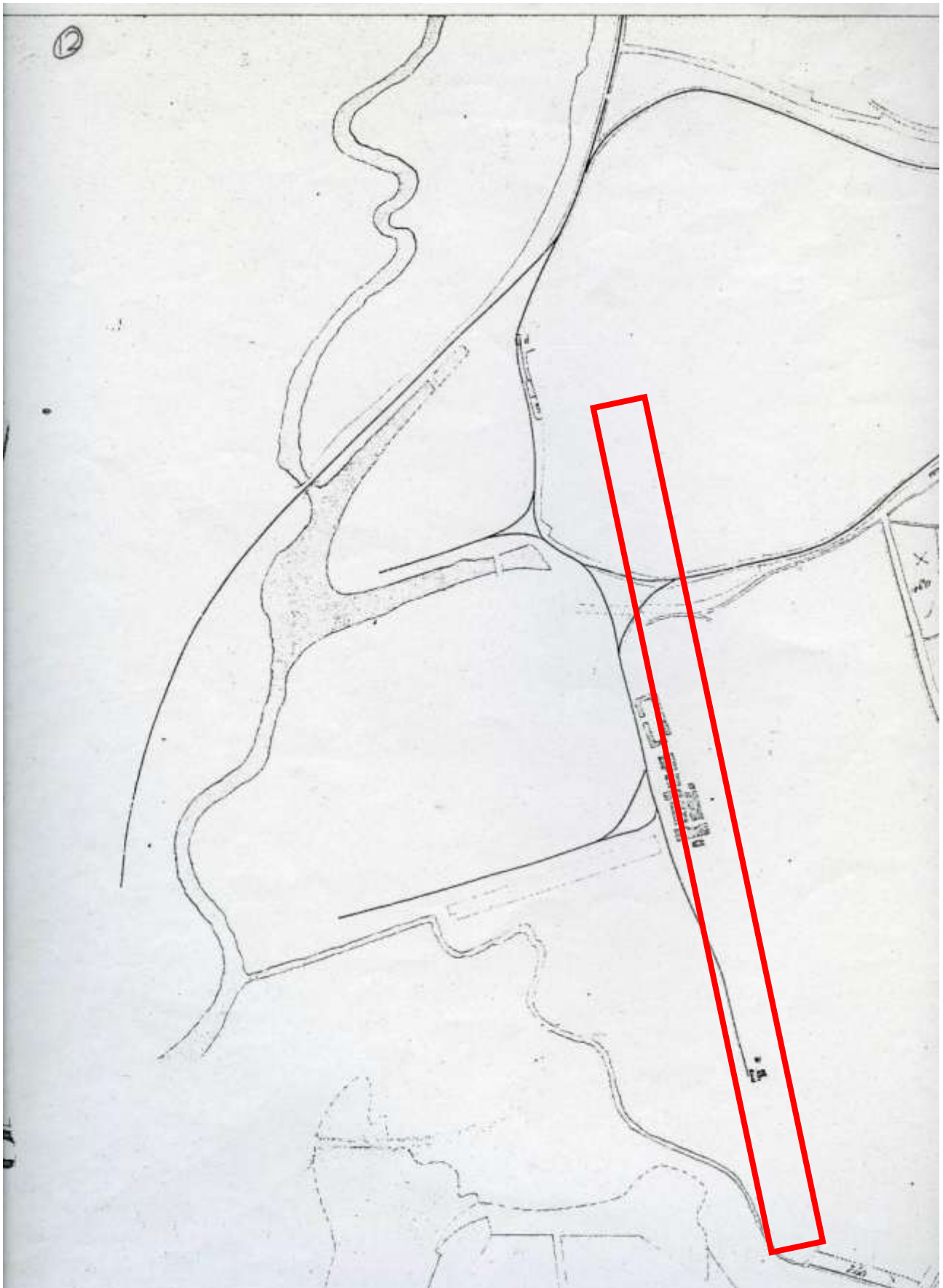


Figure 10: Extract of 1841 Llanelly Parish Tithe Map showing approximate area of the proposed sewer line outlined in red.

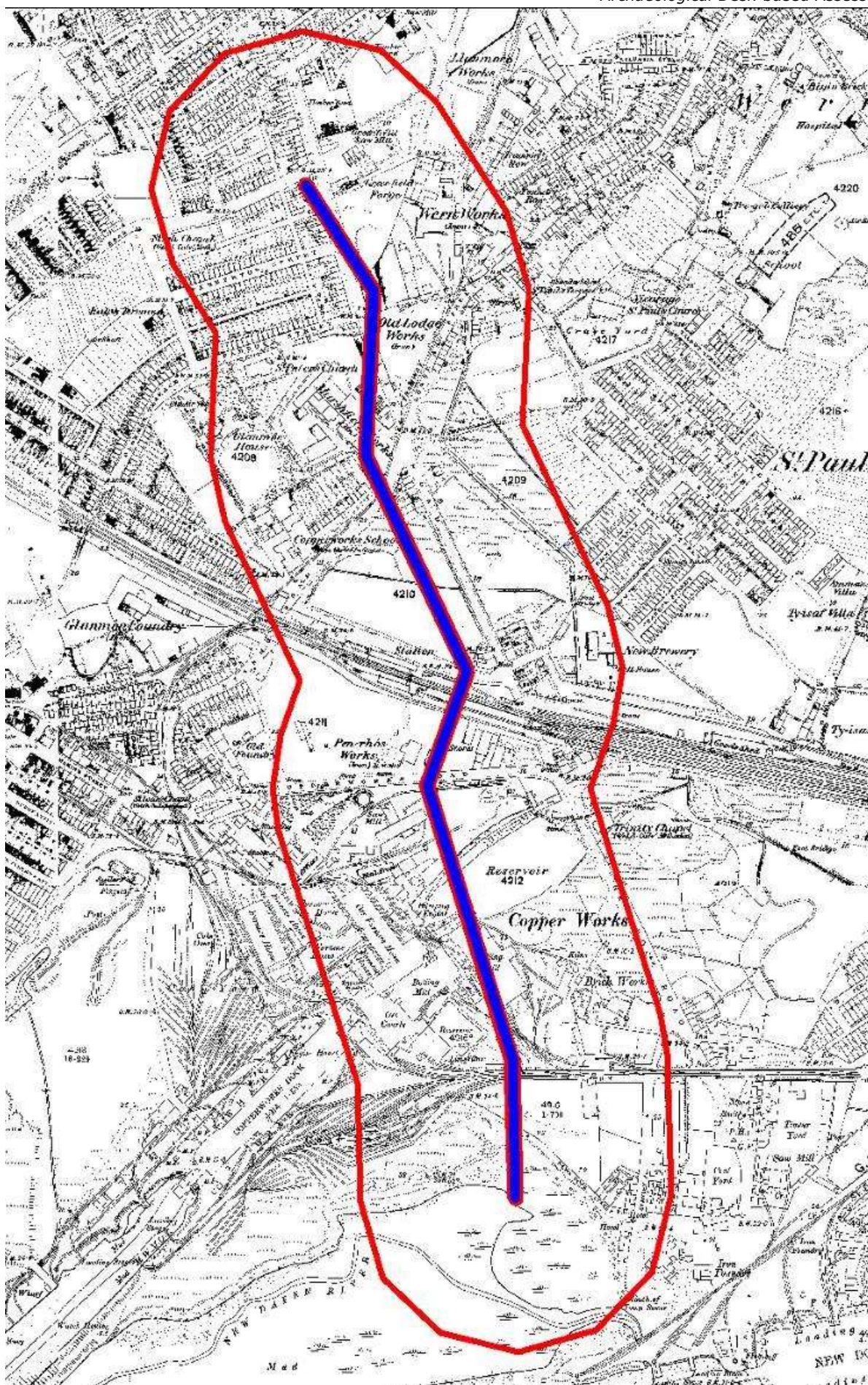


Figure 11: Extract of 1880 1:2500 scale OS map

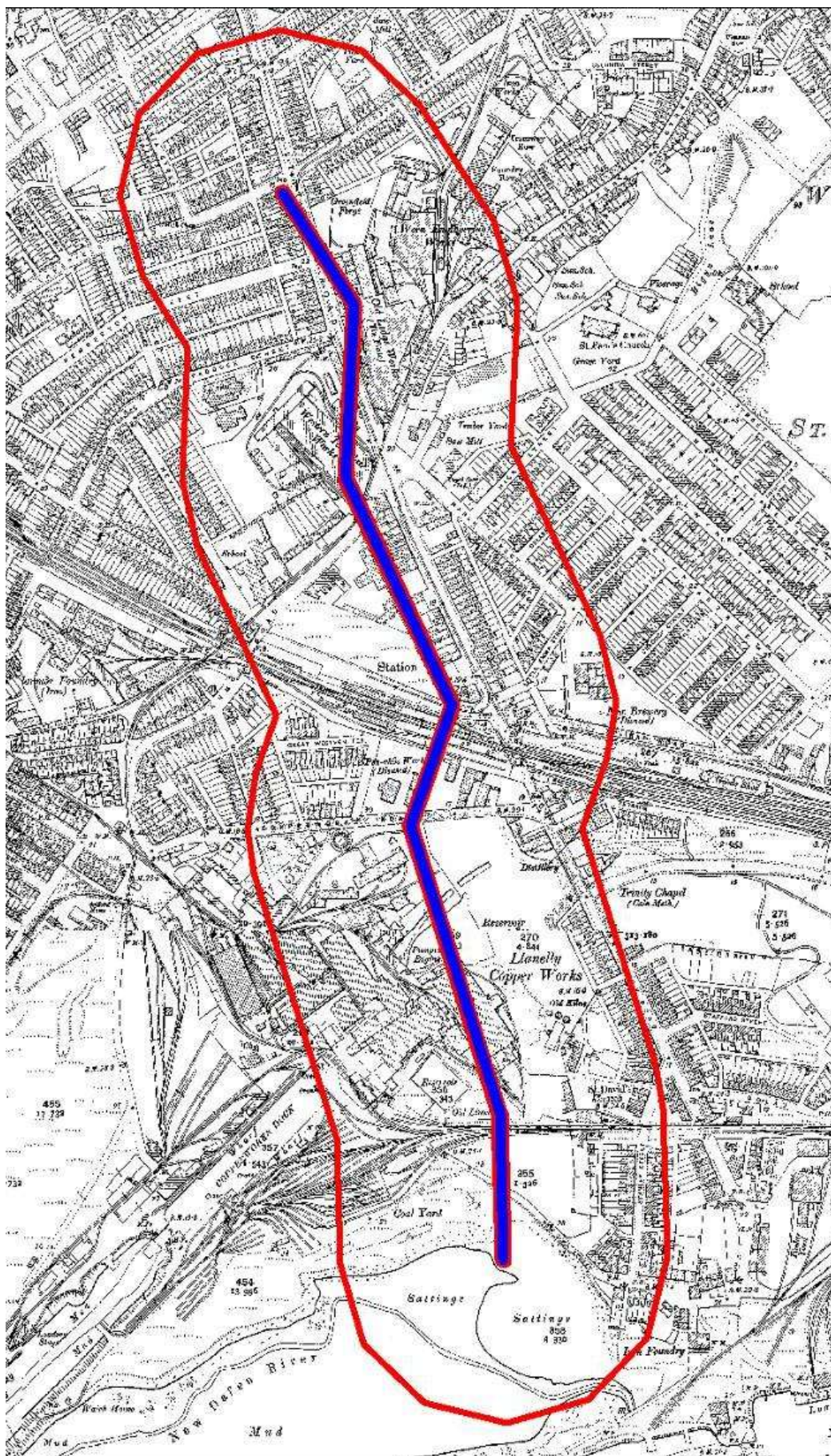


Figure 12: Extract of 1907 1:2500 scale OS map

3.4 Site Visit

3.4.1 A site visit was undertaken on 28th February 2014. The visit comprised a walkover of the proposed route of the sewer development, and partial access to those areas where visibility was restricted. Photographs were taken and field observations were recorded in a notebook.

3.4.2 The site walkover commenced from the junction of Station Road and Lakefield Road. The south side of the junction where the route of the proposed sewer crosses is occupied by a late 20th century residential development known as Lakefield Close (photo 1), whilst to the north lies the 19th century Rolling Mill public house (photo 2). The sewer line route then runs southeast crossing Station Road (photo 3) before crossing the site of the former Old Lodge Works. This is now occupied by the modern house development of Clos Sant Paul, although a blue plaque to commemorate the works is affixed to the side of one of the buildings in the development (photo 4)

3.4.3 The route then turns south crossing Station Road again before running through the mid to late 20th century municipal housing development of Maes y Gors, which stands on the site of the former Marshfield Works (photos 5-7)). The route of the sewer line continues southeast through a landscaped area before crossing Glanmor Road. It then enters an area which could not be accessed during the walkover survey to the rear of properties fronting the west side of Station Road.

3.4.4 The proposed sewer line route is next accessible near the junction of Great Western Crescent and Station Road (photo 8). At this location it crosses the rear of the Hotel Miramar and Great Western Crescent continuing through the main South Wales railway line (photo 10). To the south of the main railway line the route crosses the site of the former Penrhos Works which is now partly occupied by the Antioch Community Centre (photo 11). At the entrance to the car park of the community centre a blue plaque commemorates the Stepney Spare Wheel Works (photo 12). The Stepney Spare Wheel was invented by Thomas Morris Davies in 1904 as at that time cars were not supplied with spare wheels. The spare wheel soon went into full production and by 1909 the Stepney Spare Wheel was fitted to all London taxis. The business went on to have agencies worldwide and in 1922 production was moved to Walthamstow, but this was short lived as car manufacturers began supplying spare wheels to all new cars which led to the demise of the Stepney Spare Wheel. However, the memory of the wheel lives on in India, Bangladesh and Malta where a car spare wheel is still known as a 'Stepney'. Approximately 55m to the east of the Antioch Centre is a partially demolished complex of 19th century buildings now used as a dance studio (NGR SS 50731 99366). These buildings formed part of the bonded stores for Margrave Brothers Excelsior and Pearl Whiskies from at least 1874 (photo 13). The head office of the company was located in Llanelly House.

3.4.5 From the Antioch Centre the proposed sewer route cross Copperworks Road and into the now gated former Copperworks site that was latterly used by the Draka copper wire facility which closed in 2008/09. The site has since been cleared of all buildings (photo 14 – 16). A new school development is proposed for this site.

3.4.6 The proposed sewer line route was inaccessible from Clos Ty Tafol at the end of New Dock Street as was the sewerage works, but it was possible to view the outfall into the New Dafen River. In this area it was also possible to view the cleared Copperworks site. It was not possible to gain full access to the Copperworks site (photo 17).



Photo 1: South facing view of Lakefield Close.



Photo 2: North facing view of the Rolling Mill public house.



Photo 3: South east view of Station Road.



Photo 4: Modern residential development occupying site of Old Lodge Works.



Photo 5: Modern development of Maes y Gors occupying site of Marshfield Works.



Photo 6: Blue plaque commemorating Marshfield Works at Maes y Gors



Photo 7: Landscaped area to south of Maes y Gors.



Photo 8: Hotel Miramar. The sewer line would pass approximately where the red car is parked.



Photo 9: Melbourne Sports and Social Club (left) and Railway Tavern (right), Station Road



Photo 10: West facing view of Llanelli railway station.



Photo 11: Antioch Centre, Copperworks Road, on site of Wern Foundry and later Stepney Spare Wheel Works



Photo 12: Blue plaque commemorating Stepney Spare Wheel Works.



Photo 13: Remains of former Margrave Bros Excelsior & Pearl Whisky bonded stores.



Photo 14: Blue plaque commemorating Llanelli Copperworks, Copperworks Road.



Photo 15: Gated entrance to former Llanelli Copperworks site from Copperworks Road.



Photo 16: View north across former Llanelli Copperworks site.



Photo 17: East facing view of sewerage works.

3.5 Previous Archaeological Work

3.5.1 No previous intrusive archaeological work has been undertaken within the boundaries of the proposed route of the sewer line. .

4. IMPACT ASSESSMENT

4.1 Previous Impacts

4.1.1 It is possible that the site area was used for coal extraction during the medieval and later periods, although due to the depths of coal seams across the proposed development site area, this is considered very unlikely. If such activity did occur, then it is likely that any earlier archaeological remains would have been disturbed or destroyed by extensive later development.

4.1.2 Early 19th century mapping shows the area was mostly agricultural land. Mapping since the mid-19th century indicates that the area was partially industrialised.

4.1.3 By the latter part of the 19th century the area had been extensively developed for industry and with terraced housing. Much of the old industrial sites were cleared during the latter part of the 20th century and in many cases have now been redeveloped. The only former industrial site that is currently undeveloped is the former Copperworks site although a new primary school is proposed for this site area.

4.2 Potential Impacts from Development

4.2.1 The site contains no upstanding remains of buildings or structures associated with early settlement, farming or mineral extraction. The area is densely built up with a combination of 19th century commercial properties interspersed with 19th century and modern residential development. The nature of any archaeological activity the development of the area in the 19th and 20th centuries primarily relates to the industrial development of the area. Should any remains be present they would be represented by buried earth-cut features, or wall footings.

4.2.2 The precise methodology for the installation of the proposed new surface trunk water sewer main is unclear but is likely to include the excavation of pits to accommodate drilling machinery at accessible locations along the route. It is also proposed that open cut trenching would be utilised at the routes southern end between the sewerage works and the final sewer outfall into the New Dafen River.

5. ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL AND IMPORTANCE

5.1 The archaeological desk-based assessment has indicated that a number of former coal mining, metalliferous working sites and associated former transportation routes lie within the proposed route of the surface water trunk sewer. The report has highlighted the following potential archaeological resources within the site area, although their presence would be affected by previous disturbances (see section 4.). An assessment of their most likely archaeological importance is also made⁵.

5.2 The potential for remains of Palaeolithic date to be present in the site area is considered to be very low to negligible as no such remains have been recorded within the study area, and are known to be scarce in the wider area. If found to be present such remains would be considered to be of national importance.

5.3 The potential for remains of Mesolithic and Neolithic date to be present within the site area is considered to be very low to negligible. No remains of these periods have been recorded within the study area. Such remains are usually insubstantial and fragile and it is most unlikely that remains of this date, if present, would have survived the industrial and modern development. If found to be present, such remains would be considered to be of at least regional importance.

5.4 The potential for remains of Bronze Age and Iron Age date to be present within the site area is considered to be very low as no such remains have been recorded within the study area. Again later development may well have disturbed any such remains. If found to be present such remains would be considered to be of at least regional importance.

5.5 No Roman activity has been found in the vicinity of the site area, and as such activity is usually quite finds rich and easy to recognise, this lack of remains would suggest the potential for remains to survive within the development site is very low. If present, they would be of at least regional importance.

5.6 The potential for remains of Early Medieval date to be present within the site area is considered to be low as no such remains have been recorded within the study area. If found to be present such remains would be considered to be of at least regional importance.

5.7 The potential for remains of medieval settlement to be present within the site area is considered to be low. The site area does not lie near any definite settlement foci, which would have been centred around the church and castle. Any associated settlement is unlikely to have stretched as far as the development area. The study area is likely to have laid within agricultural lands surrounding the medieval settlement at Llanelli. The potential for medieval mining remains, in the form of bell pits or similar, is considered very unlikely due to the depth of the coal seams in this area. Should settlement remains be present, they would be considered of local to regional importance, as would mining remains. Agricultural remains would be of low archaeological importance.

5.8 Post-medieval (1535-1750) remains would follow a similar pattern to medieval remains, again the site area predominantly being used as agricultural land, and remains of such being of low importance. Evidence for post-medieval mining may be present, although again, the depth of the coal seams makes this unlikely.

5.9 Industrial period remains are most likely to exist within the route of the proposed sewer line. This study has identified that collieries, airshafts, metal working sites and rail/tramways all lay within the study area and elements lying

⁵ The potential for remains of higher or lower archaeological importance for all periods cannot be discounted.

within the route of the sewer line. Although no standing structures associated with these industrial period sites are present within the development area, it is very likely that they could survive as below ground features, including foundations, floor surfaces, pits, service runs, air shafts etc. Such remains would be considered to be of local importance.

6. CONCLUSIONS

6.1 The archaeological assessment has shown that the proposed surface water trunk sewer route lies within a landscape of containing very limited archaeological information for all periods excluding Industrial and Modern. This may be as a result of a lack of previous archaeological works undertaken within the area or due to extensive disturbance from extensive later development.

6.2 No known archaeological remains are present within the study area from the entire prehistoric period through to the medieval period. There is considered to be a very limited potential for hitherto unknown remains to be present of the Palaeolithic, Mesolithic, Neolithic, Bronze Age, Iron Age, Roman and Early Medieval periods.

6.3 Medieval settlement activity is considered unlikely within the development area boundary. Medieval mining is highly unlikely due to the depth of the coal seams in the area. The land was probably used for agricultural purposes; the archaeological significance of any associated remains being low. This is considered the same for the post-medieval period.

6.4 By the industrial period the study area was substantially developed with a range of collieries, brickworks, metal working industries and transportation links. The proposed surface water sewer line crosses a number of such sites along its route.

6.5 It is probable that further archaeological works, possibly in the form of a watching brief, may be required prior to or during construction of the sewer line. As noted within this assessment there is the possibility for at least one air shaft to be present within the proposed route of the sewer, associated with deeper coal workings. Such shafts could cause significant issues in terms of construction and health and safety.

7. SOURCES

Database

Dyfed Archaeological Trust Historic Environment Record, housed with Dyfed Archaeological Trust in The Shire Hall, Llandeilo, Carmarthenshire, SA19 6AF.

Maps

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SURFACE WATER TRUNK SEWER, LLANELLI, CARMARTHENSHIRE: ARCHAEOLOGICAL DESK-BASED ASSESSMENT

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Paratowyd yr adroddiad hwn gan / This report has been prepared by

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Mae'r adroddiad hwn wedi ei gael yn gywir a derbyn sêl bendith
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*Yn unol â'n nôd i roddi gwasanaeth o ansawdd uchel, croesawn unrhyw sylwadau
sydd gennych ar gynnwys neu strwythur yr adroddiad hwn*

*As part of our desire to provide a quality service we would welcome any
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