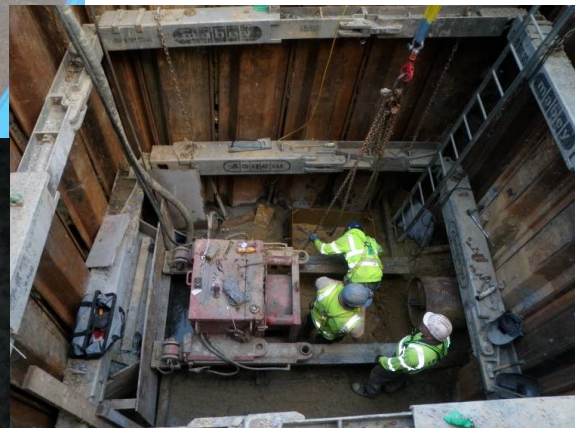




DG5 Sewer repair and flood alleviation works in central Truro, Cornwall

Archaeological watching brief



Cornwall Archaeological Unit

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Archaeological watching brief

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This study was commissioned by James Field, Ecologist and Environmental Planner for South West Water Ltd and carried out by Historic Environment Projects, Cornwall Council.

The Project Manager was Charles Johns.

The views and recommendations expressed in this report are those of Cornwall Archaeological Unit and are presented in good faith on the basis of professional judgement and on information currently available.

Freedom of Information Act

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Cover illustration

Top – the start of works, looking west across the Combined Sewage Outfall excavation in Victoria Square (September 2013).

Right - the deep Thomas Johnson Court excavations showing the auger borer in action! (December 2013).

Bottom – the five crucible bases found beneath Victoria Square, plus a token oyster shell.

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Abbreviations

CAU	Cornwall Archaeological Unit
CRO	Cornwall Record Office, Truro
CSO	Combined Sewage Outfall
CSUS	Cornwall and Scilly Urban Survey
EH	English Heritage
HER	Cornwall and the Isles of Scilly Historic Environment Record
MCO	Monument number in Cornwall HER
NGR	National Grid Reference
OD	Ordnance Datum - height above mean sea level at Newlyn
OS	Ordnance Survey
SWW	South West Water Ltd
TBRG	Truro Building Research Group

1 Summary

Cornwall Archaeological Unit (CAU), Cornwall Council was commissioned by James Field (Economist and Environmental Planner) on behalf of South West Water Ltd (SWW) to undertake an archaeological desk-based assessment and watching brief, during the Truro DG5 sewer repair scheme.

The purpose of the scheme was to prevent sewer flooding in several western Truro properties by upsizing both foul and surface water sewers and diverting some flow to an existing storm tank.

The works were extensive, lasting from September 2013 to August 2014, and were almost entirely within the public highway. The streets affected were:

- The lower half of Kenwyn Street, Victoria Square, Dominick Street, Little Castle Street, Frances Street, Ferris Town, the lowest part of Edward Street, Kenwyn Mews and Thomas Johnson Court.

The majority of the works required open trenching. Where this was not feasible the new pipes were laid via auger boring, which did not allow for archaeological recording of disturbed deposits. All areas of open trenching were regularly inspected for archaeological deposits, remnant structural remains and artefacts.

New archaeological information includes:

- Evidence for different types of land build-up, including later massive single phased dumping of imported mine waste, earlier small scale/piecemeal dumping of local quarry material, and the use of local industrial waste – including crucibles.
- Evidence for changes in the course and character of the River Kenwyn, including the probable shift north of today's river, the existence of a broad low-lying area prone to flooding on the southern side of today's river.
- The sealed remains of at least four different river associated deposits, including basal cobbles/gravel and overlying peagrit/silt – free-flowing water deposits; and differentially coloured silts and muddy clays – probably the result of regular flooding or water-logging.
- Evidence for the early character of Kenwyn Street as a probable causeway, with areas of lower-lying ground to its north, which crossed the River Kenwyn via the former West Bridge.
- The remains of potential medieval? structural remains probably associated with the use and alteration of the river bank, including the deeply buried base of a wall close to the former rivers edge, and an adjacent cut feature.
- The remains of post-medieval/modern structures of domestic or trade-related use with associated garden soils.
- Possible evidence for the preparation of ground prior to build up, and the extreme dearth of domestic artefacts despite the long history of use for this part of Truro.

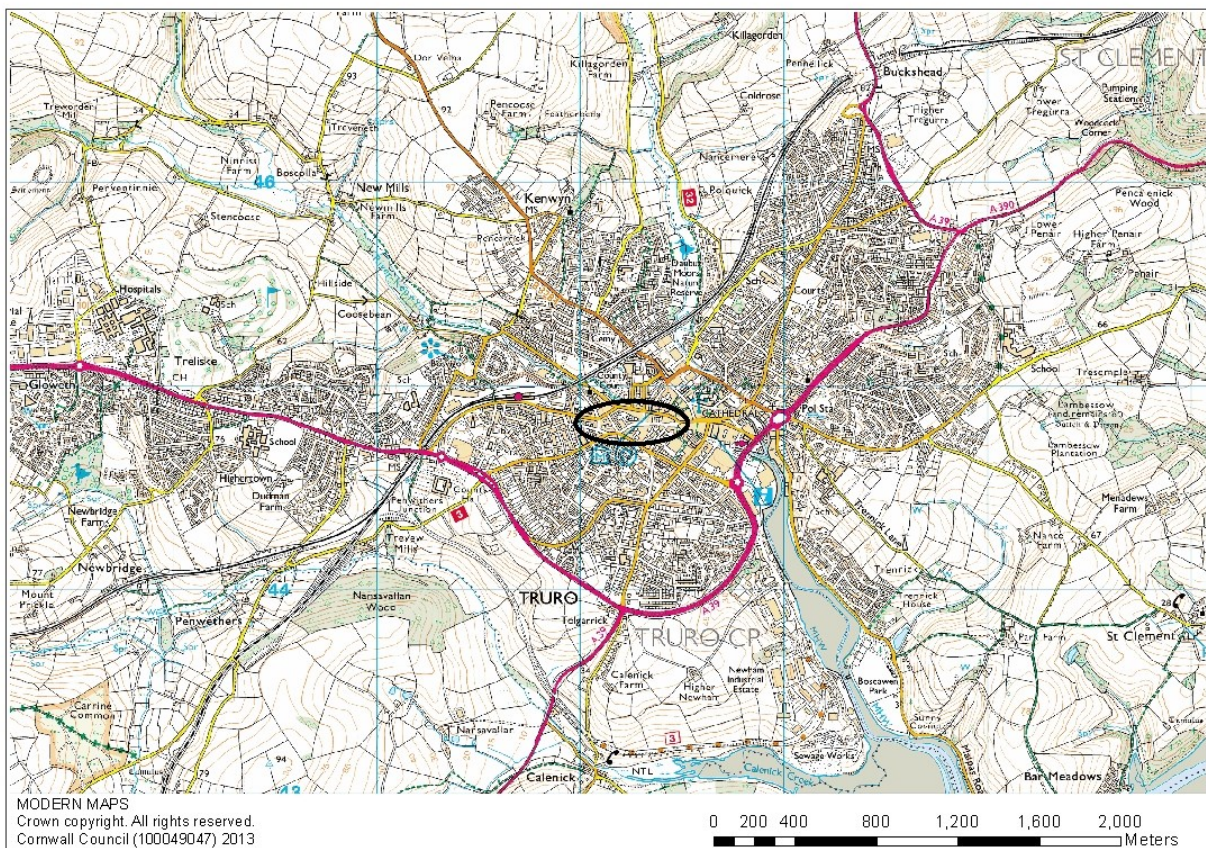


Fig 1 Map of Truro showing the location of site works.

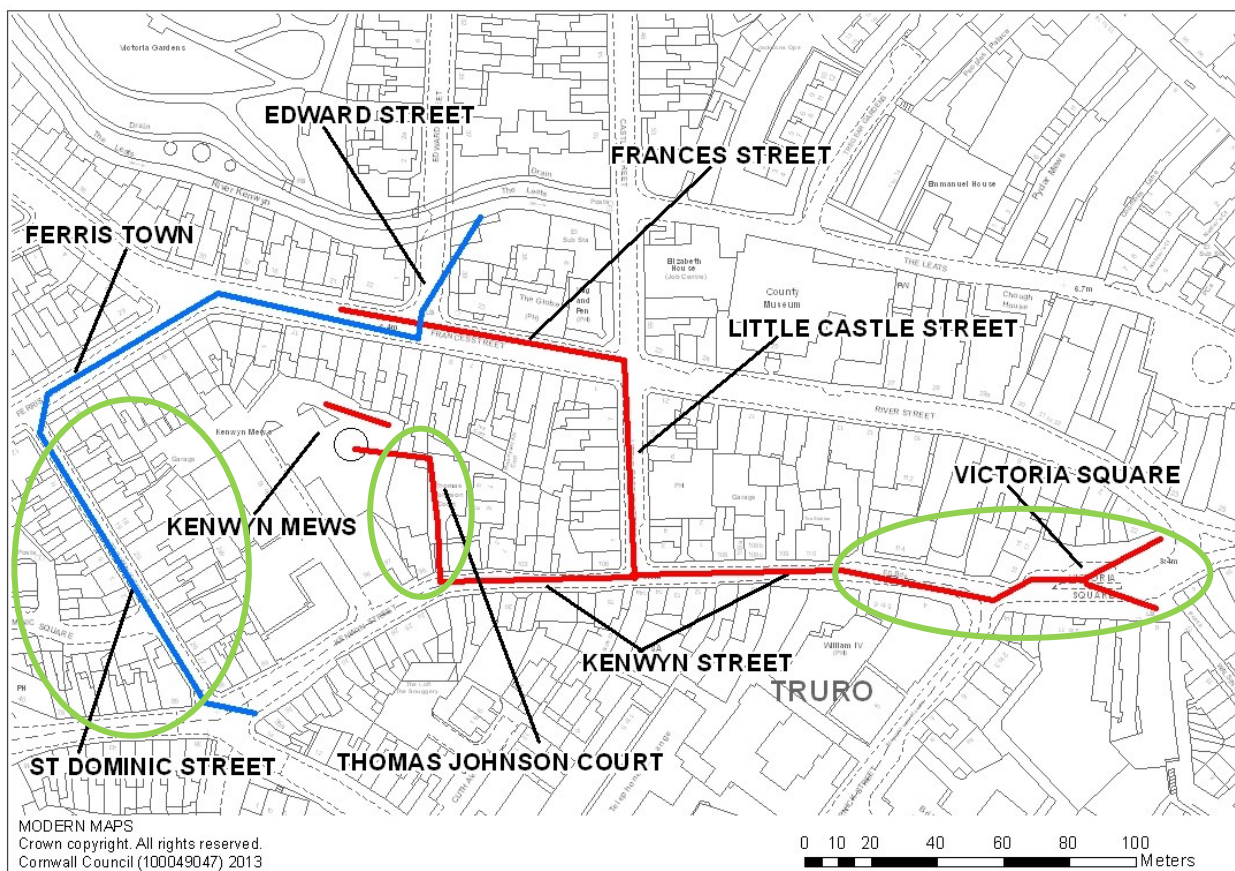


Fig 2 Site extent within Truro with all affected streets named. Blue line shows surface water pipeline, red line shows foul water pipeline, and the green ovals are areas of new or deeper pipe coursing.

2 Introduction

2.1 Project background

A Written Scheme of Investigation (WSI) for archaeological recording during the Truro DG5 sewer repair scheme was prepared by Cornwall Archaeological Unit (CAU), Cornwall Council for South West Water Ltd at the request of James Field, Ecologist and Environmental Planner (SWW). It was informed by advice provided to SWW by Dan Ratcliffe, the Historic Environment Planning Advice Team Leader (HEPATL), Cornwall Council in an email dated 31 January 2013.

The purpose of the scheme was to prevent sewer flooding in Truro by upsizing foul and surface water sewers and diverting some flows to an existing storm tank. All works were located within the public highway, requiring selective closure of a number of streets in central Truro. The works were extensive and were ongoing from September 2013 through to August 2014.

2.2 Aims

The site specific aims were to:

- Establish the presence/absence of archaeological remains.
- Determine the extent, condition, nature, character, date and significance of any archaeological remains encountered.
- To establish the nature of the activity on the site.
- To identify any artefacts relating to the occupation or use of the site.
- To provide further information on the archaeology of the history of Truro from any archaeological remains encountered.

2.3 Methods

All work was carried out according to the Written Scheme of Investigation (Appendix 1).

Open trenches were monitored and recorded using a combination of methods, including:

- Exposed sections were measured, drawn and annotated
- Context numbers were issued for all main deposits and descriptions written (including colour, dimensions, likely origin/formation, associated finds or features etc.)
- Photographs were taken of all trenches / sections and any significant features or deposits
- Any visible artefacts were noted, and significant finds collected for identification and dating
- Samples were taken selectively

All recording work was undertaken according to the Chartered Institute for Archaeologists *Standards and Guidance for Archaeological Investigation and Recording*. Staff followed the CIfA *Code of Conduct* and *Code of Approved Practice for the Regulation of Contractual Arrangements in Archaeology*. CIfA is the professional body for archaeologists working in the UK.

3 Project Area

The works affected a number of areas in central Truro; Victoria Square, Lower Kenwyn Street, Upper Kenwyn Street, Thomas Johnson Court, Kenwyn Mews, Little Castle Street, Frances Street, St Dominic Street, Ferris Town and lower Edward Street.

The works included the replacement of old pipes and the laying of new pipes via open trenches, tunnelling and auger boring in the following areas:

- Excavation for new pipe between Victoria Square and eastern half of Kenwyn Street.
- Excavation for new pipe along Dominic Street.
- Replacement of existing pipes along the western half of Kenwyn Street.
- Replacement of pipes above existing pipe in Little Castle Street.
- Replacement of pipes above existing pipe in Frances Street.
- Replacement of pipes above existing pipe between Frances Street and Ferris Town.
- Trenchless boring between Edward Street and the Leats (which has a Grade II Listed retaining wall).
- Excavations around Kenwyn Mews Storm Water tank - including sections of new and replacement pipe.

4 Designated and non-designated sites

4.1 National

Figure 4 shows all the Listed Buildings (shaded yellow) within the immediate area of the site works. In numerical order the Listed Buildings by street are:

- Frances and Edward Street - 1201450, 1201457, 1201458, 1205346, 1205355, 1205357, 1280790, 1282670 and 1282676
- Ferris Town and Dominick Street - 1201455, 1201456, 1280770 and 1282675
- Little Castle Street and Kenwyn Street - 1201469, 1205483, 1205524, 1280686, 1280774, 1282641 and 1282680
- Victoria Square - 120154, 1280355 and 1282639

These consist almost entirely of Grade II Listed street frontage properties along the line of the works only. The pipeline trenching passed particularly close to (although did not affect) the corner of Lavenders delicatessen (120154) and extended in to the southern edge of the leat (MCO 48361 / 1280790) – piercing the Grade II Listed retaining wall.

4.2 County

Figure 3 shows the Truro Conservation Area (DCO 167) shaded as turquoise. It covers the historic core and earlier ribbon-development within the current city limits. The site works fell completely within this Local Planning Authority protected area.

4.3 Local

Figure 4 shows all the HER identified sites that are near to the Kenwyn Street works. Each is marked by an MCO number.

In terms of proximity to works and character of site identified the first two bullet-pointed sites were potentially more significant than the final bullet-pointed sites (which were unlikely to be affected by the works).

- Listed mid 19th century Wesleyan chapel gate piers (MCO 32413)
- Non-designated Dominican friary building complex (MCO 25139), West Bridge (MCO 9766), Watering place, steps, leat and bridge (MCO 48361)

Note: the friary site does not have a known plan and may have extended beyond the point marked.

- Dominican friary well (MCO 25140), Medieval/Post-Medieval find spot (MCO 1789), Post-Medieval corn mill (MCO 25155) and demolished structure (MCO 25171).

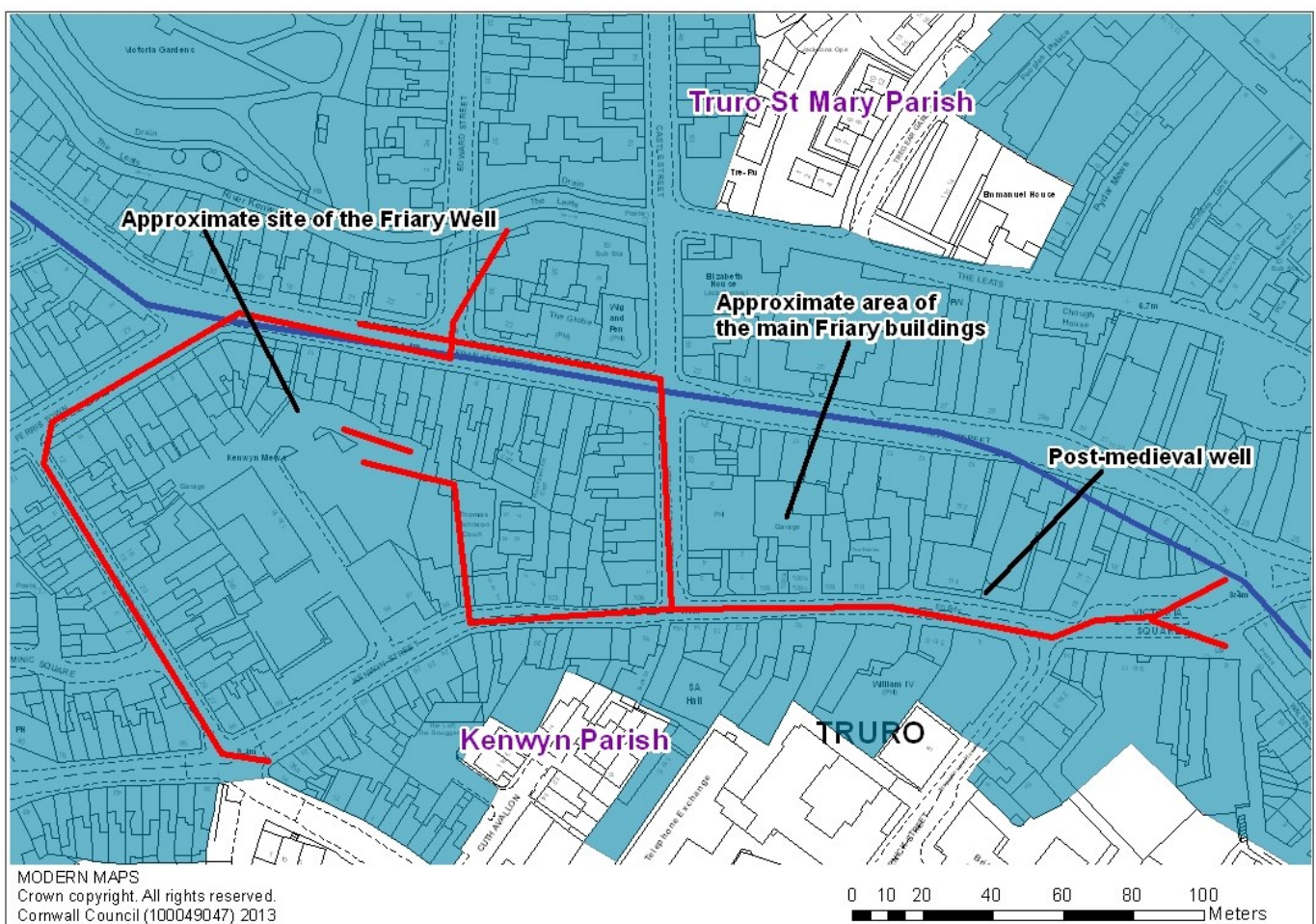


Fig 3 Ordnance Survey digital mapping showing the site, (with the works shown in red, the Conservation Area in turquoise and the Parish boundary in purple).

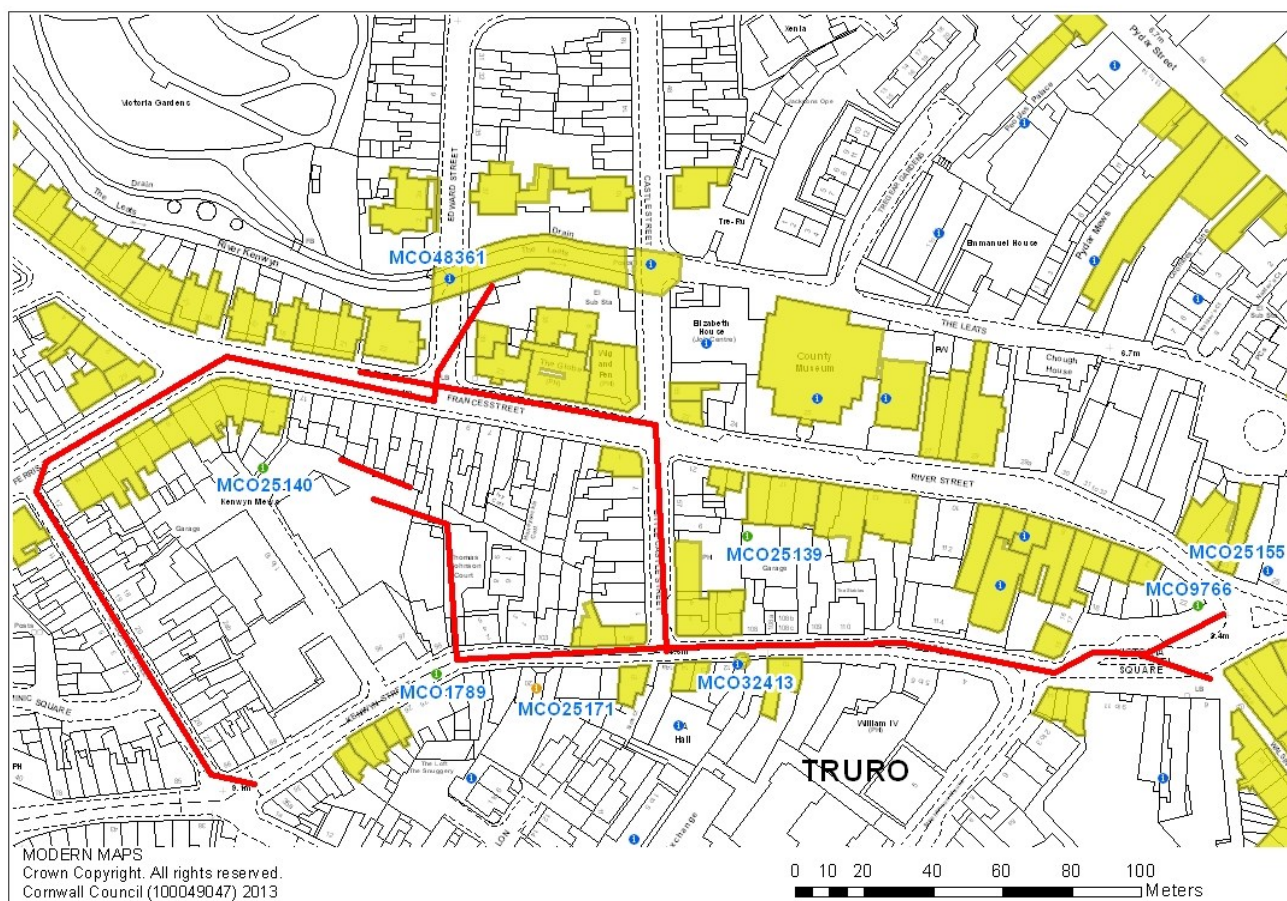


Fig 4 Ordnance Survey digital mapping showing the site (with Listed Buildings in yellow and Historic Environment Record sites/site numbers in blue).

The following HER identified (MCO) sites are shown above and located within 30m of the site works.

MCO1789 – Documentary. Medieval/post-medieval finds spot in Kenwyn Street of brass jettons (brass counters/tokens used with abacuses in trade etc and later associated with gambling).

MCO9766 – Documentary. Medieval bridge named West Bridge in 1434, which crossed the River Kenwyn. The site now lies beneath Victoria Place.

MCO25139 - Documentary. Site of Dominican Friary. Founded before 1259-1260 and dissolved in 1538. Dependent on charitable aid its presence reflects Truro's growing wealth.

MCO25140 – Documentary. Medieval Well site associated with the former Dominican Friary site located further to the east (see MCO 25139).

MCO25155 – Documentary. Post-medieval corn mill. Town mills were recorded in 13th century Truro. They were demolished in 1837. The associated leat survives beneath the ground.

MCO25171 – Demolished structure associated with 19th and 20th century finds.

MCO32413 – Extant. Post-medieval, probable mid 19th century gate piers at the entrance to the former Wesleyan Chapel, now used by the Salvation Army.

MCO48361 – Extant. Post-Medieval watering place, steps, leat and bridge at southern foot of Edward Street, crossing the River Kenwyn and close to the bridge over the leat.

5 Site history

The following general history of Truro is taken from Reynolds (1998); the following more specific site history has been taken from a combination of sources, including Reynolds (1998) and the WSI (Appendix 1), with additional details from the Truro Cornwall and Scilly Urban Survey (CSUS) report (Kirkham 2003), Sturgess (2000), Douch (1977) and Acton (1997). The information shown in Figs 5 to 8 and photograph Figs 9 to 10 has also been referred to.

5.1 Brief general history of Truro city

The first documented reference to Truro dates to 1140, but it is likely that the area had been long occupied by this time. Truro gained its first charter in 1153, after it had been granted to Richard de Luci as a manor. The site of a castle, perhaps de Luci's, is now occupied by the law courts. Truro subsequently developed as a centre for maritime trade, becoming a tin-coinage town by the mid-14th century (Sheppard 1980, 23).

The oldest road in Truro is considered to be Pydar Street, incorporating the High Cross area, although the first reference to the street does not appear until 1464 (Sheppard 1980, 25; TBRG 1979, 3). It originally included the stretch of road which is now known as King Street. The earliest record of a still extant street is that of St Nicholas Street, which was first recorded in 1278 and probably took in part of Boscawen Street and Princes Street (Sheppard 1980, 25; TBRG 1979, 3). The main road to the west was Kenwyn Street, which is believed to have been a poor district, adjoining the lands of a Dominican Friary, which was established by 1259 (Sheppard 1980, 25). Overall, the medieval layout of Truro is uncertain, although the medieval town was probably centred on these roads.

Growth continued throughout the later Medieval period, despite the set-back of the Black Death (1348/9 and 1361/2), and by 1575 Truro was handling a third of all the tin produced and smelted in Cornwall, with an Elizabethan charter granting a weekly market on Saturdays and an optional one on Wednesdays (Sheppard, 1980, 23).

In 1584 John Norden described Truro as, 'a pretty compacted towne, well peopled and wealthy merchauntes ...ther is not a towne in the weste parte of the Shyre more commendable for neatness of buyldinges and for being served of all kynde of necessaries', suggesting a fairly busy and prosperous market town (Norden 1728).

By the 17th century quays faced each other across the River Allen; for example Enys Quay and Town Quay are both named in documents, as was Back Quay on the Kenwyn River. Commercial warehouses or 'cellars' would have been constructed on land behind the quays, and the riverside areas would have been the focus for bustling activity (Sheppard 1980, 23).

Trade was boosted in the 18th century with the mining boom and Truro became a centre for many associated industries, such as smelters and foundries, ropewalks and timber yards. Many of these were probably located on wharves and quays. It is to this period of economic expansion, from the later 18th to the end of the 19th centuries that most of the prestigious buildings of Truro date, such as the City Hall, many buildings in Lemon Street, the Cornwall Library and the Royal Institution of Cornwall (Sheppard 1980, 23).

5.2 The Dominican Priory

Truro's medieval Dominican Friary (see Figs 3 and 8) is thought to have lain between Frances Street, Kenwyn Street and River Street although it may have extended further to the west and north. Established during the 1250s on reclaimed marsh on the south side of the River Kenwyn, the friary continued in use until the Dissolution of the Monasteries in 1538, (Douch 1977, 21).

The earliest references to the Kenwyn Street area come through the Dominican Friary. It was the practice of the Dominicans to settle in marginal lands, reclaiming the site to create a more habitable environment (Douch 1977, 21). The Dominican Order originated in Italy and did not arrive in Britain until 1212 (Knowles and Hadcock 1971, 213). Their church at Truro was dedicated by Bishop Bronescombe of Exeter in 1259. It is therefore probable that the Friary was established in the 1250s (their nearest neighbour at Exeter was established in 1232, so it is unlikely that the Truro site was founded prior to this (Knowles and Hadcock 1971 214).

The site chosen in Truro was set up close to one of the lowest possible crossing points of the estuary at West Bridge, in the shadow of the castle to the immediate north. It is hard to imagine other settlers around this marshy and tidal area prior to the reclamation of the land by the Friars; however, there probably were a few who braved the wet conditions to establish trades at this focal point.

Kenwyn Street may have existed in some form at this early stage. Historical and archaeological evidence points to the Friary buildings being contained to the north of the present day Kenwyn Street (Rose 1981; Henderson 1963, 324). Friary churches were often positioned on a public road as they were used for preaching to secular congregations, again attesting to the existence of a thoroughfare at this location.

The main buildings of the Friary appear to be located in the block of land enclosed by Kenwyn Street, Little Castle Street and River Street, it is almost certain that the precincts of the Friary ranged at least as far as St Dominic Street in the west and possibly as far north west as Waterfall Gardens in St George's Road (Henderson 1963, 324; Spry 1840, 40). When Frances Street and River Street were extended in c. 1840, walls and worked stone were recovered, which were attributed to the Friary, thus suggesting a northern limit at the base of the Castle Hill, (Spry 1840, 40-1). As late as 1700 parts of the Friary were still standing, whilst excavations on the corner of Castle Street and Kenwyn Street have uncovered further walls and human remains, including over one hundred stone coffins in 1808 (Penaluna 1838, 257; Spry 1840, 40; Hartgroves 1988).

The Friary well (see Fig 3) was situated to the south of Frances Street (at the northern end of the proposed development site) and is marked on 19th century town plans. Spry (1840, 40) described the well in c 1800: *"no stonework was traceable but there was a heap of rubbish each side of the pit almost completely covered with grass sufficiently indicating its locality; a beautiful stream of water issued from it which now passes behind the houses"* (southern side of Frances Street). This stream appears as a leat on later town maps and was probably constructed by the Friars to serve the Friary precinct. It is highly unlikely that the well would have been located outside the Friary, indicating that this area was part of the grounds. Spry goes on to say that until around 1830, the land to the west of Kenwyn Street, now cut by Little Castle Street, was known as 'The Friary' (*ibid*, 40).

In 1375, the Friars were granted a royal licence to purchase two plots of land, 100ft long and 50ft wide to enclose and 'enlarge the court of their house', (Douch 1977, 22). It is uncertain where this land was located. The Friary expanded further in 1462 following an endowment by Ralph Reskymer. This included a meadow, two gardens and a culver house to the west of their present holdings. This area has been interpreted as Waterfall Gardens and part of St George's Street by Douch, as this area was known as Culver Close as late as the 19th century (*ibid*, 22). This also explains the existence of St Dominic's Well to the front of Carvedras House on St George's Road. This well may have superseded or been used in conjunction with the well-off Frances Street, giving the latter a *terminus post quem* (no later than) date of 1462.

The Friary was closed by 'Voluntary' surrender of the house to the King in 1538 (Henderson 1963, 322). Whilst the furnishings were taken by the Mayor and town officials, there is no record of how the buildings were apportioned at this point. It is likely however that they were soon utilised as a convenient source of building materials. A lease dating to 1636 talks of *'all the old walls reedified builded and made a barn, with garden, orchard and meadow, part of certain lands in Kenwyn called the Friars'* (TBRG 1985, 6), giving some indication of the fate of the former Friary buildings. Likewise 'decayed tofts', 'pairs of walls', 'vacant plots' or 'gardens' are described along Kenwyn Street in the early seventeenth century (*ibid*, 9).

5.3 Carvedras House

Kenwyn Street was originally called Carvedras Street after Carvedras House, which was constructed between 1659 and 1662 and is referred to in lease of 1664 which describes *'All that decayed olde payre of walls neare the upper end of Carvoddris house and adjoining Carvoddris garden or orchard within the parish of Kenwyn together with 40' in the said orchard in breadth and 60' in length with 40' of ground more leading from the peare tree to the waye bounding with the gate of John Roberts leading to St Dominic's well. 'New built dwelling house there'* (RIC MAR/5/9). This lease is somewhat confusing as the present day location of St Dominic's Well is in the garden of Carvedras House in St George's Road. It appears however, that an earlier Carvedras House existed in the area covered by the present day car park, in front of the original Friary well. It is this earlier building that the lease refers to (as late as 1848, the majority of St George's Road was undeveloped). It seems that this land was initially sold in 1662 as *'Carvedras House in Kenwyn with neighbouring fields'*, and prior to this had been described in 1659 as *'3 places in Carvedras Street'*, the early name for Kenwyn Street (TBRG, 1985, 7).

A lease dating to 1772 identifies Carvedras House in Kenwyn Street, *'...Dwelling houses called Carvedras House and of the yards, backsides, orchards, gardens...belonging and adjoining situate, lying and being in Kenwyn Street in the parish of Kenwyn'* (CRO DDEN 285/2). A plan of the land, four years later, locates the plot on the proposed development site. It appears at this point to consist of a number of dwellings and orchards, which along with the wording of the lease, suggests that Carvedras House had been demolished or divided up and the area was now only referred to as 'Carvedras House' by association. This plan also shows the leat that was originally associated with the Friary well, described as a spring, and a number of 'old walls', presumably of dwelling places or outhouses.

5.4 Later history of the area

During the 19th century, Kenwyn Street was quickly developed along the road frontage. Various trade directories indicate a wide variety of businesses along the street. Initially, it appears that the area of the proposed development consisted of a malthouse (TBRG 1985, 21), and dwelling houses, as did much of Kenwyn Street, with the majority of traders occupying spaces along the eastern end of Kenwyn Street. The tithe map of the parish of Kenwyn (c 1840) shows houses, yards and gardens in this area, whereas Symons' map of 1842 shows an increase in the number of buildings along with infilling of the area between Kenwyn Street and Frances Street. Two large areas are taken over by what appears to be orchards. These may relate to a walled garden of 1.25 acres in Kenwyn Street leased at the end of the 18th century, containing *'a very good new built hothouse in complete and in excellent order and the walls of the garden are filled with fruit trees of the best sort in full bearing'* (TBRG 1985, 10).

A report by Dr Charles Barham on the *'sanitary state of the labouring classes'*, dated to 1841 presents us with a graphic picture of Kenwyn street at this time;

'On the south west of St Mary's, in the parish of Kenwyn, the best and the newest part of the town is situated, partly on a hill-side..., partly on a level at its foot (presumably Frances Street, Ferris Town, Richmond Hill), but some of the older quarters of the town are comprised in this division'. He goes on to say, 'Charles, Calenick and Kenwyn Streets present some of the worst specimens of defective arrangement, rendered worse still by the recklessness of the very poor...the amount of pauper sickness is considerable, the deaths not few. The two latter streets are, in the greater part of their length, but little raised above high water mark'. It is telling that the contemporary lists of notable residents of Truro are not to be found residing in these areas, whilst Dr Barham's report attests to the continuing problems of tidal water in low-lying areas of Truro.

Trade directories for the years 1844 to the 1860s attest to an increase in the number of businesses in Kenwyn Street, and although no street numbers are given, the sheer number dictates that they must have occupied the development area. In 1853, six taverns or hotels, auctioneers, basket makers, confectioners, hairdressers, tailors, stone masons, beer sellers, wheelwrights and an umbrella maker were amongst the wide variety of businesses in the street. No less than 52 traders or businesses were listed all told, including nine boot and shoe makers.

Cartographic evidence indicates that in plan the area changed little between 1842 and 1880 (Figs 7 and 8); with the two large open areas of orchard or garden remaining intact. The well leat is still depicted as an open culvert as late as 1880. The street directory for Kenwyn in 1873 shows a change in the focus of businesses. More of the buildings appear to be dwellings, with the main concentration of businesses once more congregating around Victoria Square. The Ordnance Survey map of 1907 shows evidence of further infilling on the development site, particularly to the western side, with the eastern remaining relatively undeveloped.

This pattern of land use has continued until the present day. The western portion of the development site was a garage until recent years, whilst the eastern section remained a largely undeveloped area. The site is now a car park operated by National Car Parks (NCP).

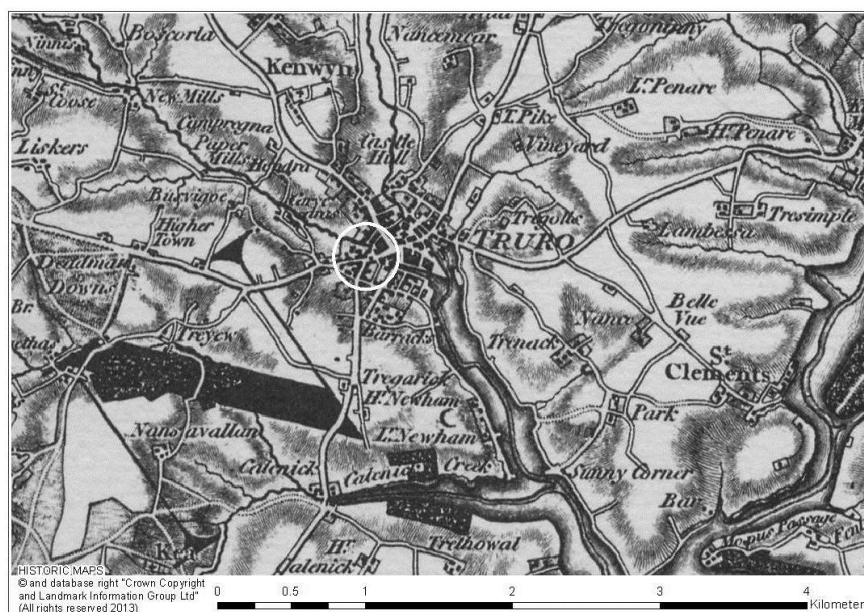


Fig 5 Extract from the OS First Edition One Inch Map c1809 showing the site location (circled).

Fig 7a Top - Plan of the Manor of Newham, 1831 (taken from Sturges 2000).

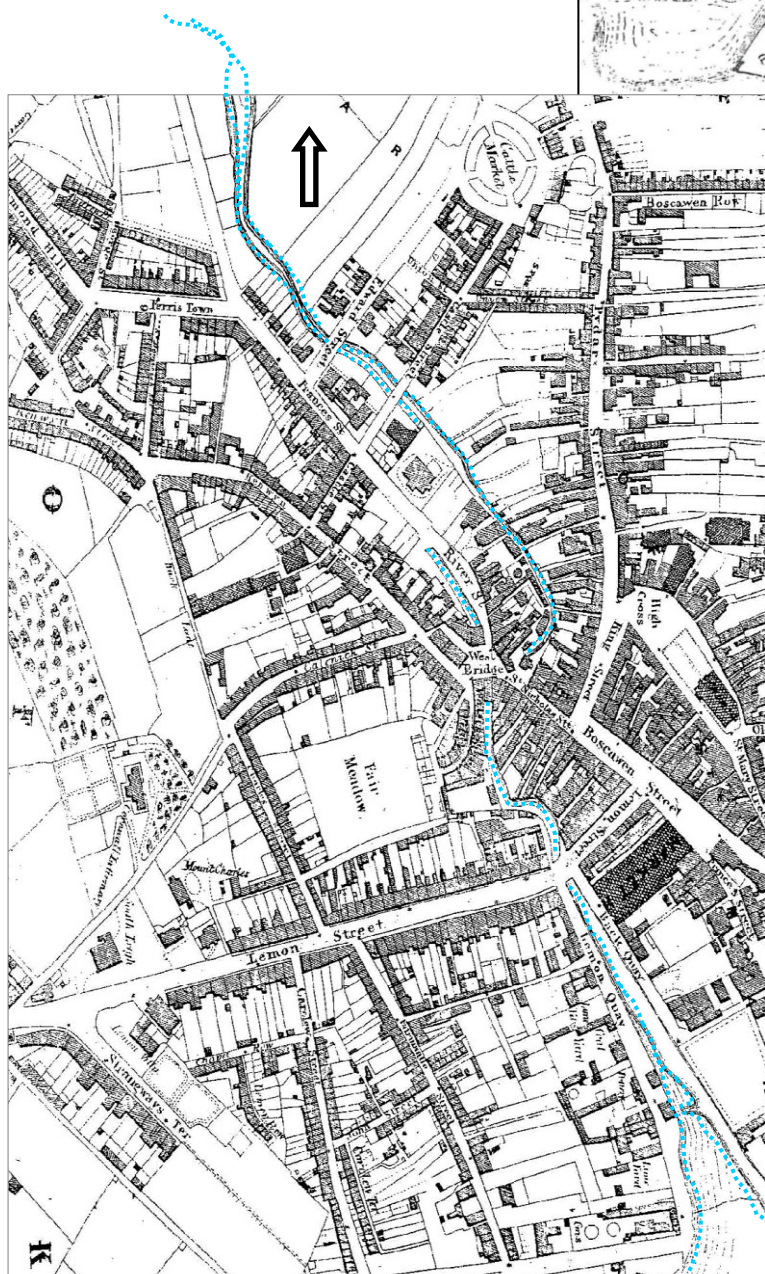
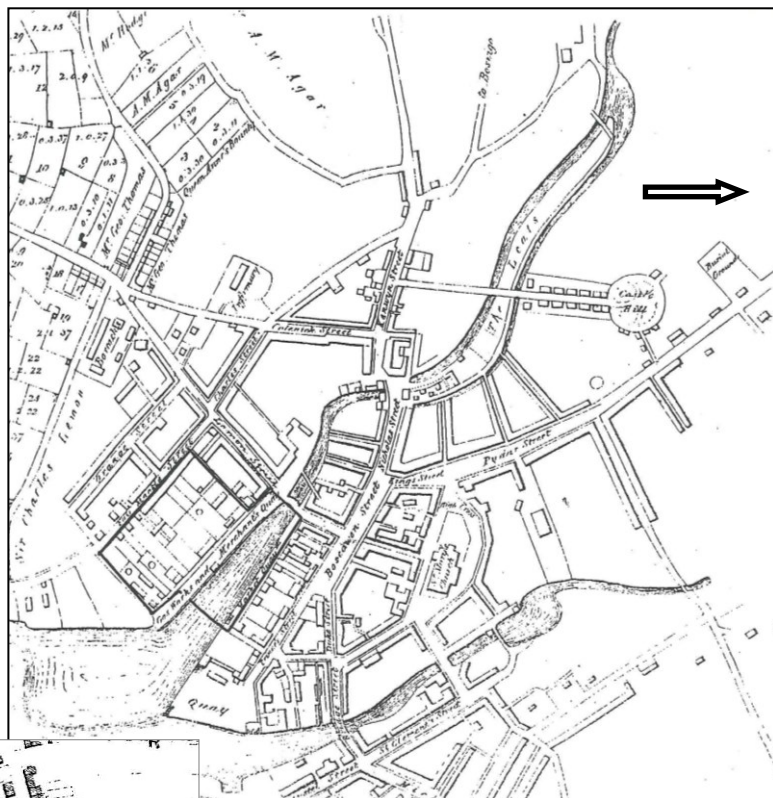


Fig 7b Bottom - Symons 1848 map showing the western part of Truro. Open river and leat are shown in blue. Approximate north shown.

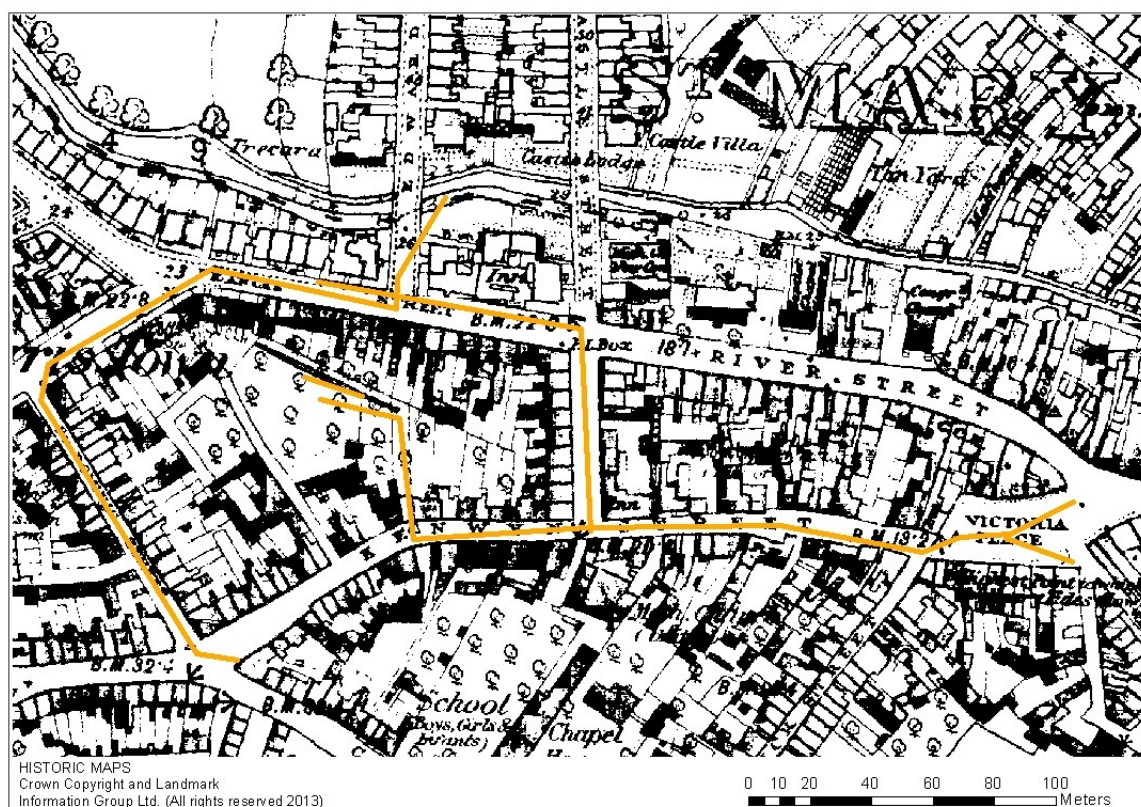


Fig 8a First Edition of the Ordnance Survey 25 Inch Map, c1880, showing the site alignment and adjacent street frontage.

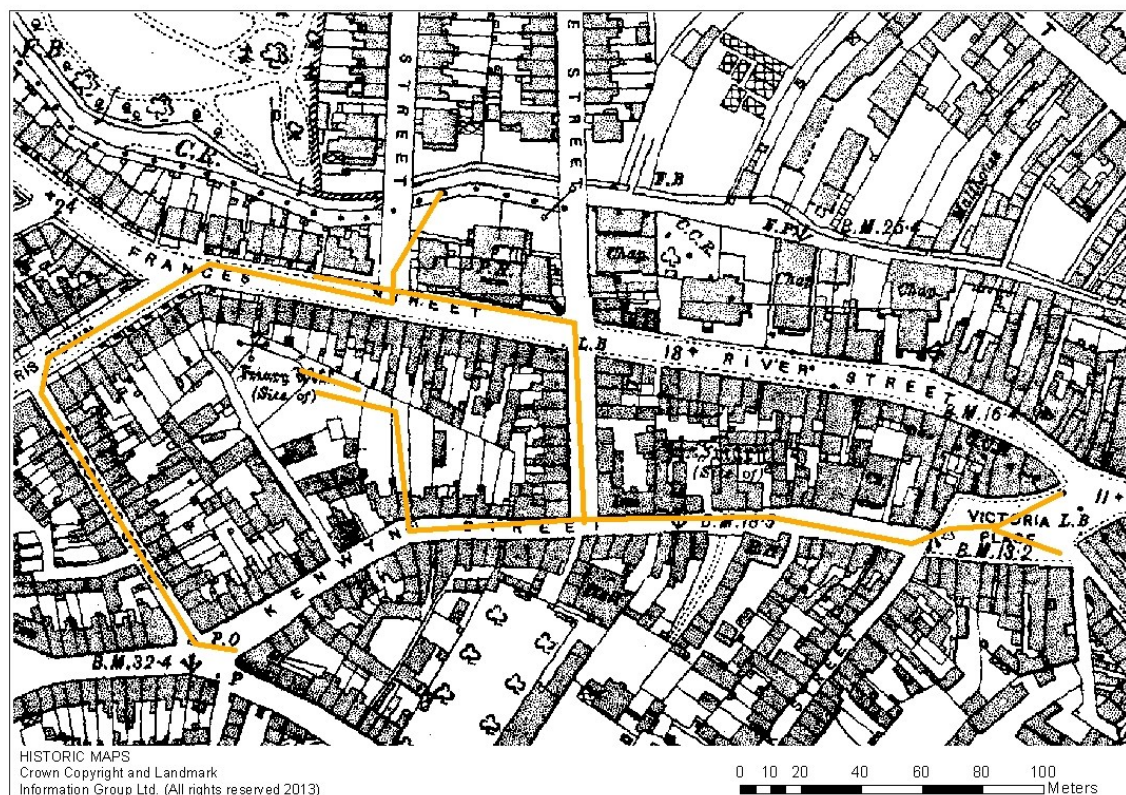


Fig 8b Second Edition of the Ordnance Survey 25 Inch Map, c1907, showing the site alignment and changing adjacent street frontage.



Fig 9 Second World War aerial photograph taken on 12th July 1946 (no. 4406).
Note the undeveloped area around the Friary Well site.

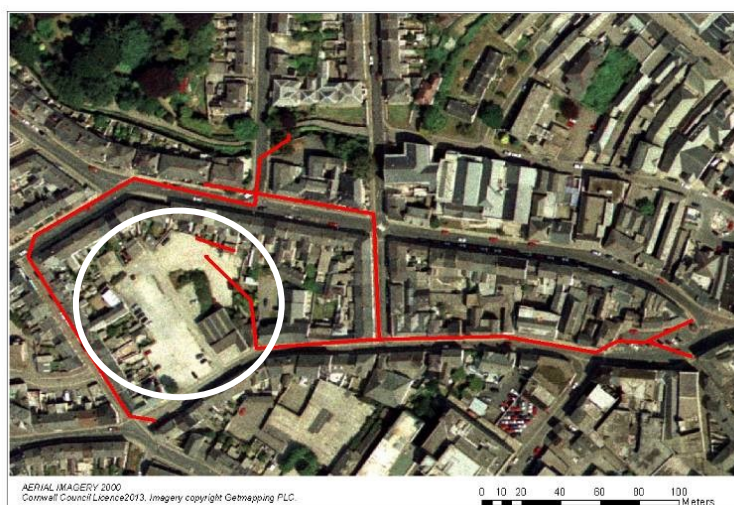


Fig 10 Aerial photographs for 2000 (top) and 2005 (bottom) showing the route of works in red and significant alterations around the Site of the Friary Well (white circle).

6 Archaeological results and interpretation

The watching brief has shown that ground levels have been considerably altered and substantially raised by the historic transporting in of dump material from local quarries and mine works since the medieval period. This altered the character and course of the river by enclosing it within built up banks.

Once the ground to either side of the river was sufficiently altered to be able to support a bridge and road, West Bridge was built. This carried the main western approach road in to medieval Truro via Chapel Hill and Kenwyn Street. Douch (1977, 32) suggests a probable early 14th century date for the construction of the bridge. The bridge linked Kenwyn and River Street (west of the river) to St Nicholas and Boscawen Street (east of the river). The site of the bridge now lies beneath the east-north-eastern part of today's Victoria Square. Douch records that *'As late as 1803 there were still people about who remembered the ford at that point: by the side of it there was a hump-backed bridge for pedestrians and steppings'* (1977, 17).

The results of the watching brief are presented as a series of short headed sections according to easily dividable sections of the scheme. Digital photographs are selectively annotated to aid discussion and details for all contexts, along with further interpretational data, are then presented in the context table.

Note: The Combined Sewage Outfall in Victoria Square has been abbreviated to CSO throughout the following report text.

6.1 Victoria Square

The CSO and associated trenches were excavated and works completed between early September and mid November 2013.

6.1.1 Peripheral sections of the CSO

Foul sewer outfall (front cover and Figs 11 and 15)

Works began with the excavation of the CSO in Victoria Square in September 2013. It was aligned east to west and measured 7.5m long and 4.5m wide with an approximate depth of 3m. Deposits showed river-course deposits **(3)** and sporadically **(4)** overlying natural bedrock **(1)** and **(2)**. Above these were a series of shillet-rich, variably sized dumps of redeposited material cut by old trenches **[11]** with various live and dead service pipes **(12)** running through them. Red brick/tile surface **(22)** overlies earlier services and may represent the base of an old drain or access point? (see gazetteer). Subsequent services cut through this layer. The top of the section shows pale hard-core and tarmac **(9)**.

6.1.2 Short trench running south-east from the CSO

Foul sewer pipeline (Figs 14)

Bedrock **(1)** was visible at the bottom of the trench. Overlying this was context **(6)/(16)**, which consisted of a series of substantial c1.8m deep, clean (find free) deposits of pale yellowish brown and pinkish-grey shillet or shillet and decayed shillet/clay. This material was used to build-up the ground level and probably initially came from local quarries, with probable later use of mine waste. It was subjected to twice daily tidal surges of water flowing in and out above bedrock.

No sealed former old land surfaces or soils associated with either the river or former garden soils running down to the river were identified. These might have been expected between the bedrock and the shillet infilling. It is possible that they were removed for reuse elsewhere (as suggested in the City Hall report (Berry *et al*, 1997)).

Above these build-up deposits were contexts **10 and [11]/(12)**. These contexts were all related to service trenches, manholes and associated underground

chambers at pipe junctions. Their sheer density meant that much of this bulk deposit had seen considerable long-term disturbance and re-deposition.

As the trench veered slightly north to join the CSO the pattern of dumping altered to become more piecemeal. These small dumps **(7)** were find-free and more variable than **(6)**. All contained small shillet lumps, much of which was decayed. Colours varied from grey and brown, to yellow and pinkish grey. Much of it appeared to have come from disturbed ground – perhaps from nearby building foundations or quarry waste, while some of it may be construction debris from stone trimming etc.

Approximately 8m before joining the CSO the open trench had to be tunnelled in order to pass under a raft of BT fibre-optic cables set within concrete.

Pale grey gravel-like deposits **(9)** topped by tarmac were visible along the length of the trench. Most of the service pipe and cable trenches had been refilled with the same material as had been excavated from the trenches.

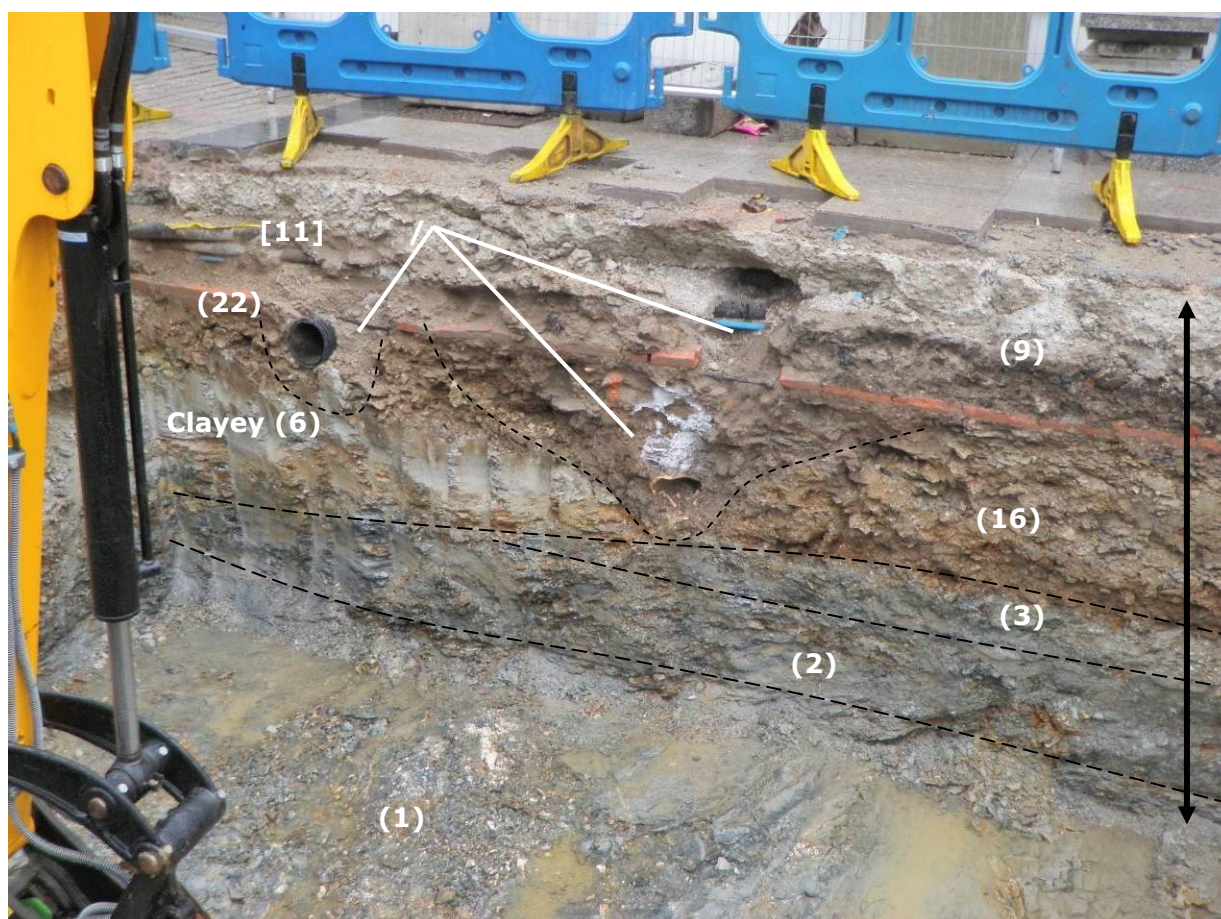


Fig 11 Looking north across the Combined Sewer Outfall (CSO) excavation, located in central Victoria Square (September 2013). The arrow is 3m long.

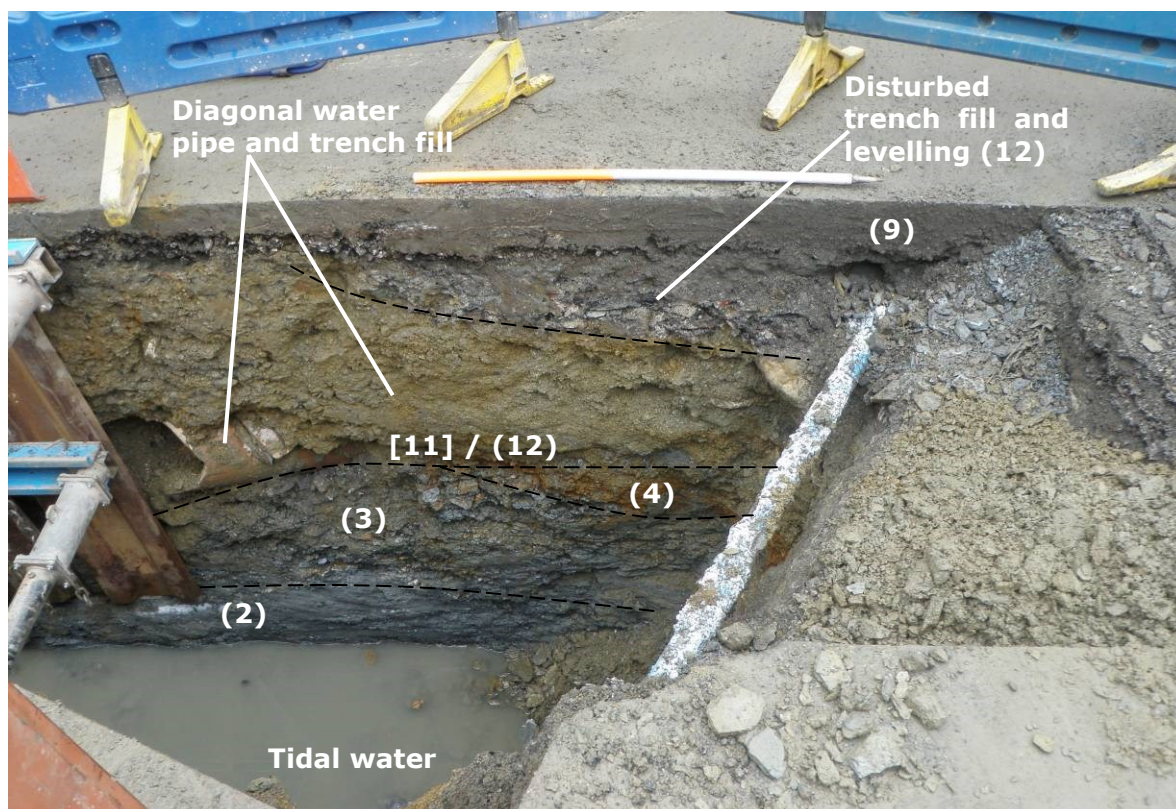


Fig 12 The eastern end of the northern trench extending east from the CSO excavation across Victoria Square. The visible section is 1.5m deep.

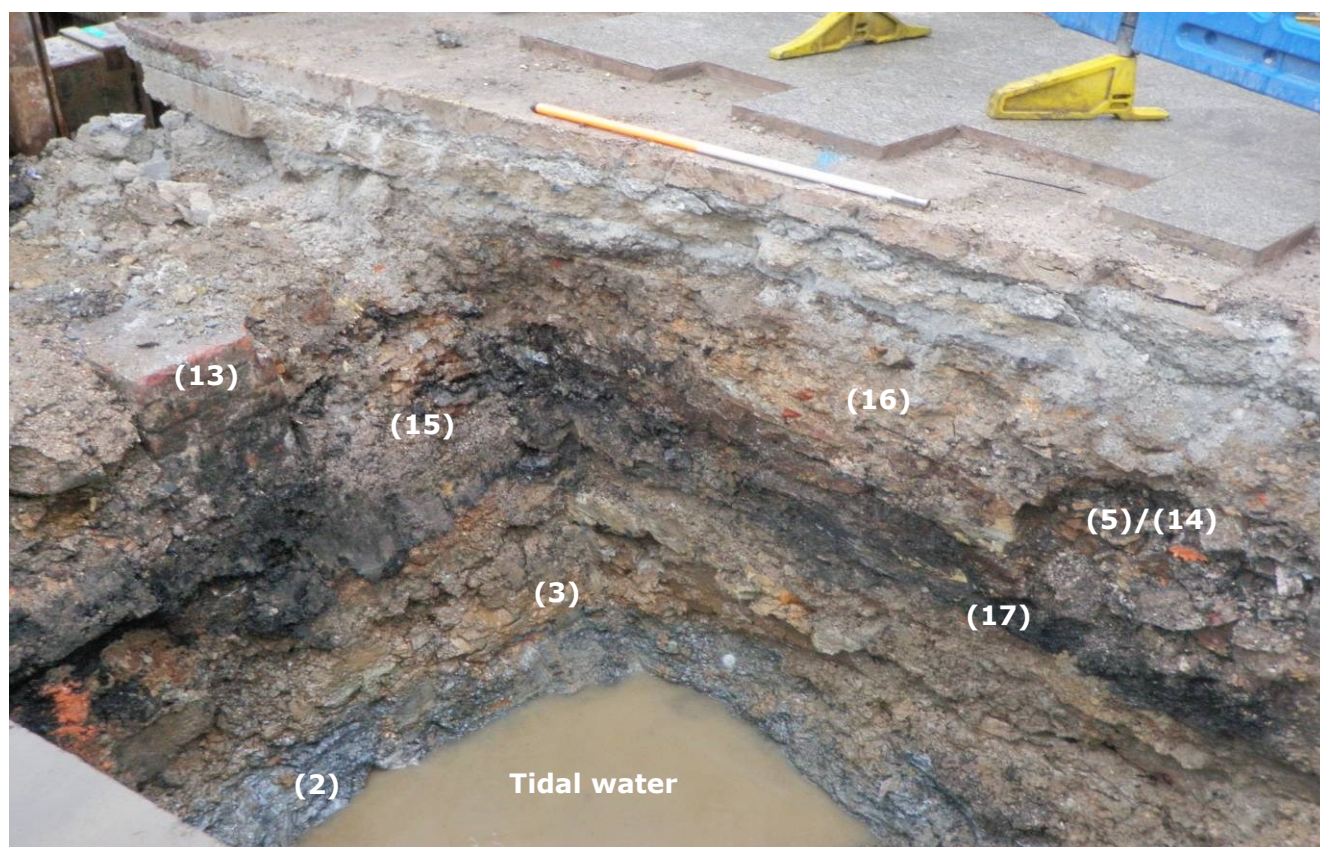


Fig 13 Looking northwest across the north eastern trench running from the CSO excavation in Victoria Square, showing crucible deposit (14). 1m ranging rod.



Fig 14 Two photos looking southwest and southeast across the south eastern trench running from the CSO excavation, showing substantial disturbance associated with a huge ceramic storm drain, and the eastern end of the trench where a mass of different service pipes converge.



Fig 15 Looking east across the excavated CSO showing the long southern section (right side) and shorter eastern section prior to tunnelling pushing through from the east causing the approximate collapse of 0.2m of section to reveal wall fragment 18 and cut [20].

6.1.3 Short trench running north-east from the CSO

Foul sewer pipeline (Figs 12 and 13)

River deposits **(3)** and **(4)** – indicative of free-flowing water, were recorded along parts of this trench overlying natural bedrock **(1)** and **(2)**. The riverine deposits were often thin and rather patchy, at an approximate 2m to 1.7m depth. The upper riverine deposit **(4)** included occasional oyster shells, which reflect both domestic consumption and waste disposal from the former fish market, which existed close to West Bridge at a point when the river was still navigable (prior to 1769).

Lying above these riverine deposits was dense, clean shillet clay deposit **(6)**. This was fairly expansive and orange/yellow in colour.

Overlying **(6)** was a series of dumped shillet or shillet and decayed shillet/clay deposits **(7)** identical to those seen in the southern trench (above). These were often quite small (less than 2m long and usually less than 1m thick), and may well represent the remains of nearby construction works and debris. These clearly represent a phase of on-going infilling associated with the building up of ground levels around the altering banks of the River Kenwyn.

Associated with the small-scale dumping of re-deposited waste material are occasional pockets of industrial waste **(5)**, identified via intensive heat discoloured shillet or the presence of substantial amounts of burnt, blackened charcoal etc. One particular deposit **(14)** consisted of mixed, burnt shillet residue with numerous broken crucible fragments – five of which were collected from the trench (see front cover and section 8.3). This crucible-rich deposit may have come from Calenick and be 18th century (dated to 1740 to 1760 on the basis of the crucible type). Related to these industrial deposits is **(17)** – a sporadic layer of burnt material, consisting of cinders and / or burnt shillet. It is possible that some of this burnt material relates the large fires known to have occurred in and around Kenwyn Street and West Bridge. For example in 1811 Anthony Plumers wool-stores and tan-yard burnt to the ground near West Bridge, and in 1863 a timber yard in Kenwyn Street went up in smoke (Douch 1977, 118).

Located approximately 11m west of the eastern terminal of this trench was a single red brick pillar support - **13**. It had no obviously associated walls or flooring. It is possible that it relates to a wrought iron gentlemen's lavatory set in Victoria Square, shown in an old photograph in Acton (1997). Packed against the northern side of this pillar was a deposit of probable 18th to 19th century dated building rubble **(15)**, including slate tiles and shillet.

Cut through many of the above described deposits was a whole series of different pipe and cable trenches **[11]/(12)**, topped by road and footpath tarmac **(9)**.

Walling/revetment fragment 18 (Figs 15 and 16)

The western c8m of the trench was tunnelled due to BT fibre-optic cables lying close to the surface. As a result an approximate 0.2m thickness of the CSO's eastern face collapsed unexpectedly revealing a deep corner of walling. Figure 15 shows the section prior to its collapse. Figure 16 shows a glimpse of the wall through the supporting timber and steel framework put in place to enable further works and stabilise the sides following breach by tunnelling.

Wall/revetment **18** consisted of at least four identifiable courses of cut shillet blocks, with a flat/dressed southern and western face suggestive of a corner or wall terminal. The northern, non-dressed side of the wall was abutted by a possibly single-phased dump of shillet rubble **(19)**. The wall did not extend west or south, but may have originally extended east prior to removal by tunnelling or earlier disturbance. The fragment when recorded consisted of little more than an upright pillar representing the end of a wall. The base of the wall corner stood on

bedrock **(1)/(2)**, approximately 2.5m below modern ground level, and below the range of tidal waters.

The following interpretations have been considered and dismissed:

- Given the insubstantial appearance of **18**, it would seem unlikely to represent any part of the former hump-backed West Bridge (see Douch 1977, 17).
- It is possible that **18** represents one part of the supposed 4½ miles of drystone sewers recorded as emptying in to the River Kenwyn in an 1872 government inquiry (Douch 1977, 112). However, the stone blocks are small (c 0.15-0.25m in size), not cemented or mortared and are dressed. Whether the potential drain was open or closed this seems a tenuous interpretation.

It is tentatively suggested that, given the 2.5m depth of **18**'s footings and its dressed stone double facing that it forms a corner or terminal designed to be visible at an early date. It lay within ground owned by the Friary, although is unlikely to have been any part of the immediate Friary complex itself. It could have been constructed for and used by the Friary, since it stands at a significant spot - at the junction between the then navigable river and the main road into Truro from the west (Kenwyn Street). It is likely that **18** reflects river terracing similar to that identified at 13 Boscawen Street in 1997 by Exeter Archaeology (CA 1998-99, 221), where it was interpreted as narrowing the course of the river. Alternatively the double faced corner of **18** might suggest a corner or terminal associated with a little quay or perhaps the 'steppings' down to the river and known ford prior to the construction of the bridge (Douch 1977, 17).

It appears to pre-date the most substantial period of build-up and must have stood close to the known ford and subsequent bridge (Acton 1997, 32). Unfortunately no associated sediments suitable for sampling/dating were exposed near or beneath the wall were located, and there are no associated diagnostic finds.

Cut feature [20] (Figs 15 and 17)

Cut [20] was recorded as an approximate 0.5m high, north to south aligned, east-facing cut through bedrock. To the near immediate west is the CSO which cut through decayed bedrock (see Fig 15 and 17). Figure 17 shows the inside of the cut to have been filled with loose, decayed shillet (**21**) which when exposed by tunnelling almost immediately slumped into the tunnel through tidal flow and instability. Context (21) was not water sorted or abraded, and as such is likely to represent dumped material associated with later infilling and build-up.

The cut edge is low lying, approximately 2.5m below modern ground level. The base of the cut was the same as the base of **18**'s footings - located only 1.5m to the south.

The following interpretations have been considered:

- It is possible that this cut edge could form the inner edge of a sunken structure. However, given the very low-lying character of this part of Truro prior to the c14th century build-up of ground levels, it would seem unwise to deliberately sink the ground floor/cellar? of a building in the Victoria Square area.
- It is possible that **[20]** marks the western edge of one of the 4½ miles of mid 19th century and earlier? drystone sewers (mentioned above), which fed in to the River Kenwyn. Unfortunately the deposits above the cut were not clearly seen due to tunnelling. If this was a north to south running drain, then it is likely to have cut through any eastern extension from **18**.

The cut edge may represent a medieval river bank feature - perhaps mooring for a boat or a small quay since the river was navigable from the east up to this point at least. The extreme base of **[20]** was not seen in section. It may have included remnant riverine muds deposited during this features period of use.

6.1.4 Trenching west from the CSO towards Kenwyn Street

Foul sewer pipeline (Fig 18)

This short stretch of trench showed the rise of river gravel and silt deposits **(3)** and **(4)** from an approximate depth of 2m up to 1.4m below today's tarmac ground surface **(9)** opposite the Grade II Listed Lavender shop frontage. The gravels were mixed, water rounded quartz and shillet up to a maximum 10cm size. At the base of the gravel was a dense patch of iron panning overlying and merging with the partially altered top of natural **(2)**. Below this lay dense, hard, pale killas bedrock **(1)**.

The intervening section of trench, between Lavenders and the CSO showed a number of existent used and disused pipes **(12)** within intercutting trenching **[11]**. These cut through a number of smaller **(6)**, and larger **(7)** and **(16)** dumps of find-free re-deposited shillet waste. Occasional un-cut shillet stones were recorded as residual, rather than *in-situ* blocks.

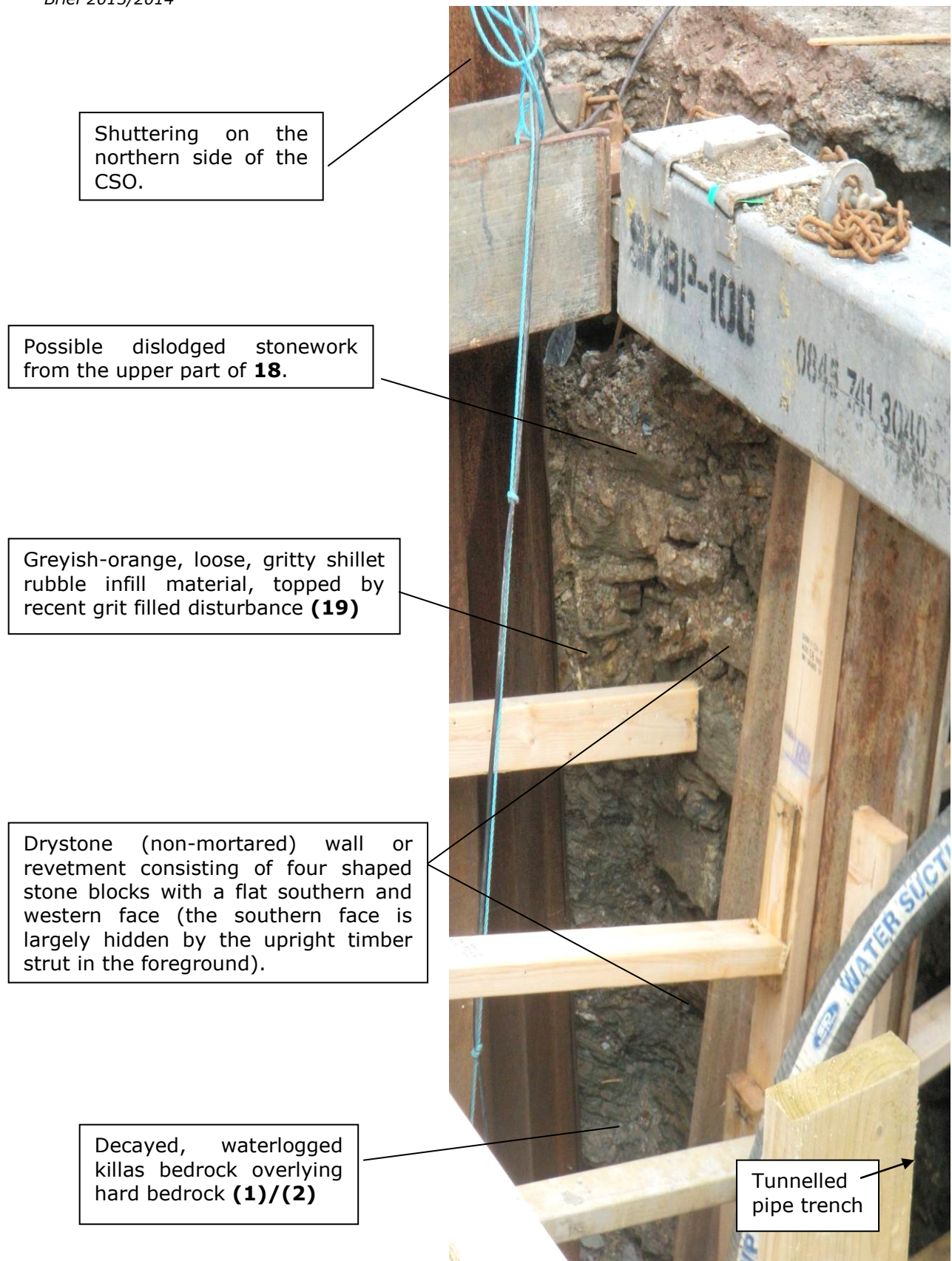


Fig 16 Fragment of drystone walling 18 revealed by the collapse of the eastern side of the CSO where trench tunnelling breached the north-east corner. A 3m depth is shown.

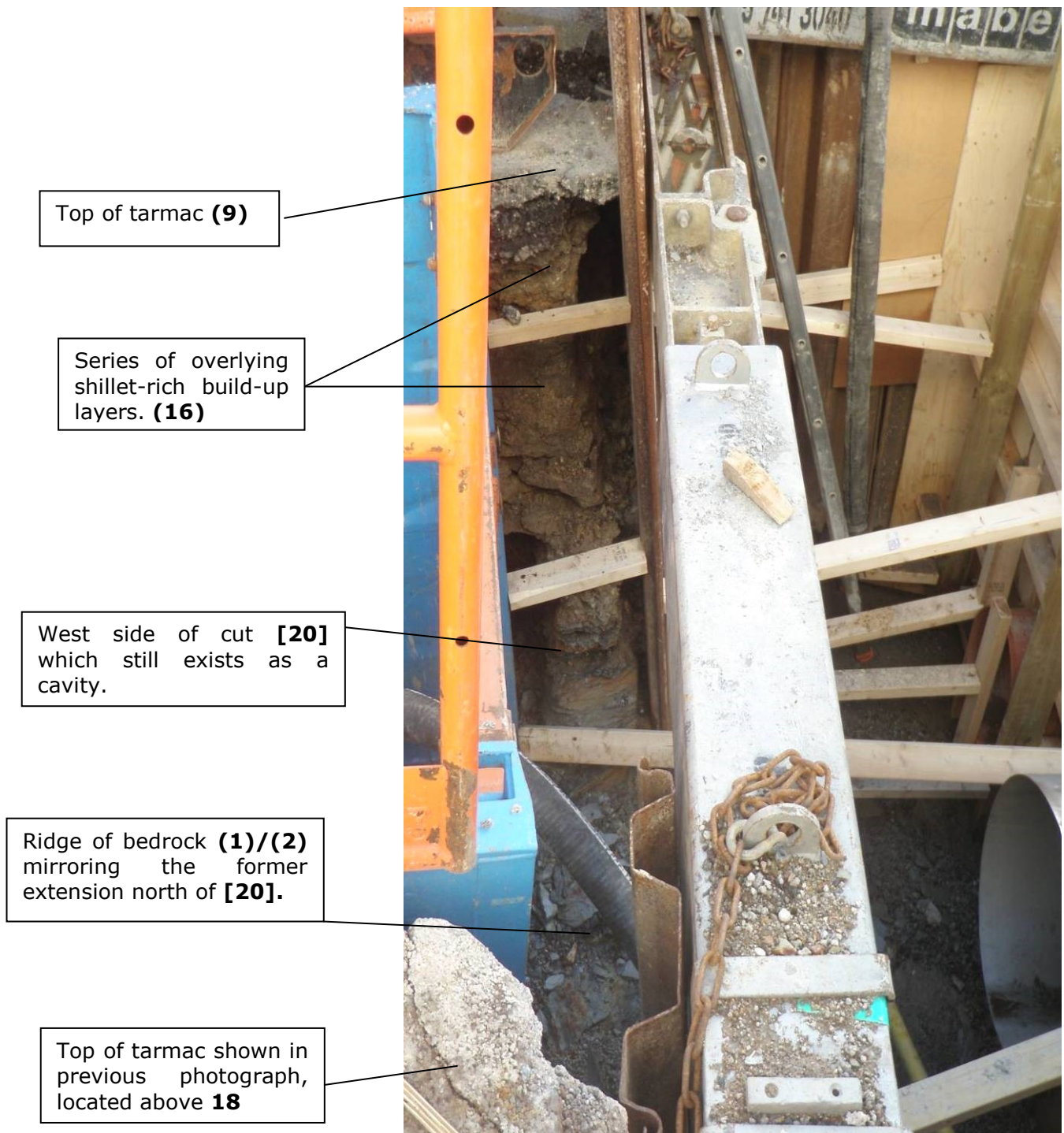


Fig 17 Looking south across cut [20], identified on the extreme eastern side of the CSO. It has been cut through by tunnelling which runs east from the CSO. 3m depth shown. The blue shuttering flanks either side of tunnelled pipe trench, while the visible pipe runs east from the CSO along the north-eastern trench.

6.2 Kenwyn Street

6.2.1 Victoria Square to Little Castle Street

Foul sewer pipeline (Figs 18 and 19)

The watching brief followed (c1.2m wide, 3m deep) trenching west from Victoria Square up Lower Kenwyn Street towards Little Castle Street.

Between 115 Kenwyn Street (Lavenders) and 114 Kenwyn Street (the old chapel) the riverine gravel **(3)** and silty clay **(4)** deposits that were visible at the extreme eastern end of the trench disappeared.

The section opposite 114 consisted of, from top to bottom; tarmac **(9)** and underlying hard core over pipes and cables within a 1m thick mixed shillet-rich, pale brown/tan coloured matrix consisting of thick redeposited trench material and added grit **(12)**. This overlay a c1m thick deposit of shattered, clean-looking, non-waterborne shillet **(30)**. Its jumbled appearance was unlike the lower killas bedrock - which dips down from south to north.

It is probable that **(30)** represents the collapse of shattered killas bedrock, into the lower lying former edge of the river bed. While the trench was open tidal water poured in from the north, flowing in across the top of decayed killas bedrock. The bedrock here looked like dense dark clay due to constant waterlogging. On the southern side of the trench the underlying bedrock was harder and more rock-like in appearance.

Much the same sequence of layers continued up the length of the road. Other service trenches containing pipes and manholes etc were frequently encountered and crossed. Various dumps of occasionally brightly coloured redeposited killas, much of which was waste from outlying mine works (probably from around the Threemilestone area) were recorded. None of this dumped material contained finds or clear silty/soil-rich lenses indicative of any phasing or intervening gaps in time between the mass dumping and build-up of this part of Truro.

The pipe trench section strongly suggests that the Lower Kenwyn Street area was rapidly built up using 'clean' locally available mine waste during a single phase of activity. It also strongly suggests that the eastern end of Kenwyn Street runs close to the southern edge of the former river course and flood path. Further west along Kenwyn Street, the former river course moved further to the north.

Post-medieval well 23 (Fig 20 and 21)

Located just to the north of the Victoria Square to Little Castle Street works on Kenwyn Street is a stone lined, circular well hidden beneath a metal access hatch. The well lies on the northern side of Kenwyn Street, opposite The William IV pub and adjacent to No. 114, within the footpath.

Probing down into the well suggested that it is 6m deep. The main body of the well was lined with what appeared to be randomly coursed, but quite closely fitting killas blocks set within a mortar rather than concrete matrix. The upper c0.6m was constructed from cut blocks of granite, which supported concrete rafts on the eastern and western side, as a part of the footpath and hatch support.

It is probable that this well is one of a number of former wells within the city, which were used to provide clean water, in preference to the increasingly foul rivers that ran through Truro. The water appeared to be very clear and fresh, with no hint of brackishness despite the proximity of tidal water. The original date of the well is unknown.

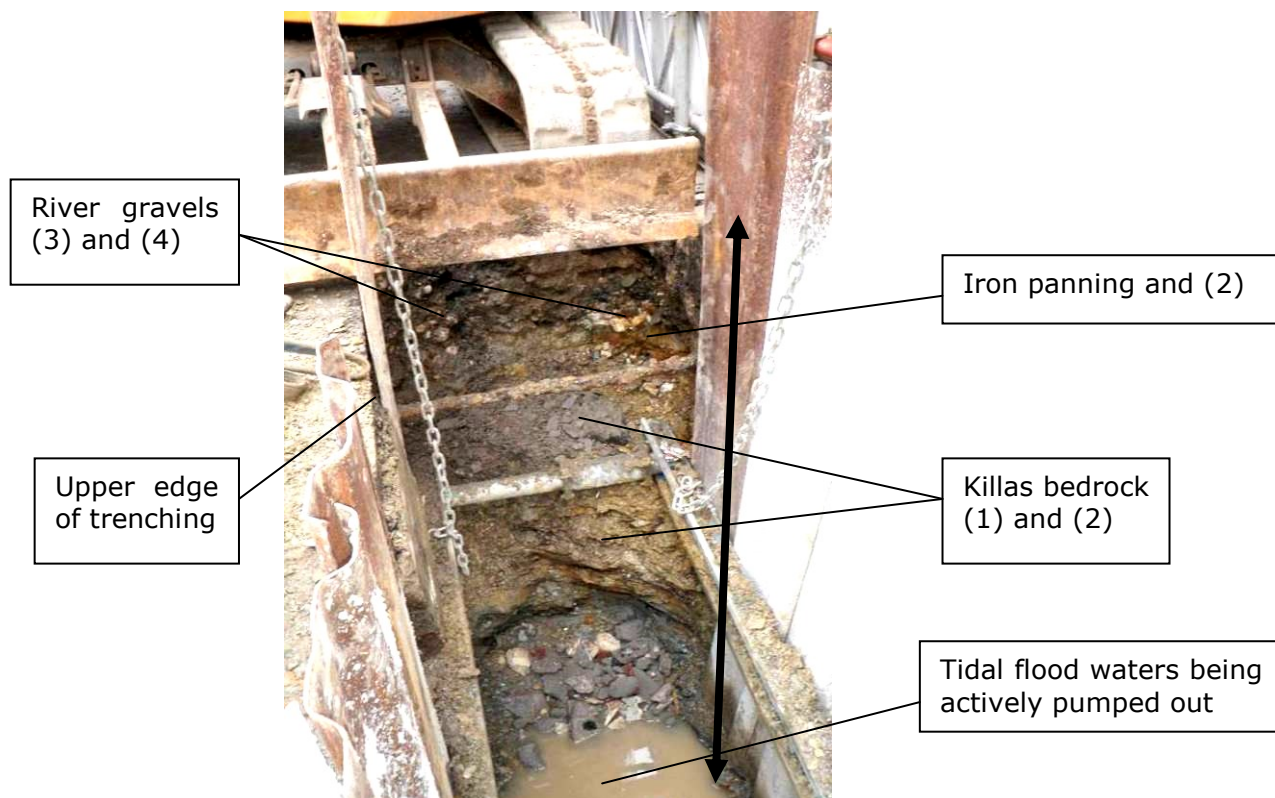


Fig 18 Looking west towards Kenwyn Street from the side of Lavenders, showing the high level of river gravel deposits. The scale arrow is 2.3m long.



Fig 19 Looking west along part of the Lower Kenwyn Street trench located between Piero's pizza restaurant and William IV pub.

The section shows from the bottom up, gleyed blue-grey clay, brown clay shillet and then pale orange clay (all of which are naturally deposited), topped by a more recently redeposited mixed grey shillet-rubble-like deposit, a thin black burnt shillet-rich spread and a 0.4m maximum brown clay shillet topped by tarmac. The whole section measured 2.2m deep.

NOTE: No river gravels were identified beneath the grey clay, although a very similar sequence of deposits (type and colour) was recorded above river gravel in the trenching between Thomas Johnson Court and Kenwyn Mews (almost 200m to the west-north-west).



Fig 20 Looking north across the top of the well opposite The William IV on Kenwyn Street. The arrow is 1m long.



Fig 21 Looking north and down the 6m deep post-medieval well located opposite the William IV. Note the high water level c1m below current footpath.

6.2.2 Little Castle Street to opposite Thomas Johnson Court

Foul sewer pipeline

A considerable number of services criss-crossed Kenwyn Street here, resulting in a frequently disturbed, unstable trench section – similar to those recorded along other narrow roads in the scheme which had densely spaced double-sided domestic/commercial properties such as Dominick Street and Little Castle Street. The density of crossing services considerably slowed progress along all these streets.

The eastern end of this length of Kenwyn Street frontage contains three listed buildings – close to the Little Castle Street junction (see Figure 4). Just beyond the western end is a documented find spot (recorded in the HER) where a number of brass counters or tokens were found – associated with trade and later with gambling.

The opened trench sections revealed a thin strip of undisturbed natural bedrock **(1)** along the base. The bedrock was not always hard, but frequently shattered, and occasionally contorted or soft in patches. An overlying dense layer of imported mine waste **(16)** consisting of mixed often colourful/mineral-rich killas/shillet extended up the length of the trench. Although variable this material was never subdivided by weathered or silt/soil-based layers, suggesting a continuation of the same phase of land reclamation or build-up as was recorded further east along the lower end of Kenwyn Street.

There was no evidence for riverine deposits within the exposed section or tidal surges within the water table, indicating that the historic river course did not extend into this area. However, the eastern end was periodically extremely wet and stagnant, occasionally foul smelling. This section appeared particularly prone to rises in the water table, which followed on rapidly from wet weather (rather than tidal surges). No structural remains were identified, other than the service access points and manholes **(10)**, constructed in the recent past.

As has frequently been noted during these works there was no distinct intervening layer of old land surface between the bedrock and the dumped build-up of mine waste, suggesting that the ground was prepared prior to being built-up. Any soil deposits appear to have been cleared away – presumably for re-use elsewhere.

6.3 Thomas Johnson Court

6.3.1 Kenwyn Street to Kenwyn Mews via Thomas Johnson Court

Foul sewer pipeline (right front cover photo and Figs 22, 23 and 24)

An approximate 18m long stretch of pipeline running north-south was laid via auger boring between Thomas Johnson Court and the kink in Kenwyn Street. At either end a large 5m deep junction pit was cut.

The northern pit was excavated in Thomas Johnson Court and is shown in Figure 22. Here a 0.4-0.6m deep layer of tarmac and hard core grits **(9)** overlay a 0.4-0.6m deep layer of what appeared to be deep mixed, loamy largely stone-free garden soils **(8)**, which had seen some disturbance. Their presence, close to, but off the main thoroughfare of Kenwyn Street further implies the deliberate removal of soils from beneath the early road build-up. It suggests that the eastern, lower portion of Kenwyn Street would have looked like and acted as a causewayed approach to the city during the medieval period. Walls **25, 27 and 29** were all recorded in the southern side of the pit (discussed below). All were recent (post-medieval/modern) in date. At the base of the northern pit is a diagonal line separating killas bedrock from orange clay. The orange clay was bright and dense, probably representing a natural fissure within the geology and which possibly helped dictate the course of the river?

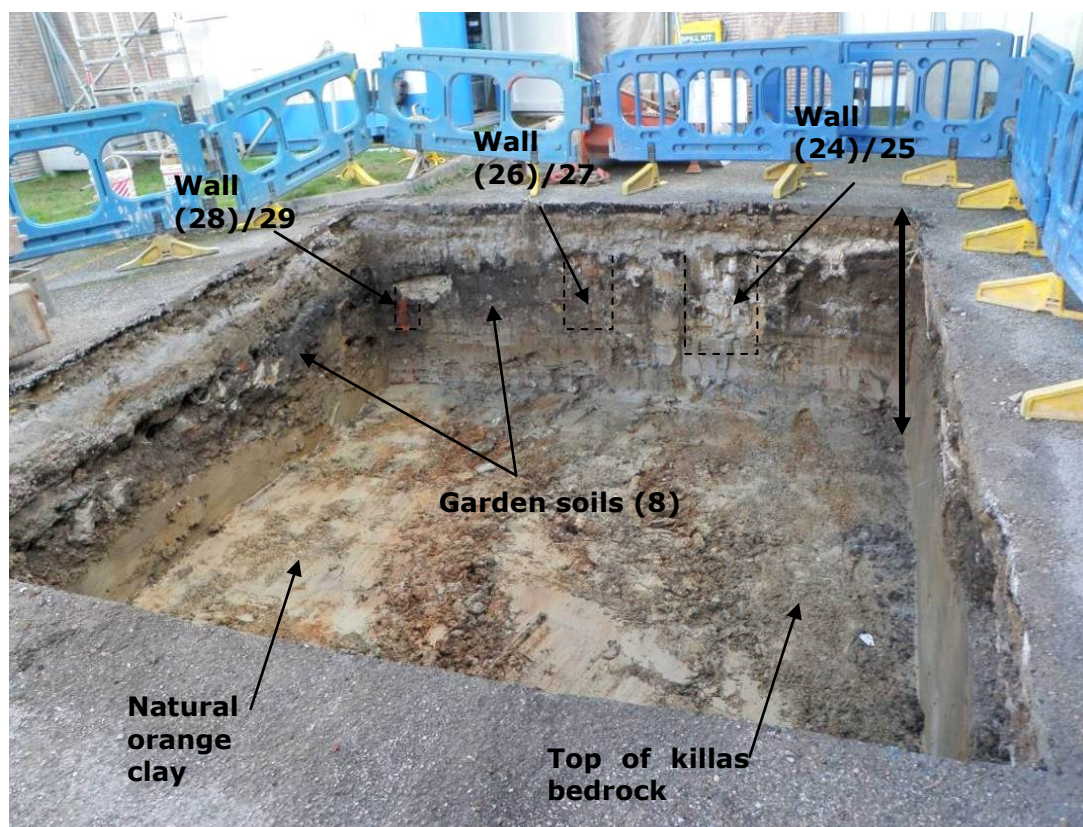


Fig 22 Looking south across the Thomas Johnson Court pit showing modern surfacing, over garden soils, wall foundations and possibly natural fissuring which may have dictated the course of the river? The pit was subsequently deepened. Note the natural slope down from right to left of the killas bedrock as it drops down beneath the naturally redeposited orange clay. This clay may represent the upper of two naturally deposited layers (seen further to the north-west-Figure 24) infilling the former river bed. The killas here may represent the one time edge of the River Kenwyn? The arrow is 2m long.

Symons 1848 map shows roofed buildings plus a narrow strip of ground extending west-north-west from the Kenwyn Street frontage. The auger bored stretch of works follows this strip of undeveloped ground. It may be that this strip extended through the Kenwyn Street frontage following a covered access way. (much as the modern Thomas Johnson Court entrance layout does today). The 1880 OS map shows that during the intervening 32 years alterations were made to the buildings on the eastern side of this potential alley. They are shown with a slightly different layout and as un-roofed – perhaps suggestive of open yards or partially demolished buildings. The 1907 OS map shows what looks like terraced housing in the same position. The three wall foundations - concrete **(24)/[25]** and red brick **(26)/[27]** and **(28)/[29]** identified within the southern section of the northern pit represent the remains of these plots and buildings. Fuller descriptions of the three walls can be found in the gazetteer.

The auger borer was set up within the larger northern pit in Thomas Johnson Court, from which it bored its way south towards Kenwyn Street (see right front cover photograph) at an approximate depth of 4.5m below ground level. The auger borer excavated damp natural clay and decayed shillet for the majority of its length. Essentially the auger borer was a large automated skewer which pushed its way horizontally through the ground, and was followed immediately by piping pushed along the auger cleared path. Its use ensured that shallow and

above ground structures were not disturbed, although it does prevent a record being made of below ground deposits.

At least two water filled fissures were bored through as the auger neared the Kenwyn Street frontage. These appeared to mark two thin east-west aligned natural fissures running towards but possibly beneath the original river course. The water gushed out and appeared to be under pressure, suggestive of each being fed by sub-surface ground water. River bottom muds and gravels were not encountered.

The southern launch pit positioned within Kenwyn Street was substantially disturbed by east to west running services down to a depth of approximately 2m, below which was a layer of natural clay shillet. Water constantly seeped in from the upper more disturbed deposits rather than the natural. No river gravels or muds were revealed in the pit sections, although the original river course must be close. The water seepage was the result of heavy rainfall, rather than tidal flow.

Running north from the northern pit was a trench which turned west towards the Kenwyn Mews car park through a gap between a walled garden to the south and garages to the north. This quickly came across riverine gravels **(3)** and silts **(4)** which had a combined approximate thickness of 1m. These overlay killas bedrock **(1)**, and were indicative of free-flowing water.

The riverine gravels were overlain by an approximate 0.8m thick redeposited layer of mixed pale brown gritty clay **(31)** which was clean of finds and undisturbed. Above this was a 1m thick continuation of **(31)**. It contained jumbled concrete breeze blocks with associated voids and air pockets. The voids indicate a very recent date of disturbance. It was sealed by hard core and tarmac **(9)**.

Located some 5m to the north-west a different sequence of layers was revealed (see Fig 23 and 24). Here a 5m plus deep pit was excavated which revealed from top to bottom; thin fragmented tarmac; loose hard core; dry brown clay loam with occasional shillet and possible demolition rubble **(37)** (with breeze blocks and white pottery in its disturbed upper part); pale, un-disturbed orangey-brown silty clay **(36)**; compact clean grey clay silt **(35)**; river deposits **(3) and (4)** at an approximate 4m depth; and at the base dark reddish orange killas bedrock **(1)**. The pale orangey-brown silty clay may be associated with the more strongly orange clay seen in plan in the northern pit (Figure 22).

Fig 23 Looking south-west down the c 5m deep trench/pit at the junction between Thomas Johnson Court and Kenwyn Mews.

Showing from the bottom up: orange bedrock at the base, overlain by river gravels (near the horizontal bars); compact clean grey clay; pale brown silty clay; dry brown clay loam with occasional shillet possible demolition rubble, breeze blocks and white pottery; loose hard core and thin fragmented tarmac.

NOTE: these two photographs are about 3m apart.

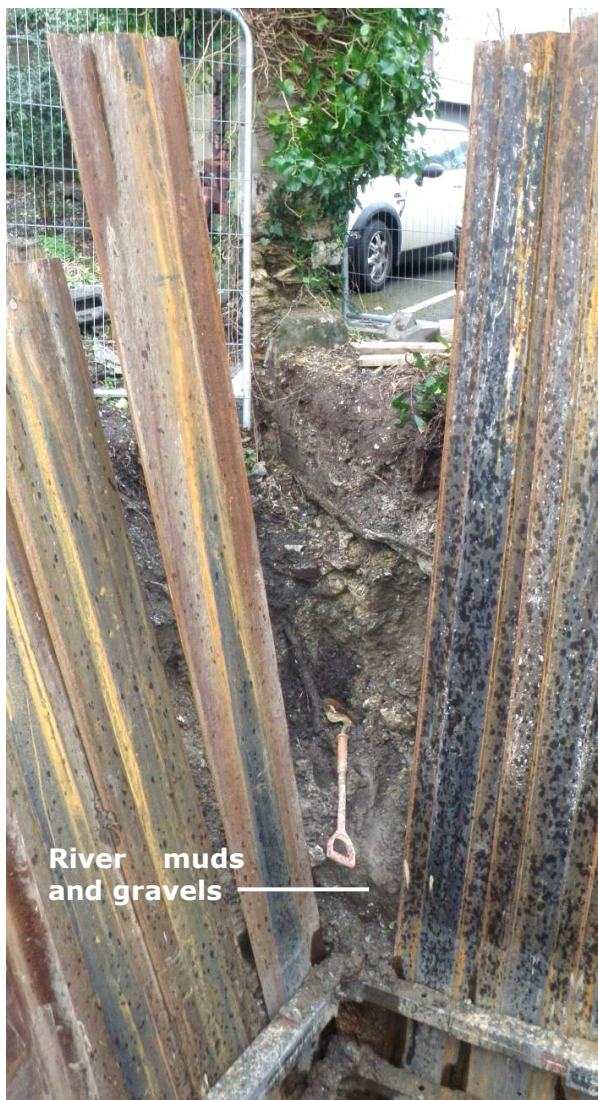


Fig 24 Looking north-west in to Kenwyn Mews down the c5m deep trench/pit at the junction between Thomas Johnson Court and Kenwyn Mews, showing an approximate 4m deep section.

From the bottom up can be seen: orange bedrock between the horizontals; river gravels; dry pale grey silty clay with loam mixing in from above; dark grey/brown loam (see spade); un-cut shillet block wall; loose dry loam and rubble; thin concrete surface; loose loamy crushed shillet and occasional pottery; loamy ground surface.

6.4 Little Castle Street

6.4.1 The whole of Little Castle Street

Foul sewer pipeline (Fig 25)

The southern half of the eastern side of Little Castle Street is made up of a grade II Listed Building shop frontage. The building was designed in 1908 and still retains its distinctive 'Redruth Brewery Company Limited' nameplate. In addition the northern and southern ends of the western side of Little Castle Street (Fig 4) include two Grade II Listed Buildings dating to the 1830s. The HER records the documented site of the medieval Dominican Friary (founded before 1259 AD) as located some 20m to the east of central Little Castle Street (Fig 3). The location spot is not absolutely certain, and there was therefore scope for important medieval remains to extend into the area of the pipe trenching.

The pipe trench along Little Castle Street did not reveal a tidal or particularly high water table. From the bottom up sections revealed killas bedrock in the northern part, a natural mix of clay and killas in the central part and dense orange clay at the southern end – contexts **(1)** and **(2)**. Overlying this was a dense approximately 0.75m thick deposit **(38)** of 'dirty-looking' slightly loamy clay – probably the disturbed remains of former waterlogged naturally deposited riverine material prior to the deposition of massive amounts of mine waste to raise ground levels in the vicinity. Included within **(38)** were small lens-like pockets of heat reddened clay or/and charcoal (coke-like) flecks and lumps, plus occasional loamy lenses. These all appear to be the result of early (undated) activity. Overlying this layer was deposit **(39)** which consisted of a mix of crushed shillet and loam.



Fig 25 Looking south along Little Castle Street, showing pipe laying works in progress.

It is possible that layer **(38)**/deposit **(39)** represents medieval/early post-medieval activity around the vicinity of the Dominican Friary site. The Friary will have been positioned on naturally high ground less prone to seasonal flooding. It is probable that the land beneath Little Castle Street was slightly higher than ground to the south and west, and that as a result it was an attractive area from which to start land drainage and reclamation works. The landscaping works included the dumping of increasingly large amounts of stone rubble and waste. Much of this came from outlying mines and/or surface quarrying.

This activity gathered momentum through the post-medieval period culminating in massive amounts of 'made ground' within low lying areas of Truro.

Immediately overlying **(38)**/**(39)** was a deposit of mine/quarry killas rubble waste **(15)**, which was recorded along the length of the street as being in excess of 1m thick. In this instance these deposits must have been in place and stable well before the 1830s, when the construction of today's Listed Buildings (see above) took place. Above lay a 1m plus layer of disturbed context **(15)**, services **[11]/(12)**, and built chambers and manholes **10** topped by road surfacing layers and tarmac **(9)**.

6.5 Frances Street

6.5.1 The whole of Frances Street

Foul sewer and surface/storm water pipelines (Fig 26)

The eastern two thirds of Frances Street (northern side) had foul water/sewer pipe replacement works and the western third (southern side) had surface/storm water pipeline improvement works. Approximately half way along the street a 'launch pit' was dug from which the auger borer bored north-east towards Edward Street. As a result no trench sections were exposed.

The northern side of Frances Street is defined by a row of Grade II Listed Buildings (see Fig 4) – all built in the 1830s on ground built up with mine waste. The southern side has a single grade II Listed Building at its junction with Little Castle Street and a short run of Listed Buildings that swing round along the south-eastern side of Ferris Town at the western end.



Fig 26 Left – looking west along St Frances Street, showing trenching and pipe laying in progress. Right – the north-western section of the 'launch pit', showing smashed ceramic pipes, and waterlogged deposits following heavy rain.

Both sets of work revealed a broadly similar series of sections consisting (from the bottom up) of natural killas and/or clay **(1)** and **(2)** topped by a dense thick layer of orange occasionally worn shillet-rich clay. This layer had an approximate 25% shillet content. It did not look as stony as the mine waste clearly identified in Little Castle Street and has an uncertain origin. It was similar to **(6)** but present in a much greater quantity. It did appear to be predominantly 'deposited' but whether by natural or anthropogenic means was uncertain. It has been given context number **(40)**. There was no intervening silt or loam build-up between it and the underlying, clearly defined 'natural clay and/or killas, or between it and the thin layer of more obvious mine waste **(15)**.

Above these layers was service related disturbance topped by road associated layers and tarmac **(9)**. Occasional pockets of smashed-looking killas rubble were identified sporadically along the street (in less disturbed pockets between service

trenches). These almost certainly refer to construction related debris associated with the erection of buildings to either side of the street **(41)**. All deposits were found free and no unexpected features were identified – with the possible exception of an apparently 'built' deposit located within the 'launch pit' (see next section).

6.6 Edward Street

6.6.1 Diagonal auger boring from south Edward Street to the River Kenwyn

Surface water pipeline (Figs 27, 28, 29 and 30)

At the southern end of Edward Street, at its junction with Frances Street a 'launch pit' was excavated. This was designed to house the auger borer while it bored diagonally north and east towards the River Kenwyn. The auger bored pipe was horizontal and allows for surges of storm water to be released direct into the river. At the northern end of the auger bored pipeline, just before its connection with the river, a second large pit was dug. This was located just to the south of the river, close to the eastern side of Edward Street Bridge.

The southern pit (Fig 26 right)

The launch pit measured approximately 4.5 by 4.0 by 3.8m deep and revealed in section, from top to bottom; tarmac and hard core grit **(9)**; mixed pale brown decayed killas **(32)** and gritty clay, which appeared well drained and continued down to an approximate 2m depth below the current road level, where it overlay natural killas bedrock **(1)**.

NOTE: Contained centrally within the launch pit was an area of piled/built stone **42** in an approximate 1m square area. It had a 1m plus height and was contained within context **(32)**. It did not extend beyond the edges of the launch pit, did not link with any other stone or other contexts and had an uncertain function.

The northern pit (Fig 27 and 28)

Figure 27 shows the location of the northern pit prior to its excavation. It shows the Grade II Listed Edward Street river and leat bridge dated to the 1830s, plus a grassed over patch of ground which appeared relatively undisturbed since the construction of the southern river Kenwyn retaining wall (Grade II Listed 1830 walling). Figure 28 shows the pit once excavated, with its shuttering in position, awaiting the auger bored pipe tunnel to break through from the southern pit. This photograph clearly shows the depth of build-up to either side of the river. The base of the parallel running leat (on the river's northern side) is much higher. Symons' map (Figure 5) shows that this built up southern side of the river had already been extensively developed by 1848. The nearest buildings are all Grade II Listed and built in the 1830s.

The northern square pit measuring approximately 4.0 by 4.0 by 3.5m deep was excavated approximately 1.5m south of the southern edge of the deep, currently wall-bound river, on the eastern side of lower Edward Street. The pit cut through, from top to bottom, topsoil and turf **(33)**; dirty or loamy mixed re-deposited pale brown clay shillet **(34)**; clean pale to mid brown clay shillet **(32)** and then killas bedrock **(1)**. Context **(32)** here had an approximate 1m maximum thickness. There were no finds or variations in this sequence of contexts on any of the four sides, with the exception of a loam-rich lens on the southern side between the two re-deposited clay shillet build-ups (at about a 0.5m depth from surface). No river gravels or river silts were encountered, meaning that these had been removed during the construction of the river's southern retaining wall and subsequent build-up of ground level. Figures 29 and 30 show the drainage tunnel cut through the river walling, before and after the fitting of its metal grill.



Fig 27 (left) Looking west along the River Kenwyn towards the Edward Street Bridge showing the area prior to works. The leat runs parallel to the river just to the right of the photograph.



Fig 28 (right) Looking east along the River Kenwyn from the bridge, showing the large pit excavated close to the river edge, prior to tunnelling up from Frances Street and breaching of the river wall.



Fig 29 (left) Looking south showing the new overflow in place, prior to completion.



Fig 30 (right) Looking west showing the new overflow with black rectangular grill in place at the completion of works.

6.7 Ferris Town

6.7.1 From St George's Road to St Dominick Street

Surface water pipeline (Fig 31)

This stretch of pipeline was lined with grade II Listed Buildings along the whole of the southern side and along the eastern half of the northern side. The pipeline followed the same course as the existent SWW pipe, meaning that no undisturbed deposits were removed. However, pockets of moderately undisturbed material were revealed in the trench sides between crossing services (see Fig 31 where a short section of the trench could support itself before being hidden by safety shuttering – allowing for rapid recording of exposed layers).

From top to bottom (at an approximate half-way point along the street) the trench section, where relatively undisturbed by crossing services, revealed a c.0.35m thick layer of tarmac, compacted grit and wire, grey grit **(9)** over two c.0.5m thick deposits of orange brown compacted crushed shillet over pale grey decayed shillet **(16)**. Below this a 0.2m thick band of yellow clay overlying grey clay was recorded above 0.5m of what appeared to be natural brown killas over orange/brown clay **(1)** and **(2)**. This layering of natural continued down to the bottom of the trench (beneath the existent pipe).

As with much of Frances Street problems with fluctuating water levels were minimal and no obvious riverine deposits were encountered until the western end of the street was reached (see St Dominick Street section). Here a 0.2m thick, interweaving band of yellow and brown clay lenses **(36)** was identified. This was clearly a waterborne deposit. It was very similar to that identified at Thomas Johnson Court.

If the upper clays are the result of riverine deposition they are likely to reflect the former existence of a low lying, frequently flooded catchment area, where tidal and/or storm surges of water pooled or were absorbed without actually forming part of the free-running river system.



Fig 31 Looking west towards the Cheese Shop from the junction between Frances Street and Ferris Town, showing an approximate 2.8m deep trench section.

*Note: Sections seen along Ferris Town did not reveal free-running water deposits of rolled cobbles, pebbles and grits **(3)** and silts **(4)**, but did suggest pooled /flood water deposits.*

6.8 St Dominick Street

6.8.1 The whole of St Dominick Street

Surface water pipeline (Fig 32)

This length of pipeline involved replacement of the existent foul water pipe and the insertion of a new deeper storm drain below it.

Historic mapping shows that terraced housing flanking either side of St Dominick Street was already in place by 1848 (see Fig 7b), although none are Listed (with the exception of one property at the north-western junction with Ferris Town, close to the bottom of Richmond Hill). Trenching along Ferris Town suggested that riverine deposits were in close proximity and that the area was periodically affected by a high water table. The northern end of St Dominick Street confirmed this and revealed more clearly associated riverine deposits.

Trenching at the northern end of St Dominick Street, close to its junction with Ferris Town, revealed 0.4m deep modern road surfacing layers – tarmac, gravel and dirty mixed shillet levelling **(9)**, over a 0.5m depth of redeposited shillet which represents local quarry or imported mine waste material **(16)** associated with the build-up of ground levels prior to the construction of housing. Below this a 0.35m thick deposit of blue/grey gleyed silty clay **(35)** was recorded, overlying a 0.2m thick manganese deposit **(43)**. Underneath this was a 0.3m deep layer of very pale whitish grey clay over dense natural orange clay **(36)**. The pale upper layer is likely to be natural clay altered by waterlogging. It is probable that this northern end of St Dominick Street and parts of Ferris Town mirror the northern edges of a former low-lying area prone to flooding and incorporating former river bed gravels. As trenching moved further south, more obvious riverine deposits were encountered.



Fig 32 Left and centre - looking south-east from central St Dominick Street showing the build-up of deposits, crossing service pipes and the partially tidal water table. Right - looking north-west along St Dominick Street.

Trenching along the central part of Dominick Street went down to an approximate 2.8m depth. Here, from top to bottom the section showed tarmac, gravel **(9)**, and orange brown clay shillet **(16)** down to a depth of 0.75m. Below this a dense mid grey gritty, silty clay extended down to a 1.2m depth, followed by a 0.8m thick series of layers – all of which appeared to be riverine in character. The

layers were, from top to bottom: grey clay, gravel (with waterborne pieces up to 4cm max in size), organic-looking black silty clay, grey/blue gleyed silty clay **(35)**, a thicker deposit of organic-looking black silty clay and a thin band of gravel. Dense, heavy, natural orange clay **(2)** then extended down beyond the base of the trench.

The riverine deposits became increasingly shallow and less substantial as the trench moved south along St Dominick Street. At the junction with Kenwyn Street the high water table, tidal flow, silts and gravel deposits had ceased to be a feature. Instead there was a combination of high natural bedrock **(1)** and/or clay **(2)** and shallow dry redeposited quarry material **(16)**.

7 Discussion of results

Significant results from this programme of works include the following:

7.1.1 The shifting course and character of the River Kenwyn

Figs 33 and 34

Evidence for changes in the course and character of the River Kenwyn include:

The artificial shifting north of the River Kenwyn to form part of what is now called The Leats on modern mapping.

Today's river is tightly controlled within a deep, narrow, stone-faced artificial course which broadly runs along the 8m contour, above the foot of castle Hill. To its immediate north runs the much smaller, shallower leat, while to the south is the 6m contour (Fig 34), which despite the build-up of ground level on a massive scale, still broadly reflects the approximate natural course of the river – prior to medieval and subsequent alterations.

The river course was shifted north to provide power for Truro's medieval and later mills. This had the effect of releasing a large swathe of low-lying ground to the south for reclamation via drainage and ground build-up. It also resulted in the medieval and earlier fording point being superseded by the probable fourteenth century West Bridge. It is possible that the fording point spanned the river at a time when it still largely (or in part) ran from west to east. The site of West Bridge was to the immediate east of these works; as a result it was not uncovered. Mapping suggests that it was designed to cross the river at a point when it had already had its course significantly altered - see the river's sharp turn north (Fig 7a).

The southern edge of what appears to be the upper banks of the former river course/flood lands was recorded at three different points – the southern end of Dominick Street, Thomas Johnson Court and just to the west of Victoria Square on Kenwyn Street. These give a clear indication of the expanse of ground reclaimed beneath this part of Truro.

Good evidence for the former existence of both free-flowing water deposits ((3) and (4)) and layers probably associated with static flood water or waterlogging ((35) and (36)) was found in the Kenwyn Mews/Thomas Johnson Court area, and beneath Victoria Square, and parts of Dominick Street, Little castle Street and the eastern end of Kenwyn Street. All of these areas are to the south of the realigned river, and all were found deep beneath the current ground level. The most significant (4.5m) difference in height between old river bed and today's ground level was found in Kenwyn Mews/Thomas Johnson Court.

7.1.2 Historic infilling and build-up of ground levels

The pattern of infilling and land reclamation across the study area was variable. Three different types and areas of build-up were identified.

1. Earlier and/or piecemeal, small scale infill layers representing multi phased/multi-sourced dump deposits. These were most clearly visible around Victoria Square. They appear to represent the successive build-up of material throughout at least the 17th, 18th and early 19th centuries. Differently sourced deposits include:

Brightly coloured killas - probably transported in from nearby mines as shafts were being excavated down in to deep and often colourful bedrock.

Weathered and partially decayed predominantly pale/mid brown killas - probably transported in from mine waste dumps where material had been exposed to weathering and decay.

Industrial waste in the form of discrete dumps of crucible and ash-rich waste, much of which probably came from the near-by smelting site at Calenick. A sample collection of crucibles was collected from the trench.

Mixed construction waste, including fresh and weathered killas - probably from local quarries and possible broken roofing slates. Almost no faced stone was recorded. These deposits are likely to be the result of the expansion and development of Truro's street frontages during the 1830s.

2. Later and/or causeway related infilling was less sporadic and patchy along eastern Kenwyn Street, Frances Street, Little Castle Street and St Dominick Street. Here much more massive, single phased deposits of material were recorded. The dumps showed less variation in terms of source and appearance.

The massive dumps located beneath Kenwyn Street (and others at a possibly later date) are likely to reflect its early character as a causewayed road - skirting as it did the southern edge of very low-lying ground.

Large scale, clean dumps of uniform killas bedrock mine waste, some of which was recorded as brightly coloured red, grey/purple, orange, brown and blue/grey. This bright colouration is often seen as an indicator of bedrock depth and in some cases proximity to mineral rich veins.

Weathered or decayed pale brown coloured killas deposits from probable mine waste dumps.

3. A different pattern to the infilling and build-up of ground levels was recorded around the Kenwyn Mews and Thomas Johnson Court area.

Here thin deposits of mine waste had been dumped directly on to clay-based river deposits in Thomas Johnson Court; and in Kenwyn Mews loam and recent building rubble was recorded overlying the band of orange brown clays which sealed the (sampled) grey riverine silts.

7.1.3 Other recorded deposits

Recording work has identified three different types of deposit that were unrelated to either the deliberate building-up of ground levels or riverine deposition.

Garden soils Thomas Johnson Court, away from the early road development of Kenwyn Street etc. revealed subsurface soils associated with former gardens and orchards. These soils contained little if any in the way of domestic waste, and were surprisingly thick and dark. Given the marked lack of sealed soils beneath infilling it is likely that that open or cultivated land to the side of roads were boosted by the addition of the removed soils - particularly riverine deposits.

Cobbling Very little evidence was found of the former cobbled road and footpath surfacing known to have existed along Kenwyn Street and the Victoria Square area etc. (as shown on a number of published old photographs). Some will have been removed when the first phase of tarmacking took place, while others will

have been sealed beneath it. Many will have been subsequently disturbed during the frequent excavation of service trenches which criss-cross the roads. For example, a watching brief linking Kenwyn Street to Kenwyn Mews in advance of the construction of a new storm tank (Lawson-Jones 2003) revealed water/traffic worn cobbles associated with disturbed cobbling.

7.1.4 Three areas with subsurface structural remains

A small number of walling fragments have been revealed by the trenching. These were focused in three areas.

Walling located within Victoria Square

The remains of potential medieval structural remains probably associated with the use and alteration of the river bank were found beneath Victoria Square. A deeply buried base of walling or probable drystone revetment **18** was found close to the former rivers edge. It may represent early quayside activity/creation, or be associated with the controlling of the river bank.

Nearby was an adjacent cut feature **20**. This may be early and related to the walling, or unrelated and associated with drainage.

Walling located within Thomas Johnson Court

The basal remains of walling - **25, 27 and 29** were identified in the north facing section of the Thomas Johnson Court pit.

They represent the remains of changing plots and domestic or trade-related buildings (both open and covered) built in the area between 1840 and 1907, and as such all are dated to the post-medieval / predominantly modern period. These walls were associated with best preserved buried garden soils found. Interestingly they only survive to the side of Kenwyn Street and not beneath the road itself.

Walling located within Frances Street/foot of Edward Street

Stonework **42** located at the foot of Edward Street took the form of a single 1m square of built stonework. It was located centrally within the junction between lower Edward Street and Frances Street.

It appeared to be a stone support or plinth, perhaps acting in much the same way as piling would today. No associated built features were identified, meaning that the precise function and interpretation of this feature is uncertain.

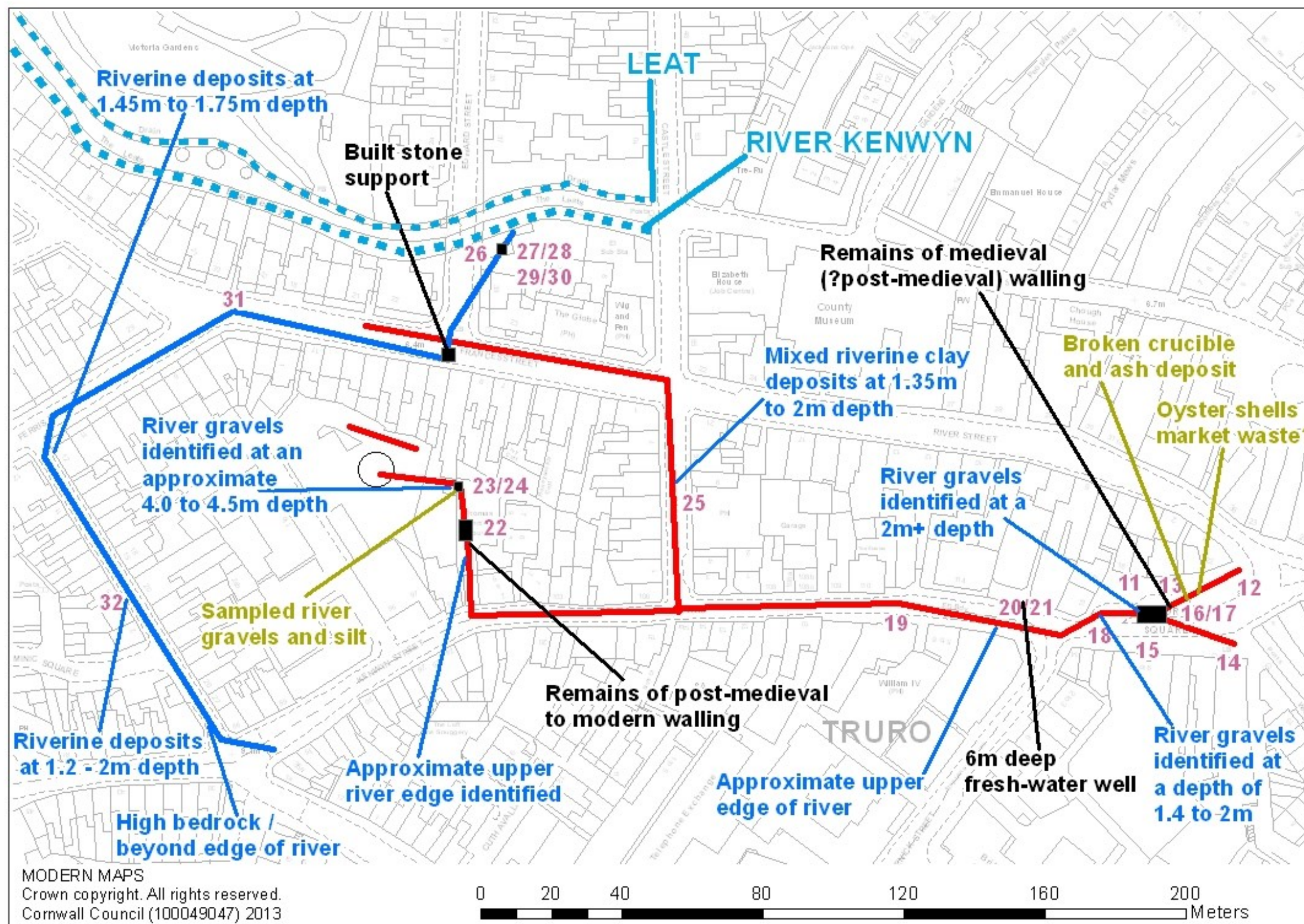


Fig 33 Map showing the site extent (also see Fig 2), significant results and new information, and the location of all photographs within the report (grey).

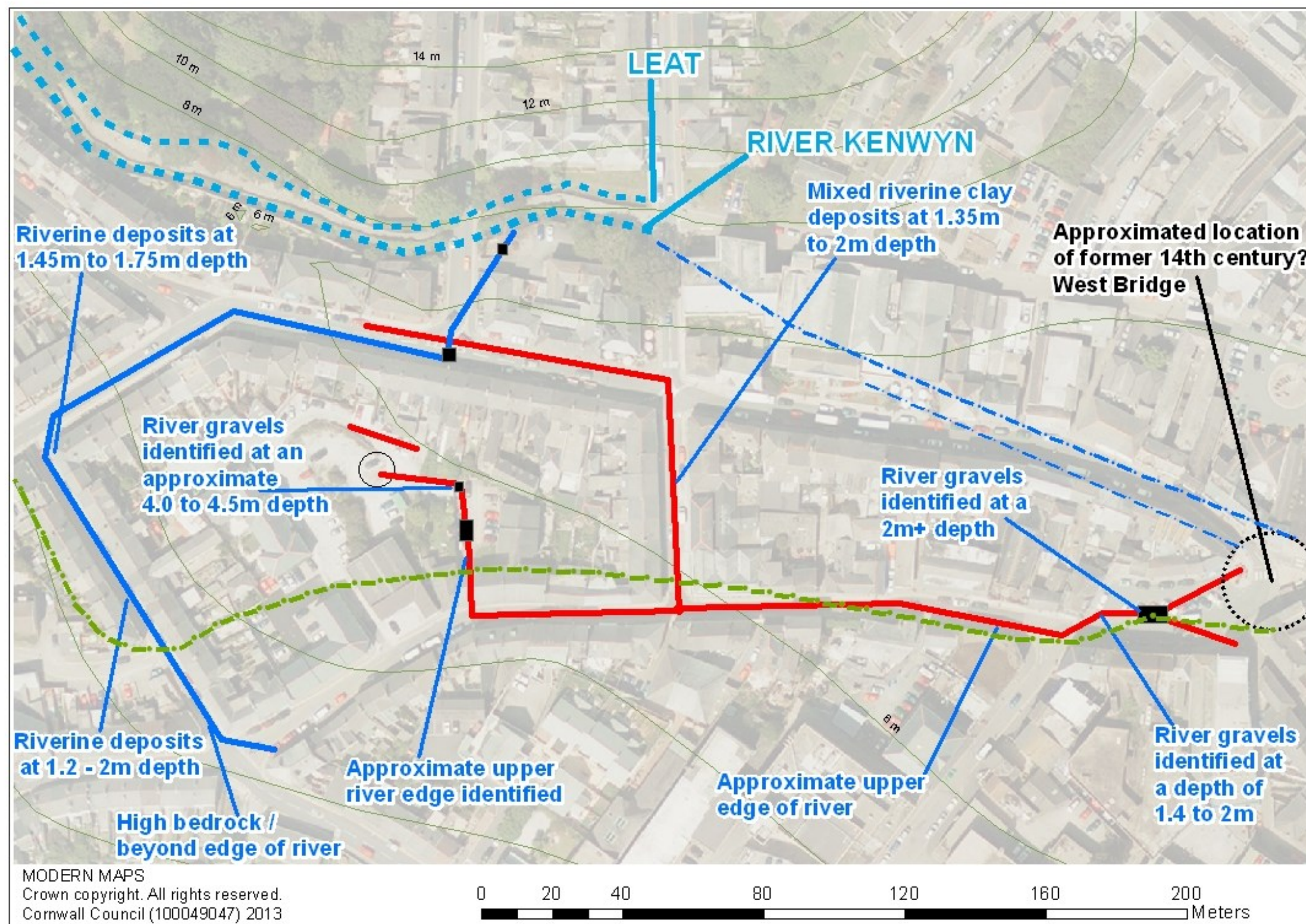


Fig 34 Showing the site extent, 2m contours (GIS layer), the approximate location of West Bridge, the conjectural southern edge of the former River Kenwyn? (green) and the approximate pre-1850 river course - see Fig 7b (blue), overlying a 2005 aerial photograph (GIS layer).

8 Gazetteer

8.1 Table of contexts with interpretive detail

Context no./type	Context form	Date range	Context description
(1) Bedrock	Natural bedrock	Natural	Killas (slate/mudstone) bedrock – mid/dark blue grey or grey. Platey and generally very hard. In some places it had absorbed tidal water and begun to decay and soften.
(2) Decayed bedrock	Decayed top of natural	Natural	Waterlogged top of natural in a visible state of decay. Softer, darker and normally browner in colour than parent material (1). Tended to merge with upper riverine deposits (3) and (4). Occasional pockets of iron staining.
(3) Naturally deposited	Lower riverine deposits – rocky	Naturally deposited - including the late prehistoric period. No finds of this date were found.	A mixed, stony, water worn and sorted deposit, consisting primarily of rounded shillet pieces with patchy quartz and other pebbles up to 6cm in size within waterborne pea-size and smaller grits, which become increasingly clayey with depth. Some iron staining at the lowest levels. The deposit as a whole varies from 0.1 to 0.5m deep. These deposits and all layers above are still affected by tidal water movement. Note: contexts (3) and (4) do not always occur together, but where they do (4) is always above (3). Both (3) and (4) denote free-flowing river deposited material, rather than flood/build-up of silt deposits – see (35) and (36).
(4) Naturally deposited	Upper riverine deposits – silty	Naturally deposited but with increasing medieval and later intervention.	A mixed silt and peagrit with occasional shillet or quartz. Largely devoid of finds, but sporadic oyster shells are spread throughout attesting to the disposal of domestic food waste in to the river. Occasional larger quartz blocks noted (possibly denoting riverside stabilisation, building or boat mooring activity). These deposits are likely to have been increasingly affected by human activity, which would come to include major drainage works during the medieval period associated with the probable 12 th century castle and the 13 th century Friary and its expansion, land reclamation, the formalisation of river banks, the construction of bridges at crossing points – for example the former West Bridge located at the junction of River Street and Kenwyn Street. The deposits vary from 0.1 to 0.4m maximum deep.
(5) Deposit	Dumps of industrial waste – infill	Early Modern (1750-1899)	Variable dumps of probable industrial waste including occasional dumps, bands of charcoal-rich or blackened deposits, plus dumps of burnt and/or heat reddened shillet. These deposits tend to be quite small – never reaching 0.5m thick and rarely spreading for more than 1.5m along a section, implying that they are the result of small-scale, local furnace cleaning or even domestic hearth-side waste, rather than the re-deposition of larger scale waste deposits from for example blowing houses etc.
(6) Deposit	Large scale dumps of mixed shillet/clay shillet infill	Potentially medieval (14 th century? and later)	This context consists of clean (find free) dumps of infilling or build-up consisting of redeposited probable mine shaft waste (or possibly quarry waste). These deposits tend to be reasonably extensive, extending for in excess of 2m in length and over 1m thick. Colouring ranges from a pale dirty or yellowish grey to a dull reddish orange. They appear to have been transported on to site with the specific intention of raising ground levels and stabilising land running along the former low-lying banks of the River Kenwyn, particularly around the Victoria Square area in advance of West Bridge being built. The general Victoria Square vicinity was acknowledged to be the lowest lying point in Truro, and as a result this context is predominantly focussed around the eastern end of the scheme.
(7) Deposit - related to (16)	Small scale dumps of mixed shillet/clay shillet infill	Post-medieval (1540-1749) and early modern (1750-1899)	These deposits are similar in character to (6), but smaller in scale. They appear to extend the area covered by the main bulk of deposit (6), and tend to post-date it. These smaller dumped deposits tend to be closer to the former river course, implying that they represent piecemeal repairs to the eroding or subsiding newly formed river banks. It is probable that these more variable (pink, grey, and brown, stony or occasionally dirty) deposits are the result of locally generated waste – perhaps from building works in the vicinity. All are clean of finds, and none contain a notable loam content.
(8) Deposit	Probable garden soils	Largely post-medieval	Possible waste ground soils or remnant garden soils associated with properties that extended down towards these low lying parts of Truro. The soils tend to be largely stone free and markedly less clayey than other contexts. These contexts show little evidence for the large scale use of kitchen midden waste. Post medieval and early modern midden waste would normally be expected to include marine shells, pottery, glass, animal bones etc (although any bones are likely to have been largely lost due to acidic soils).
(9) Build	Current surfacing – i.e. tarmac road, footpath, kerb	Modern / recent – last 20 years or less.	A range of largely tarmac-surfaced roads and stone slab capped paths, often with substantial kerbing. The majority of these are relatively recent – for example those within Victoria Square where recent works involved the re-arrangement of roads for cars, buses and bus shelters etc.
10 Build	Manholes and built chambers	Modern (1900 to present day), majority post 1960.	A large number of concrete and brick-built manholes and subsurface chambers, where service meet and junctions are built. Afford easier access to service junctions and facilitate repairs etc.

Context no./type	Context form	Date range	Context description
[11] Cuts	Service trenches	Modern (1900 to present day), with the majority dating to the last 50 years.	These vary hugely along the length of works, and range between narrow, sheer sided 0.4 by 0.4m deep cuts to 4m plus wide, to in excess of 3m deep. Some of the larger trenches have steep sides, which usually reflect the deposits through which it was cut, while others display all the hall marks of unstable, actively collapsing deposits reflecting either frequent past digging disturbance or the effects of daily tidal surges affecting most layers above the basal riverine deposits.
(12) Fills	Pipes / services and trench backfills	Modern (1900 to present day), with the majority dating to the last 50 years.	The services include huge ceramic foul and clean water pipes, storm drains, gas pipes, electrical cables and metal piping, modern plastic fluted service pipes, BT cabling and glass fibre-optic alignments (often encased within broad concrete bands to minimise vibration damage). The broad BT service lines necessitated stretches of tunnelling. Infilling around the pipes range from imported pale grey grits to hard core, and re-deposited material from the trench cut itself.
(13) Deposit	Brick plinth	Modern – 20 th century	Upright plinth of red brick work which appears to have acted as a structural support. 0.3m square in plan and approximately 0.5m deep. To either side (north and south) was a stony rubble deposit (15) which acted as a hard core support for the plinth. The eastern side appeared to have a greater concentration of blackened material reminiscent of industrial waste (5). The relationship between this plinth and the industrial material is uncertain.
(14) Deposit	Crucible-rich industrial waste dump	Probable 18 th century date	An ashy layer of re-deposited industrial waste containing a large proportion of crucibles dated on the basis of very similar crucibles found with pottery and clay pipes at City Hall (Berry <i>et al</i> 1997). It is possible that this is industrial waste transported to the site from the nearby Callestick smelter. The deposit gives us some idea of the kinds of industrial process taking place in the general locality, although industrial waste, including mine waste was frequently bought in and used as infill/backfill material during land reclamation works.
(15) Deposit	Stony rubble waste including red brick	Early Modern (1750-1899) building rubble, re-deposited in Modern? (20 th century) period	Stony rubble containing broken red bricks, broken shillet blocks (none obviously shaped), possible sand-based mortar?, occasional broken slates. Appears to consist largely of demolished (probable 18 th /19 th century) building material, which was deposited as rubble in the 19/20 th century. No other associated finds, such as glass or pottery.
(16) Deposit – related to (7)	Shillet rubble dumps	19 th century and later hard core material including quarried and possible mine waste.	Soil free shillet rubble – generally dumps of re-deposited natural shillet rather than building rubble. Sometimes found in conjunction with other deposits such as (14). Much of this material may come from re-used mine waste or possibly from other disturbed natural produced via quarrying for building stone etc. Large quantities of this and more mixed shillet-rich material has been used to build-up low lying areas in advance of roads (seen on this scheme) and probably used as hardcore to support buildings (?).
(17) Deposit	Dumped burnt material	Predominantly pre c1900.	Industrial and and/or domestic burnt waste forming strikingly black bands within the sections. Normally 0.15m or less thick. This material often appears quite low in the exposed sections, above the riverine and bulky basal infilling but below the often smaller or more piecemeal later deposits associated with building rubble, industrial waste etc. It is possible that it relates to the disposal of domestic hearth material. It may also be associated with industrial activity upstream or within Truro.
18 Build	Drystone wall	Medieval?	Remnant of drystone walling composed of cut/partially dressed blocks of probable shillet (possibly sandstone?). Only four courses survived, although at least one lump of shillet incorporated within the top of (19) might suggest that it was originally higher but had collapsed or been pushed northwards. The basal-most block was set on natural killas (1)/(2) at a 2.5m depth below modern ground level. No associated finds or deposits suitable for sampling, but on the basis of the walls depth could potentially have a medieval date. It lies at the base of or below the general mass of build-up deposits seen across this whole area. The wall/revetment fragment had a south and a west facing dressed face suggesting that it formed a visible corner or a wall terminal. The wall had what appeared to be a near single phased, find-free dump of gritty shillet (19) abutting its northern side. Unfortunately the southern side of it was removed (and not seen) during tunnelling. This structural fragment has been interpreted as a probable river-related feature, possibly associated with a small quayside feature of likely medieval date and associated with the use of the friars or general market/trade related activities.
(19) Deposit	Shillet-rich dump	Post-Medieval	Loose, dry shillet –rich infilling within a granular gritty mid brown matrix. No finds noted. Similar to (16), but apparently directly associated with wall 18, which it abuts on the northern side. 1m plus deep, with uncertain extent beyond wall.
20 Cut	Probable sewer cut	Medieval/Post-Medieval	The western side of a cut feature which ran north to south and extended for in excess of 1.5m (including the 0.5m ridge of natural left after it had been cut through by tunnelling). It is uncertain whether this feature was left open or whether it was sealed beneath re-deposited build-up material. Its function and date are uncertain.
(21) Deposit	Dumped crushed shillet	Post-Medieval / Early Modern	Loose, unstable crushed-looking decayed shillet deposit, abutting the eastern side of cut [20]. This appeared to be a dump of either collapsed material from the eastern side or upper edges of the cut (ie disturbed (16), or deliberate infilling from above. It did not contain any obvious sediments or silt layers, and did not contain a notable organic content or residue associated with sewer deposits.


Context no./type	Context form	Date range	Context description
(22) Surfacing	Red brick/floor tile floor?	Probably post 1900 - Modern	Line of thick red tile or thin red brick probable flooring? Underlying all tarmac associated layering and later service trenching. Uncertain function. Mapping does not show any buildings in this area, and the layer appears too late to have escaped mapping. Possibly it marks the floor of an open drain? It did not extend in to either the eastern or the western facing CSO sections, meaning that it did not extend south in to the centre of the road area.
23 Well	Granite and killas stone lined well	Post-medieval / Early Modern?	A just less than 1m diameter, 6m deep stone lined well. This was located to the immediate north and east of The William IV, on the northern side of Kenwyn Street beneath the footpath. It lay beneath a circular cast-iron hatch. Its main body was lined with randomly coursed killas set within a mortar matrix. The top consisted of cut granite blocks, which supported two concrete rafts, which in turn supported the hatch and footpath. The water was clear and smelt/tasted clean. It is possible that the well was initially lined with clay. The granite may have been re-used from elsewhere, although no visible features were recorded on the blocks themselves in terms of shaping etc.
(24) Fill	Concrete wall stub	Modern	Consisting of a concrete block with a mix of 'dirty' redeposited concrete and soil filling foundation cut [25]. No obvious associated finds. This feature may have been associated with drains or perhaps other services linked to the buildings on site immediately prior to the construction of Thomas Johnson Court. The trench fill was largely the result of demolition disturbance.
[25] Cut	Wall foundation trench	Modern	1m deep by 0.75m wide wall foundation trench, containing disturbed concrete and broken concrete blocks (24). Edges not clearly defined.
(26) Fill	Red brick wall stub	Early Modern	Consisting of two sets of two <i>in-situ</i> red bricks, one set set above the other with an intervening disturbed area, probably caused by the machine during excavation. The remainder of the foundation trench [27] contained small broken red brick fragments, and gritty loose material with fragmented mortar. No associated finds visible in section.
[27] Cut	Wall foundation trench	Early Modern	0.8m deep, 0.6m wide trench, containing two sets of two <i>in-situ</i> red bricks (26). Intervening 3 bricks removed by machine. Edges of trench not clearly defined.
(28) Fill	Red brick wall stub	Early Modern	Wall stub consists of about three smeared and decayed, soft red bricks cut through during machining. The upper part of the wall had been removed during site clearance in advance of building the Thomas Johnson Court, when a large chunk of pale concrete had fallen in to the trench prior to being covered by redeposited garden soils. No associated finds visible in section. Fill of [29].
[29] Cut	Wall foundation trench	Early Modern	0.5m deep and 0.30m wide trench containing soft in-situ red bricks (28) at the base of the cut. Cut edges not clearly defined.
(30) Deposit	Collapsed killas	Un-certain	An approximately 1m thick band of mixed killas which appears to have toppled over or collapsed in to the edge of the former river bed or flood plain from a diagonally dipping (south to north) band of killas bedrock. This material was not water worn or sorted, did not contain any finds, organic residue, or water deposited bands of silt etc. It appeared to be a naturally produced, as opposed to dumped deposit and merged with the underlying parent bedrock/killas banding. The upper part of it has been disturbed and incorporated in to the various service trench fills (12) in this part of the site.
(31) Deposit	Large scale dumping / infilling - damp	Modern	A variable c1-1.5m thick dumped deposit of pale brown silty clay with occasional decayed shillet, but no other finds. This appears to represent large scale infilling or landscaping of the low-lying former flood plain prior to (or in preparation for subsequent development in this part of Truro - prior to the construction of Thomas Johnson Court and Kenwyn Mews). Unlike (32) this layer was markedly damper, although it did not constantly seep water as (30) did.
(32) Deposit	Large scale dumping / infilling - dry	Modern	A variable c1-1.5m thick dumped deposit of pale brown silty clay with occasional decayed shillet, but no other finds. This appears to represent large scale infilling or landscaping of the low-lying former flood plain prior to (or in preparation for subsequent development in this part of Truro - prior to the construction of Frances Street and the lower part of Edward Street. Unlike (31) this layer was drier, despite visually looking very similar.
(33) Deposit	Topsoil and turf	Modern	Only located on the southern edge of the river on the eastern side of Edward Street, in a small low-lying pocket of ground that has escaped being built on. It was seen in section in the auger borer pit, and recorded as having a 0.15m maximum depth, overlying (34).
(34) Deposit	Topsoil and clay shillet mix	Modern	Located below (33) and represents the probably fairly recent disturbance and intermixing of topsoil with the underlying clay shillet (32). Located just to the east of the Edward Street bridge, on the southern edge of the river behind the river retaining wall and seen only in the auger borer pit section. A 0.3-0.4m thick layer.
(35) River/flood deposit	Clayey silt	Naturally deposited	Slightly bluish grey clayey-looking silt positioned above the free flowing river gravels when present together. This is a naturally formed deposit within the former silted-up river bed/or in the land regularly flooded to the south of the river course. Approximately 0.1-0.3m thick.

Context no./type	Context form	Date range	Context description
(36) River/flood deposit	Silty-clay deposit	Naturally deposited	Pale orangey-brown coloured silty clay often located above silt (35). It is a naturally deposited layer associated with flooding or low-lying water, rather than free flowing water. Up to 0.3m thick.
(37) Deposit	Mixed clay loam	Early Modern / Modern	Dry brown clay loam with occasional shillet and possible demolition rubble. Approximately 1-2m thick. NOTE: with breeze blocks and white pottery in its disturbed upper part.
(38) Mixed deposit	Mixed 'dirty-looking' silty clay	Naturally deposited / Early Modern	Mixed 'dirty-looking' grey to grey brown silty clay with loam and/or burnt patches, which appeared to incorporate <i>in-situ</i> old land surface material with redeposited clay-based old land surface imported from elsewhere. Located in Little Castle Street and pre-dated subsequent deposition of mine waste dumps (16). Varied from 0.2m to 0.75m thick.
(39) Mixed deposit	Mixed loam and shillet	Early Modern	A mix of shillet and loam, underlying more massive mine/quarry waste deposits (16) and overlying (38). A 4m long 0.15m thick spread was identified half way along Little Castle Street, approximately 1.2m below current road level.
(40) Mixed clay and shillet	Orange clay and shattered shillet (occasionally worn)	Post-medieval	A dense layer of occasionally dirty-looking orange clay with an approximate 25% shillet content. The shillet was often, but not always fresh. It was not obviously water worn and did not appear to be a waterborne deposit. Neither did it appear to obviously be mine waste – due to the clay content. It was noted along the length of Frances Street with a 0.5-1.2m thickness, did not contain any finds and no obvious tip-lines suggestive of patchy or periodic deposition. There was a clear break between it and the underlying 'obvious' natural clay and killas, but no intervening silty/loamy layer. This layer has an uncertain origin – natural or anthropogenic. It is possible that a periodically high water table has affected its appearance.
(41) Construction debris	Lumps and shattered killas rubble	Early Modern	A patchy deposit of killas lumps (up to 0.3m large at its maximum) and shattered or rubble-like shillet. It is likely that this material represents the remnants of construction work on either side of the street. There were no associated finds.
42 Built stone support	Shillet/killas blocks with mortar	Early Modern / Modern	Located within the southern Edward Street pit. A stone built support. It measured approximately 1m square and had an approximate 1m height. It was composed of roughly shaped killas blocks, held together by mortar. It had no associated walling. Interpretation of its function has been left open.
43 Natural mineralisation	Manganese deposit / staining	Natural	A distinctive, dark naturally formed deposit. The result of intense waterlogging under anaerobic conditions and the movement of minerals through percolation.

8.2 Table of samples with details

Sample type	Probable date	Context no./size	Sample description
1 Sealed river gravel	Prehistoric / Medieval?	(3)/(4) Approx. 3 litres	Water rounded quartz and occasional hard dark grey killas cobbles within a dark brownish grey slightly silty grit-based matrix. Quartz made up some 80-90% of the cobbles. The river gravels were located between 2m and 2.6m below ground level. Larger cobbles (up to 0.2m in size) were recorded at the base, while slightly smaller ones (up to 0.1m in size) were at the top.
2 Sealed grey river silt	Medieval?	(35) Approx. 3 litres	Dense, heavy dark grey brown slightly clayey silt with occasional pea-grit inclusions. Located between 1.5m and 2m below ground level. No associated finds were visible. The top 0.1m of this deposit merged with a mid brownish orange silty clay, which else where was more clearly visible – forming a thicker deposit.

8.3 Table of finds with details

Find type	Probable date	Context no.	Find description
<div>1</div> <div>Crucibles (the five crucible bases and a single oyster shell are shown below)</div> <div></div>	Probable 18 th century date, perhaps 1740 to 1760.	(14)	<p>Five broken crucible bases were recovered, ranging in basal diameter from 2.5 to 3.5cm. Originally they may have had an approximate 15cm height.</p> <p>Thorpe suggests that Truro-based Lake's Pottery produced these vessels. Some contain limited soft, burnt basal residues, but none show slag adhering or high temperature discolouration – despite being found in association with ashy industrial waste.</p> <p>The crucibles themselves are made from China Clay-based clay (Adam Sharpe comment).</p> <p>They have been broadly dated on the basis of their similarity to crucible remains found in conjunction with pottery and clay pipes during excavations under City Hall in Truro.</p> <p>Thorpe stated in 1997 that <i>'The crucibles, most likely used in the assaying of metallic ores (by comparing a known weight of ore, and the amount of metal derived after smelting), are unusual, and are similar to those which have been found at the crucible manufacturing and smelting site at Calenick, one of only two in Cornwall, operating between 1766 and 1851 (Tylecote 1980). With circular bases and triangular mouths (three pouring points), they will repay further investigation, especially analysis of the residues contained within them. It is possible that they were used in the nearby Coinage Hall on Boscawen Street'</i>.</p> <p><i>'Chemical analysis of the residues would give some indication of the types of ores being smelted within them, i.e. Tin or Copper ores, certainly the green/blue tinge present in many indicate the presence of copper, while red suggests Iron Oxide (pers. com. A Sharpe). Chemical analysis may also give an indication of some of the fluxes (additives) used in the smelting process and thus give an insight into the industrial processes of the period in obtaining metals from ores'</i>.</p>
<div>2</div> <div>Oyster shells (see a single example on the left side of the above photo)</div>	Medieval/post-medieval	(4)	<p>This thin, sporadic upper riverine deposit contained occasional oyster shells. Pockets of this material were found to the west and the northeast of the CSO. It is likely that these are at least in part associated with the pre 1769 Fish Market, which was held <i>'...by the West Bridge, to which boats would then have had access'</i> (Douch 1977, 50). Domestic household waste disposal may also have contributed to their presence. Bones etc would not survive the acidic waters and erosive flow of the river.</p>

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9.3 Websites

<http://www.heritagegateway.org.uk/gateway/> English Heritage's online database of Sites and Monuments Records, and Listed Buildings

10 Project archive

The CAU project number is **146306**

The project's documentary, photographic and drawn archive is housed at the offices of Cornwall Archaeological Unit, Cornwall Council, Fal Building, County Hall, Treyew Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration.
2. Electronic drawings stored in the directory -
L:\Historic Environment (Data)\HE_Projects\Sites_T\Truro _Kenwyn St 2013
3. Digital photographs stored in the directory –
R:\Historic Environment (Images)\SITES.Q-T\Truro_Kenwyn St_2013
4. English Heritage/ADS OASIS online reference-
cornwall2-205631
5. This report text is held in digital form as-
G:\TWE\Waste & Env\Strat Waste & Land\Historic Environment\Projects\Sites\Sites Truro\Kenwyn St 2013

Artefacts and environmental material retrieved during the project are stored at the CAU Finds Archive Store, Cardrew Industrial Estate, Redruth.

11 Appendix

11.1 Written Scheme of Investigation

Truro DG5 Scheme: Written Scheme of Investigation for archaeological recording

Client: South West Water

Client contact: James Field

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Project background

This Written Scheme of Investigation (WSI) for archaeological recording during the Truro DG5 sewer repair scheme has been prepared by Historic Environment Projects, Cornwall Council (HE Projects) for South West Water (SWW) at the request of James Field, Ecologist and Environmental Planner, SWW. It is informed by advice provided to SWW by Dan Ratcliffe, the Historic Environment Planning Advice Team Leader (HEPATL), Cornwall Council in an email dated 31 January 2013.

The purpose of the scheme is to prevent sewer flooding in several properties in Truro by slightly upsizing both foul and surface water sewers and diverting some flows to an existing storm tank. All works will be in the public highway. The works are extensive and will be ongoing from September 2013 to June 2014

The existing sewer is approximately 3m below the road surface. South West Water had originally considered installing the new pipes another 2m below this level but this is no longer feasible. The existing pipes will be upsized and SWW may need to dig slightly below the previous trench depth and the new trench will necessarily be quite wide where they are upgrading the parallel foul and surface water sewers.

Site location and description

The works will affect a number of areas in central Truro; Victoria Square, Lower Kenwyn Street, Upper Kenwyn Street, Little Castle Street, Frances Street, St Dominic Street, Ferris Town and Edward Street.

The works will include replacement of old pipes, the laying of new pipes and boring in the following area:

- Excavation of new pipe between Victoria Square and eastern half of Kenwyn Street.
- Excavation of new pipe along Dominic Street.
- Replacement of existing pipes along the western half of Kenwyn Street.
- Replacement of pipes above existing pipe in Little Castle Street.
- Replacement of pipes above existing pipe in Frances Street.
- Replacement of pipes above existing pipe between Frances Street and Ferris Town.
- Trenchless boring between Edward Street and the Leats (which is a Grade II Listed retaining wall).
- Excavations around Kenwyn Storm Water tank to include: trenchless boring, and sections of new and replacement pipes.

Archaeological background

The Dominican Priory

Truro's medieval Dominican Friary is thought to have lain between Frances Street, Kenwyn Street and River Street although it may have extended further to the west and north. Established during the 1250s on reclaimed marsh on the south side of the River Kenwyn, the friary continued in use until the Dissolution of the Monasteries (1538).

The earliest references to the Kenwyn Street area come through the Dominican Friary. It was the practice of the Dominicans to settle in marginal lands, reclaiming the site to create a more habitable environment (Douch 1977, 21). The Dominican Order originated in Italy and did not arrive in Britain until 1212 (Knowles and Hadcock 1971 213). Their church at Truro was dedicated by Bishop Bronescombe of Exeter in 1259. It is therefore probable that the Friary was established in the 1250's (their nearest neighbour at Exeter was established in 1232, so it is unlikely that the Truro site was founded prior to this; *ibid*, 214).

The site chosen in Truro was set up close to one of the lowest possible crossing point of the estuary at West Bridge, in the shadow of the castle to the immediate north. It is hard to imagine other settlers around this marshy and tidal area prior to the reclamation of the land by the Friars; however, there probably were a few who braved the wet conditions to establish trades at this focal point.

Kenwyn Street may have existed in some form at this early stage. Historical and archaeological evidence points to the Friary buildings being contained to the north of the present day Kenwyn Street (Rose 1981; Henderson 1963, 324). Friary churches were often positioned on a public road as they were used for preaching to secular congregations, again attesting to the existence of a thoroughfare at this location.

The main buildings of the Friary appear to be located in the block of land enclosed by Kenwyn Street, Little Castle Street and River Street, it is almost certain that the precincts of the Friary ranged at least as far as St Dominic Street in the west and possibly as far north west as Waterfall Gardens in St George's Road (Henderson 1963, 324; Spry 1840, 40). When Frances Street and River Street were extended in c1840, walls and worked stone were recovered, which were attributed to the Friary, thus suggesting a northern limit at the base of the Castle Hill, (Spry 1840, 40-1). As late as 1700 parts of the Friary were still standing, whilst excavations on the corner of Castle Street and Kenwyn Street have uncovered further walls and human remains, including over one hundred stone coffins in 1808 (Penaluna 1838, 257; Spry 1840, 40; Hartgroves 1988).

The Friary well was situated to the south of Frances Street (at the northern end of the proposed development site) and is marked on 19th century town plans. Spry (1840, 40) described the well in c1800 no stonework was then traceable but there was a heap of rubbish each side of the pit almost completely covered with grass sufficiently indicating its locality; a beautiful stream of water issued from it which now passes behind the houses (southern side of Frances Street). This stream appears as a leat on latter town maps and was probably constructed by the Friars to serve the Friary precinct. It is highly unlikely that the well would have been located outside the Friary indicating that this area was part of the grounds. Spry goes on to say that until around 1830, the land to the west of Kenwyn Street, now cut by Little Castle Street, was known as 'The Friary' (*ibid*).

In 1375, the Friars were granted a royal licence to purchase two plots of land, 100 foot long and 50 foot wide to enclose and 'enlarge the court of their house', (Douch 1977, 22). It is uncertain where this land was located. The Friary expanded further in 1462 following an endowment by Ralph Reskymer. This included a meadow, two gardens and a culver house to the west of their present holdings. This area has been interpreted as Waterfall Gardens and part of St George's Street by Douch, as this area was known as Culver Close as late as the 19th century (*ibid.*). This also explains the existence of St Dominic's Well to the front of Carvedras House on St George's Road. This well may have superseded or been used in conjunction with the well off Frances Street, giving the latter a *terminus post quem* (no later than) date of 1462.

The Friary was closed by 'Voluntary' surrender of the house to the King in 1538 (Henderson 1963, 322). Whilst the furnishings were taken by the Mayor and town officials, there is no record of how the buildings were apportioned at this point. It is likely however that they were soon utilised as a convenient source of building materials. A lease dating to 1636 talks of 'all the old walls reedified builded and made a barn, with garden, orchard and meadow, part of certain lands in Kenwyn called the Friars' (TBRG, 1985, 6), giving some indication of the fate of the former Friary buildings. Likewise 'decayed tofts', 'pairs of

walls', 'vacant plots' or 'gardens' are described along Kenwyn Street in the early seventeenth century (TBRG 1985, 9).

Carvedras House

Kenwyn Street was originally called Carvedras Street after Carvedras House, which was constructed between 1659 and 1662 and is referred to in lease of 1664 which describes 'All that decayed olde payre of walls neare the upper end of Carvoddre house and adjoining Carvoddre garden or orchard within the parish of Kenwyn together with 40' in the said orchard in breadth and 60' in length with 40' of ground more leading from the peare tree to the waye bounding with the gate of John Robarts leading to St Dominic's well. New built dwelling house there' (RIC MAR/5/9). This lease is somewhat confusing as the present day location of St Dominic's Well is in the garden of Carvedras House in St George's Road. It appears however, that an earlier Carvedras House existed in the area covered by the present day car park, in front of the original Friary well. It is this earlier building that the lease refers to (as late as 1848, the majority of St George's Road was undeveloped). It seems that this land was initially sold in 1662 as 'Carvedras House in Kenwyn with neighbouring fields', and prior to this had been described in 1659 as '3 places in Carvedras Street', the early name for Kenwyn Street (TBRG, 1985, 7).

A lease dating to 1772 identifies Carvedras House in Kenwyn Street, '...Dwelling houses called Carvedras House and of the yards, backsides, orchards, gardens...belonging and adjoining situate, lying and being in Kenwyn Street in the parish of Kenwyn' (CRO DDEN 285/2). A plan of the land, four years later, locates the plot on the proposed development site. It appears at this point to consist of a number of dwellings and orchards, which along with the wording of the lease, suggests that Carvedras House had been demolished or divided up and the area was now only referred to as 'Carvedras House' by association. This plan also shows the leat that was originally associated with the Friary well, described as a spring, and a number of 'old walls', presumably of dwelling places or outhouses.

Later history of the area

During the 19th century, Kenwyn Street was quickly developed along the road frontage. Various trade directories indicate a wide variety of businesses along the street. Initially, it appears that the area of the proposed development consisted of a malthouse (TBRG, 1985, 21), and dwelling houses, as did much of Kenwyn Street, with the majority of traders occupying spaces along the eastern end of Kenwyn Street. The tithe map of the parish of Kenwyn (c1840) shows houses, yards and gardens in this area, whereas Symons' map of 1842 shows an increase in the number of buildings along with infilling of the area between Kenwyn Street and Frances Street. Two large areas are taken over by what appears to be orchards. These may relate to a walled garden of 1.25 acres in Kenwyn Street leased at the end of the 18th century, containing 'a very good new built hothouse in complete and in excellent order and the walls of the garden are filled with fruit trees of the best sort in full bearing' (TBRG 1985, 10).

A report by Dr Charles Barham on the 'sanitary state of the labouring classes', dated to 1841 presents us with a graphic picture of Kenwyn street at this time; 'On the south west of St Mary's, in the parish of Kenwyn, the best and the newest part of the town is situated, partly on a hill-side..., partly on a level at its foot (presumably Frances Street, Ferris Town, Richmond Hill), but some of the older quarters of the town are comprised in this division'. He goes on to say, 'Charles, Calenick and Kenwyn Streets present some of the worst specimens of defective arrangement, rendered worse still by the recklessness of the very poor...the amount of pauper sickness is considerable, the deaths not few. The two latter streets are, in the greater part of their length, but little raised above high water mark'. It is telling that the contemporary lists of notable residents of Truro are not to be found residing in these areas, whilst Dr Barham's report attests to the continuing problems of tidal water in low-lying areas of Truro.

Trade directories for the years 1844 to the 1860's attest to an increase in the number of businesses in Kenwyn Street, and although no street numbers are given, the sheer number dictates that they must have occupied the development area. In 1853, six taverns or hotels, auctioneers, basket makers, confectioners, hairdressers, tailors, stone masons, beer sellers, wheelwrights and an umbrella maker were amongst the wide variety of

businesses in the street. No less than 52 traders or businesses were listed all told, including nine boot and shoe makers.

Cartographic evidence indicates that in plan the area changed little between 1842 and 1880, with the two large open areas of orchard or garden remaining intact. The well leat is still depicted as an open culvert as late as 1880. The street directory for Kenwyn in 1873 shows a change in the focus of businesses. More of the buildings appear to be dwellings, with the main concentration of businesses once more congregating around Victoria Square. The Ordnance Survey map of 1907 shows evidence of further infilling on the development site, particularly to the western side, with the eastern remaining relatively undeveloped.

This pattern of land use has continued until the present day. The western portion of the development site was a garage until recent years, whilst the eastern section remained a largely undeveloped area. The site is now a car park operated by National Car Parks (NCP).

Archaeological potential

Because new ground may be disturbed during groundworks for the scheme and taking into account the complex stratigraphy of archaeological deposits encountered in the course of a watching brief during sewer-related works along Kenwyn Street in 2003 (Lawson-Jones 2003) there is potential for significant archaeological remains to be encountered during groundworks for this scheme. Other excavations, in addition to the 2003 results, have demonstrated that this part of Truro has a very complex stratigraphic record with older deposits often sealed in places by multiple instances of ground raising (possibly to mitigate against flood risk) while others have yielded evidence of medieval and later cultivated solids. There is also thought to be a raised potential for the preservation of organic materials here due to the low lying nature of this area which often promotes water-logging and consequent anaerobic conditions which slow organic decomposition.

Aims and objectives

Archaeological recording

Ground works associated with the development may disturb buried archaeological remains. Therefore the Project Archaeologist(s) monitor all ground reduction works, including the establishment of the site compound, in order to identify and record any features of interest.

The site specific aims are to:

- Establish the presence/absence of archaeological remains.
- Determine the extent, condition, nature, character, date and significance of any archaeological remains encountered.
- To establish the nature of the activity on the site.
- To identify any artefacts relating to the occupation or use of the site.
- To provide further information on the archaeology of the history of Truro from any archaeological remains encountered.

Working methods

All recording work will be undertaken according to the Institute for Archaeologists *Standards and Guidance for Archaeological Investigation and Recording*. Staff will follow the IfA *Code of Conduct* and *Code of Approved Practice for the Regulation of Contractual Arrangements in Archaeology*. The Institute for Archaeologists is the professional body for archaeologists working in the UK.

Desk-based assessment

Prior to the commencement of onsite works the project archaeologist will familiarise themselves with the site by examining the information held by the Cornwall and Scilly Historic Environment record (HER) and in published sources.

Archaeological recording

An archaeologist will be present during ground works associated with the development, including the establishment of any compound, unless circumstances dictate a different approach. In sections where existing pipes are to be replaced the archaeologist will inspect

the open trench section, and in areas of new trench the archaeologist will liaise with the contractor to establish when they are being opened up. Where larger areas are cleared a toothless bucket will be used.

Any surviving remains which will be disturbed or destroyed by the development will be archaeologically excavated and recorded.

If significant archaeological deposits are exposed, all works will cease and a meeting convened with the client and the HEPATL to discuss the most appropriate way forwards. This may include hand excavation of significant archaeological remains.

Recording

- A location plan will be made, plotting the areas of ground works onto the Ordnance Survey Mastermap at 1:200.
- The heights of all features identified will be tied into the Ordnance Datum if appropriate.
- The location of features recorded during the watching brief will be plotted onto a drafting film overlay to the prepared location plan.
- All finds from significant stratified contexts will be accurately located on the location plan at an appropriate scale.
- All archaeological contexts will be described to a standard format linked to a continuous numbering sequence. All contexts recorded will be recorded via the medium of HES pro forma context recording sheets.
- Registers of drawings, photographs, finds and contexts, samples will be maintained during the fieldwork.
- The excavated spoil will be carefully inspected for finds.

Site planning policy

- Site drawings (plans, sections, locations of finds) will be made by pencil (4H) on drafting film; all plans will be linked to the prepared location map and to the national grid; all drawings will include standard information: site details, personnel, date, scale and north-point.
- Site plans will be drawn at 1:20 and sections at 1:10, unless circumstances indicate that other scales would be more appropriate.
- Site drawings (plans and sections) will be digitised and converted into AutoCAD drawings.

Photographic record

- The photographic record will consist of prints in both black and white and colour together with the negatives. Digital photography will be used for report illustration.
- For both general and specific photographs, a photographic scale will be included.
- In the case of detailed photographs a north arrow will be included if appropriate.
- The photographic record will be accompanied by a photographic register detailing as a minimum, feature number, location and direction of shot.

Finds

- All finds will be retained from each archaeological context excavated.
- All retained finds, where appropriate, will be washed.
- All pottery and other finds where appropriate, will be marked with the site code and context number.
- This WSI includes an agreed list of specialist consultants, who might be required to conserve and/or report on finds, and advise or report on other aspects of the project including environmental sampling.

- The requirements for conservation and storage will be agreed with the appropriate museum prior to the start of work, and confirmed in writing to the HEPATL.
- Finds work will be to accepted professional standards and adhere to the Institute for Archaeologists' *Guidelines* (IfA 2001b).

Sampling

- The English Heritage Advisor for Archaeological Science will be consulted for advice if required (Vanessa Straker 0117 975 0689).
- Environmental sampling will be guided by *Environmental Archaeology* (English Heritage 2004).
- Other English Heritage guidance will be consulted as appropriate including *Geoarchaeology* (2004) and *Archaeometallurgy* (2001).
- The archaeologist undertaking the watching brief will assess the potential for environmental sampling.
- If suitable deposits are identified the following types of sample will be taken as appropriate:
 - Bulk sampling
 - Monolith sampling
 - Macro & Micro Flora Analysis (including pollen analysis)
 - Macro & Micro Fauna Analysis
 - Radiocarbon dating for artefact analysis

Human remains

Any human remains which are encountered will initially be left *in situ* and reported to the HEPATL and the appropriate authorities. If removal is necessary this will comply with the relevant Government regulations. If burials are encountered their legal status will be ascertained and recording and/or removal will comply with the legal guidelines.

If human remains are not to be removed their physical security will be ensured, if possible by back filling as soon as possible after recording.

If human remains are to be removed this will be done with due reverence and in accordance to current best practice and legal requirements. The site will be adequately screened from public view. Once excavated human remains will not be exposed to public view.

Archiving

During this phase the results of the fieldwork will be collated for archiving. This will involve the following tasks.

- Indexing of site drawings and photographs
- Processing and analysis of artefacts and environmental samples, if appropriate.

Note: The requirements for Archiving and Reporting will be reviewed in the light of the fieldwork results

Report production

A report will be produced which will describe the results of the desk-based study and the nature of the fieldwork undertaken, the circumstance and conditions under which it occurred and the results that were obtained. Production of the report will involve:

- Producing a descriptive text.
- Producing maps, scaled plans and section drawings.
- Selecting photographs.
- Report design.

- Report editing.
- Dissemination of the finished report.

The report will have the following contents:

- Summary
- Introduction - Background, aims, methods
- Results of archaeological - A concise non-technical summary of the results
- Discussion - A discussion of archaeological findings in terms of both the site specific aims and the desk based research
- Specialists' reports Specialists' reports or assessments as appropriate
- Archive - A summary of archive contents and date of deposition
- Appendices Copies of the Brief and WSI, context register
- Illustrations
 - Location map
 - Site location plan
 - A drawing showing those areas examined as part of the archaeological watching
 - Copies of relevant historical cartography & plans
 - Plan and section drawings resulting from the archaeological recording.
 - Finds drawings (if appropriate)
 - Illustrative photographs
 - Note: All plans will be tied to the national grid.

Contingency for analysis and publication

A contingency is made within the accompanying estimate for assessment for specialist analysis and full publication in an appropriate journal. The HEPATL will notify the contractor of such a need within four weeks of receipt of the report.

Report dissemination

The full report including all specialist assessments of artefact assemblages will be submitted within a length of time (but not exceeding six months) to be agreed between the applicant and HE (CAU), with copies supplied to the client (two), Cornwall and Scilly Historic Environment Record and the Courtenay Library of the Royal Institution of Cornwall, River Street, Truro and national archive centres. A further digital copy shall be supplied on CD-ROM in 'Adobe Acrobat' PDF format. A draft will initially be submitted to the HEPATL for comment.

The report will be held by the Cornwall and Scilly Historic Environment Record and made available for public consultation. Additional copies will be submitted to the English Heritage *via* OASIS and to the Planning Department of the Council of the Isles of Scilly.

Archive deposition

- An ordered and integrated site archive will be prepared in accordance with *the Management of Research Projects in the Historic Environment (MoRPHE)* (English Heritage 2006b) upon completion of the project. The requirements for final deposition of the project archive will be agreed by HEPATL and HE Projects.
- The archive including a copy of the written report will be deposited at the Isles of Scilly Museum within two months of the completion of the full report and confirmed in writing with the HEPATL.
- Completion of the English Heritage/ADS OASIS online archive index.

- A summary of the contents of the archive shall be supplied to the HEPATL.

Monitoring and Signing Off Condition

Monitoring of the project will be carried out by the HEPATL. Where the HEPATL is satisfied with the archive report and the deposition of the archive written discharge of the planning condition will be expected from the Council of the Isles of Scilly.

Notification of the start of work will be given in writing to the HEPATL as far in advance of its commencement as possible. HEPATL will monitor the work and will be kept regularly informed of the progress.

Any variations to the WSI in shall be agreed with the HEPATL in writing prior to them being carried out.

Monitoring points during the study will include:

- Approval of the WSI
- Completion of fieldwork. When this has been approved by the HEPATL, then it should be possible for the client to commence building works
- Completion of archive report
- Deposition of the archive

Timetable

The study is anticipated to be commenced during September 2103.

The archive report will be completed within 3 months of the end of the fieldwork. The deposition of the archive will be completed within 3 months of the completion of the archive report.

HE Projects

Historic Environment Projects is the contracting arm of Historic Environment, Cornwall Council (HE). HE employs some 20 project staff with a broad range of expertise, undertaking around 100 projects each year.

HE is committed to conserving and enhancing the distinctiveness of the historic environment and heritage of Cornwall and the Isles of Scilly by providing clients with a number of services including:

- Conservation works to sites and monuments
- Conservation surveys and management plans
- Historic landscape characterisation
- Town surveys for conservation and regeneration
- Historic building surveys and analysis
- Maritime and coastal zone assessments
- Air photo mapping
- Excavations and watching briefs
- Assessments and evaluations
- Post-excavation analysis and publication
- Outreach: exhibitions, publication, presentations

HE Project staff

The project will be managed by a nominated Senior Archaeologist who will:

- Discuss and agree the detailed objectives and programme of each stage of the project with the client and the field officers, including arrangements for health and safety.
- Monitor progress and results for each stage.
- Edit the project report.
- Liaise with the client regarding the budget and related issues.
- All HE staff will have CSCS cards and will attend a site induction.

Work will be carried out by HE field staff, with assistance from qualified specialists and sub-contractors where appropriate. The project team is expected to include:

Specialists

John Allan MPhil – Medieval/post-medieval pottery specialist: John is the leading authority on medieval and post-medieval pottery in south- west England and author of many publications. He will carry out the pottery assessment and analysis in the event of medieval or post-medieval pottery being recovered

Henrietta Quinell BA, MIFA, FSA – Prehistoric, Roman, post-Roman pottery: Henrietta is a freelance pottery specialist and the leading authority on prehistoric pottery in the south-west. She will carry out the pottery assessment and analysis in the event of prehistoric pottery being recovered.

Claire Ingre PHD – animal bone: Claire is an experienced animal bone specialist who will carry out the assessment and analysis in the event of animal bone being recovered.

Julie Jones BA – Archaeobotanist: An experienced freelance archaeobotanical specialist based in Bristol, Julie has carried out palaeoenvironmental assessments and analyses for numerous HES projects.

Dana Challinor MA, MSc – Freelance Charcoal Specialist: Dana's main area of expertise is charcoal analysis and wood species identification, but she also has experience with charred plant remains. For her Masters degree she specialised in Archaeobotany and received a distinction for her dissertation on charcoal in Bronze Age cremation burials. She has produced numerous assessment and evaluation reports, as well as reports for publication in journal and monograph formats and was formerly Head of the Environmental Department at Oxford Archaeology. She will undertake assessment and analysis of any suitable charcoal samples, including identification of samples suitable for radiocarbon dating.

Ralph Fyfe, PhD, Palynologist: Ralph is lecturer in environmental change in the School of Geography at the University of Plymouth. He has carried out numerous archaeological evaluations for a variety of organisations, including English Heritage, County Councils, National Parks and Archaeological Consultancies and will undertake assessment and analysis of pollen samples if required.

Laura Ratcliffe-Conservationist, BSc, The Royal Cornwall Museum, Truro: Laura graduated In Archeological Conservation from Cardiff University in 2001. Since then she has gained a wide variety of experience both on excavations and in a lab working on a wide variety of archaeological and historical material. She is currently based at the Royal Cornwall Museum where she is the museum's Collections Manager. Laura will carry out the assessment and conservation of pottery and metalwork on a free lance basis if required.

SUERC Radiocarbon Dating Laboratory: Samples for radiocarbon dating will be sent to the Scottish Universities Environmental Research Centre.

Standards



HE is a Registered Organisation with the Institute for Archaeologists and follows their Standards and Code of Conduct.

As part of Cornwall Council, the HES has certification in BS9001 (Quality Management), BS14001 (Environmental Management), OHSAS18001 (Health, Safety and Welfare), Investors in People and Charter Mark.

Terms and conditions

Contract

HE Projects is part of Historic Environment, Cornwall Council. If accepted, the contract for this work will be between the client and Cornwall Council.

The views and recommendations expressed will be those of the HE projects team and will be presented in good faith on the basis of professional judgement and on information currently available.

Project staff

The project will be managed by Charlie Johns who will:

- Discuss and agree the detailed objectives and programme of each stage of the project with the client and the field officers, including arrangements for health and safety.
- Monitor progress and results for each stage.
- Edit the project report.
- Liaise with the client regarding the budget and related issues.

Report distribution

Paper copies of the report will be distributed to the client, to local archives and national archaeological record centres.

A digital copy of the report, illustrations and any other files will be held in the Cornwall HER and also supplied to the client on CD or other suitable media.

Copyright

Copyright of all material gathered as a result of the project will be reserved to the Historic Environment, Cornwall Council. Existing copyrights of external sources will be acknowledged where required.

Use of the material will be granted to the client.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1 January 2005.

HE will ensure that all information arising from the project shall be held in strict confidence to the extent permitted under the Act. However, the Act permits information to be released under a public right of access (a "Request"). If such a Request is received HE may need to disclose any information it holds, unless it is excluded from disclosure under the Act.

Health and safety statement

HE follows the Council's *Statement of Safety Policy*. For more specific policy and guidelines HE uses the manual *Health and Safety in Field Archaeology* (2002) endorsed by the Standing Conference of Archaeological Unit Managers and also the Council for British Archaeology's Handbook No. 6 *Safety in Archaeological Field Work* (1989).

Prior to carrying out on-site work HE will carry out a Risk Assessment.

Insurance

As part of Cornwall Council, HE is covered by Public and Employers Liability Insurance and Professional Negligence Insurance.

Charles Johns, Senior Archaeologist, 27 August 2013

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