

CPAT Report No. 1548

Hancock's Tramway Exchange Wharf, Buckley, Flintshire

Survey and recording 2017-18






Llywodraeth Cymru
Welsh Government



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Client name: Cadw
 CPAT Project No: 2199
 Project Name: Buckley Tramroad
 Grid Reference: SJ 2900 6423
 County/LPA: Flintshire
 Planning Application: N/A
 CPAT Report No: 1548
 Event PRN: 140216
 Report status: Final
 Confidential: No

Prepared by:	Checked by:	Approved by:
		
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13 February 2018	14 February 2018	14 February 2018

Bibliographic reference:

Jones, N. W., 2018. *Hancock's Tramway Exchange Wharf, Buckley, Flintshire: Survey and recording 2017-18*. Unpublished report. CPAT Report No. 1548



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Summary

A programme of survey and research was conducted to investigate the site of Hancock's Tramway Exchange Wharf in Buckley, Flintshire. The wharf is protected as a scheduled ancient monument (SAM F1181) and now lies within the Lane End and Knowle Hill Nature Reserve, which is managed by North East Wales Wildlife. The investigations were conducted to provide background information and baseline data in order to assist with future management and conservation work.

The brickworks and an adjacent colliery were originally connected to the River Dee by a tramroad, generally known as the Aston Tramway, which developed in the early 19th century. With the coming of the mainline railway in 1862, the tramway gradually fell out of use and a new exchange wharf was constructed to transfer bricks onto the new railway, as well as bringing coal to fuel the brickworks. A 3'6" (1.07m)-gauge tramway brought bricks from the Lane End Brickworks, through a tunnel, and onto the wharf, where a number of sidings delivered specially constructed wagons to be loaded onto the mainline. The wharf remained in operation until the late 1940s.

Much of the tramway wharf was uncovered from the 1970s to the 1990s, revealing an impressive level of preservation with much of the brick-laid tramway base surviving, often flanked by *in situ* rails. While this demonstrated the significance of remains it also unfortunately exposed them to the elements, as well as providing an opportunity for some to remove sections of the track and related artefacts.

Over the last quarter of a century nature has gradually reclaimed the wharf and it is now difficult to identify the layout of the tramways, the only obvious survival being the retaining walls for the wharf, alongside the mainline siding.

1 Introduction

- 1.1. The present project, which focuses on a rare survival of an exchange facility between an industrial tramway and the standard gauge railway, follows on from a series of Cadw-funded projects investigating the Buckley pottery industry.
- 1.2. Buckley is well-known for its industrial production, chiefly pottery but also bricks and tiles, and an extensive tramway network developed during the late 18th and 19th centuries to serve these industries and to take goods to ports on the River Dee. This included a horse-drawn tramway linking the Lane End Brickworks, and others, to Aston Wharf at Queensferry (Fig. 1). In the second half of the 19th century the opening of a main line railway resulted in the abandonment of most of this tramway, although a new exchange facility, known as Hancock's Wharf, was constructed to transfer wares onto a standard gauge siding.



Fig. 1 19th-century tramways and railways between Buckley and the River Dee.

- 1.3. The exchange wharf has been afforded statutory protection as SAM F1181 and lies within The Lane End and Knowle Hill Nature Reserve, which is managed by North East Wales Wildlife (NEWW). The Reserve covers approximately 27 hectares (67 acres) and its importance as a habitat is recognised in designations as a SSSI, a Special area of Conservation and a Site of Nature Conservation Importance. The Reserve has high biological diversity, including the presence of the Great Crested Newts. There are public footpaths through the site which make up the Buckley Heritage trail.
- 1.4. A programme of topographical survey and research was undertaken to provide background information and baseline data in order to assist with future management and conservation work to be undertaken by NEWW.

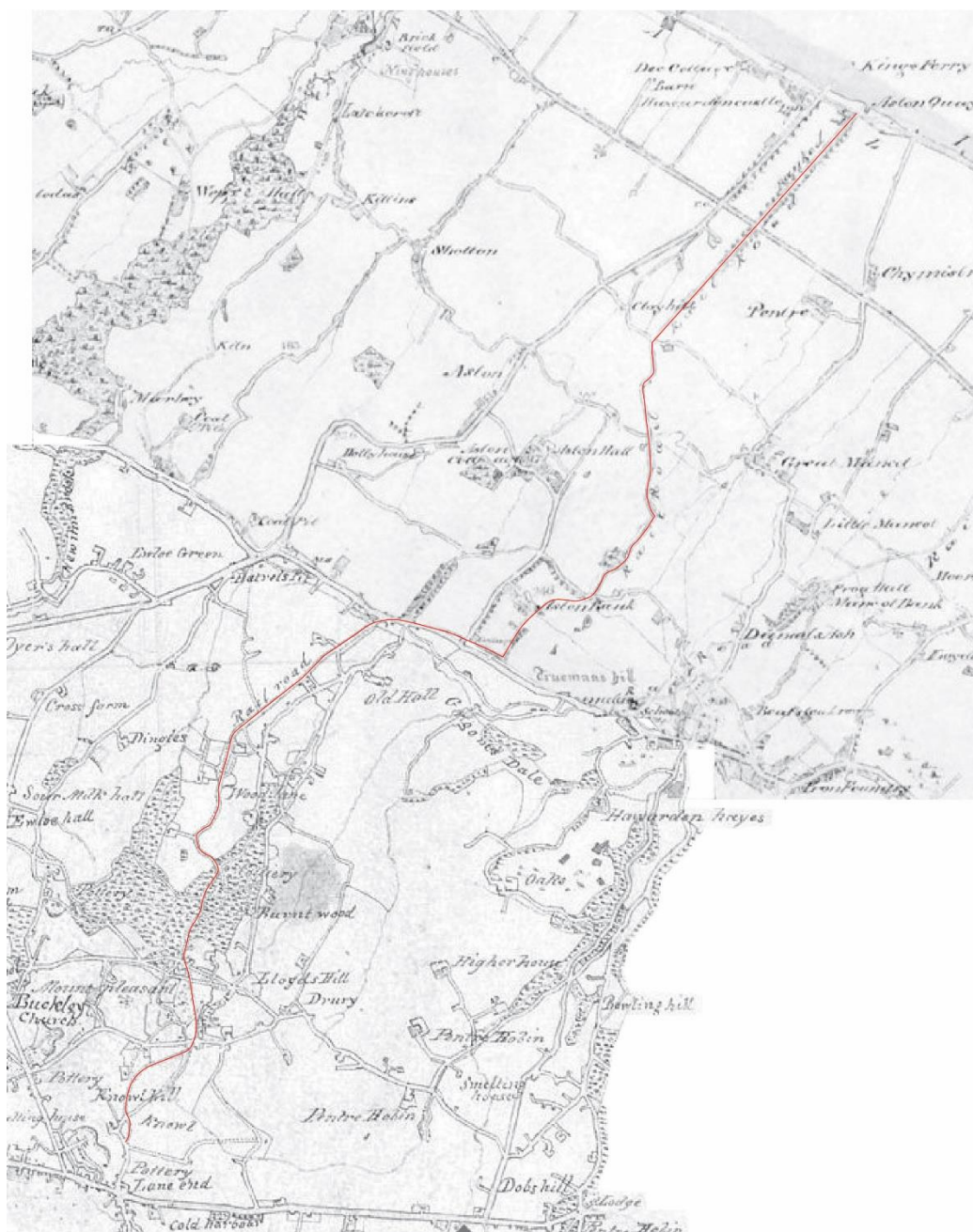


Fig. 2 Extract from the Ordnance Survey Surveyors' Drawing of 1834 showing the line of the Aston Tramroad in red

2 Background

- 2.1. While Buckley is perhaps best known for its pottery production, the manufacture of brick and tile developed as a major industry from the late 18th century, and small-scale coal mining was also an important local industry. An extensive system of tramways developed to serve these industries, taking goods to ports on the River Dee. Initially horse-drawn the tramways were built using wooden rails, which were later replaced in iron.
- 2.2. The tramway system which forms the subject of the present study was built to serve the Lane End brickworks (PRN 103689), which was operated in partnership between William Hancock and William Rigby and became the largest brickworks in Buckley. The partnership was dissolved in 1819, after which the enterprise was run by a succession of four Hancock's, each named William (Pritchard 2006, 122-3).

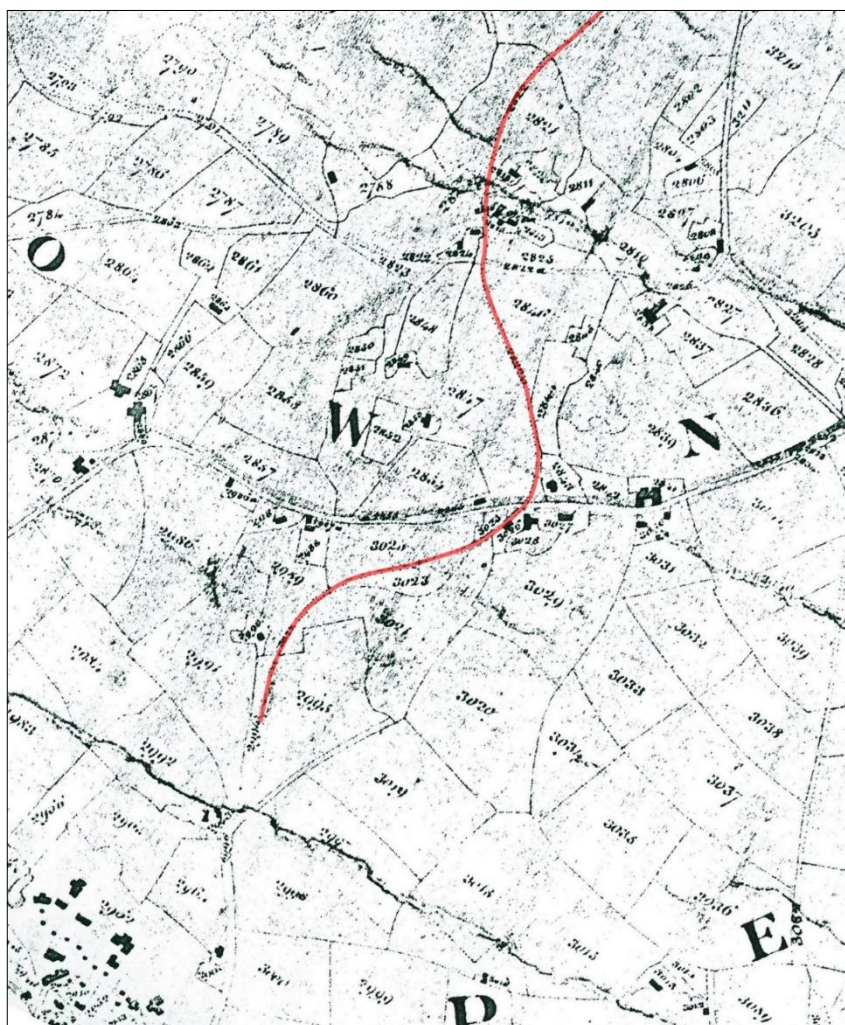


Fig. 3 Extract from the 1841 Tithe Survey for Hawarden pairsh, showing the line of the early 19th century tramway in red. The Lane End Brickworks is bottom left.

- 2.3. The products from the brickworks were originally transported to the River Dee via various sections of tramway which had different names but are generally referred to as the Aston Tramroad. The tramroad developed in stages from 1799, connecting various collieries, including Pentrobin Colliery, to Aston Wharf, Queensferry. By

1834 the tramroad had been extended by Hancock & Co. as far as Buckley, and is depicted by the Ordnance Survey Surveyors' Drawing of 1834 (Fig. 2) and the Hawarden Tithe Survey of 1841 (Fig. 3).

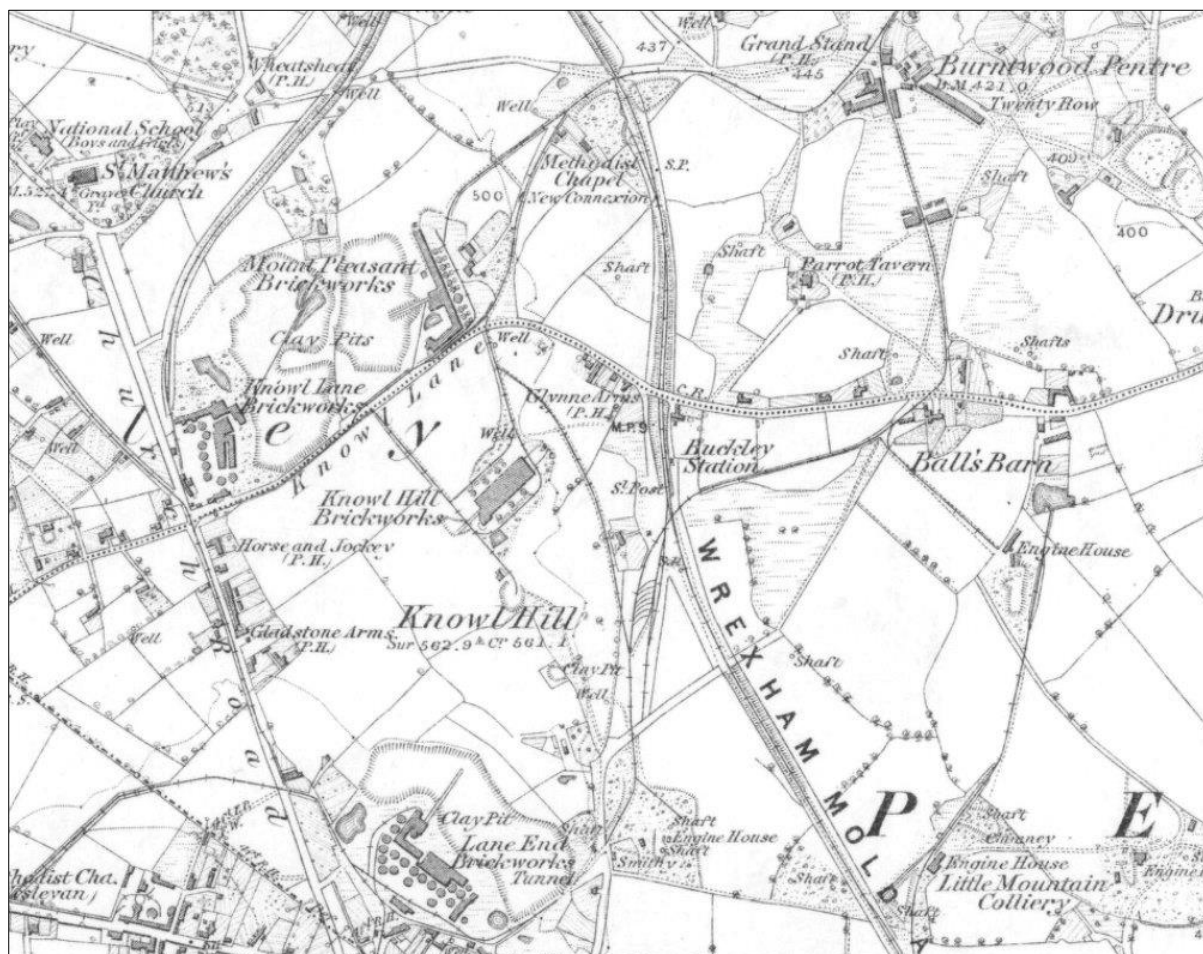


Fig. 4 Extract from the Ordnance Survey 1st edition 6" map, surveyed in 1869 and published in 1871, showing the early 19th-century tramway crossing the mainline railway south of Buckley Station

- 2.4. A useful summary of Hancock's Tramway and Wharf is provided by Boyd (1991, 43-44) and the following description is drawn largely from this source.
- 2.5. When the Buckley Railway was opened in 1862, and then the Wrexham, Mold and Connah's Quay Railway (WMCQR) in 1866, the tramroad was initially retained, crossing the new line just south of Buckley Station (Fig. 4). Inevitably the tramroad then went into decline, although Hancocks continued to use it rather than the new railway since they were linked financially to the tramroad. However, in 1866 the WMCQR Act made it possible for the tramroad to be abandoned and its personalities suitably compensated. Probably by 1870, the tramroad fell into disuse in favour of the railway.
- 2.6. With the coming of mainline railways Hancock faced the necessity of making a connection with the WMCQR, which he did by constructing an exchange facility on the south-west side of the mainline Buckley Station. A tramway led from the

brickworks, through a tunnel and down onto a wharf where it split into a number of end-loading sidings to facilitate loading onto standard gauge wagons.

- 2.7. According to Boyd this short, industrial system was unique and deserves special mention among the tramroads of the district. It was strictly neither a tramway nor a tramroad, but rather a form of homespun yet efficient 'rail-way'. The wharfage served a dual function since as well as transporting bricks for export, it also brought in coal to fuel the Lane End Brickworks.

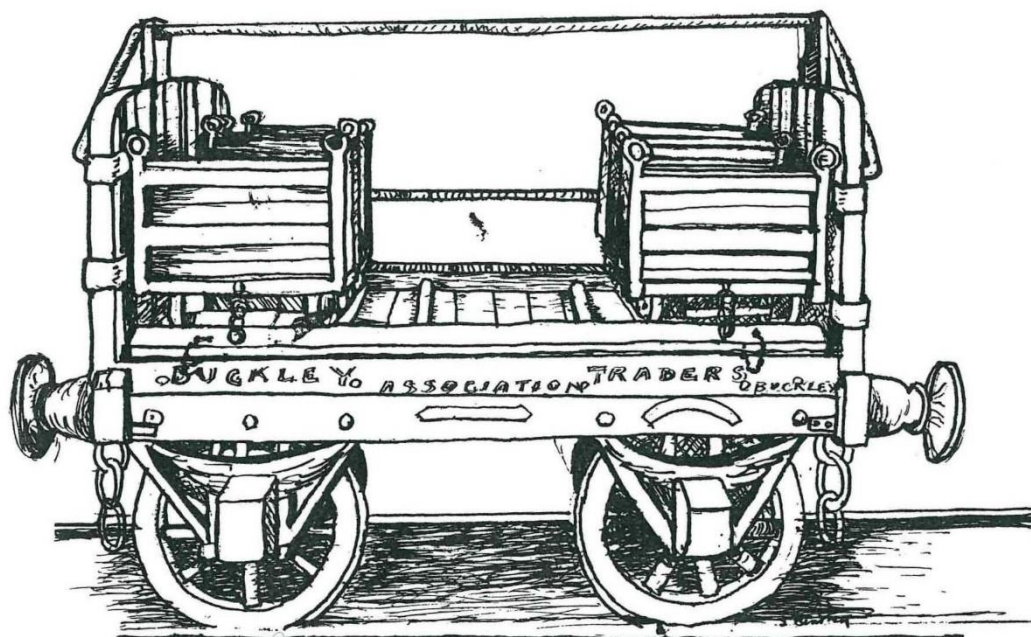


Fig. 5 A standard gauge shipping wagon used around 1870. This was capable of holding six 'shipping boxes' (illustration by J. Bentley, courtesy of the Buckley Society)

- 2.8. Specially constructed wagons, known as 'shipping boxes', were drawn by horse from the brickworks and onto the exchange wharf. The mainline wagons, known as 'shipping wagons', or 'shippers', were specially constructed, having three pairs of guide rails, the wagons being large enough to accommodate six of the smaller shipping boxes (see Fig. 6).
- 2.9. The transfer between the two systems was facilitated by use of a further tramway, which Bentley terms the traverser tramway, running across the face of the wharf at a lower level. The shipping boxes were pushed onto guide rails on the bed of flat trucks running along the traverser tramway. The bed of the traverser tramway was raised above that of the mainline siding so that the flat wagons were at the same level as standard gauge shipping wagons, enabling the shipping boxes to be then be pushed onto the wagons. The operation of the exchange sidings is best illustrated by a model made by Paul Morrille of the Buckley Society (Fig. 6).



Fig. 6 A model of the Exchange Sidings, made by Paul Morrille of the Buckley Society. The standard gauge sidings are shown on the right, with the traverser tramway running alongside at a higher level. The tramway sidings on the wharf to the left are at a higher level again. The two sidings in the foreground descend to join the traverser tramway. Photo Paul Davies.

- 2.10. The most interesting feature of the exchange wharf was its trackwork. The line from the brickworks, and most of the other tracks which did not involve curves, consisted of old standard-gauge, double-headed rails laid on their sides, the shipping boxes' wheels running in the recess of the rail. At turnouts, and for curves, notably on the wharfage, former tramroad material was salvaged and put to further use. As a result the wharf area was virtually a working museum of elderly equipment, some of which still survives in situ.
- 2.11. The whole area containing trackwork was paved with bricks laid on edge; these had the effect of keeping the rails to the correct gauge, although in places stone and/or wooden cross-sleeping was also used, while in others longitudinal timbers lay beneath the rails. Many of the brick were 'seconds' but were nevertheless laid with

care and precision, with the track bed between the rails being cambered to afford a good foothold for the horse and assist drainage.

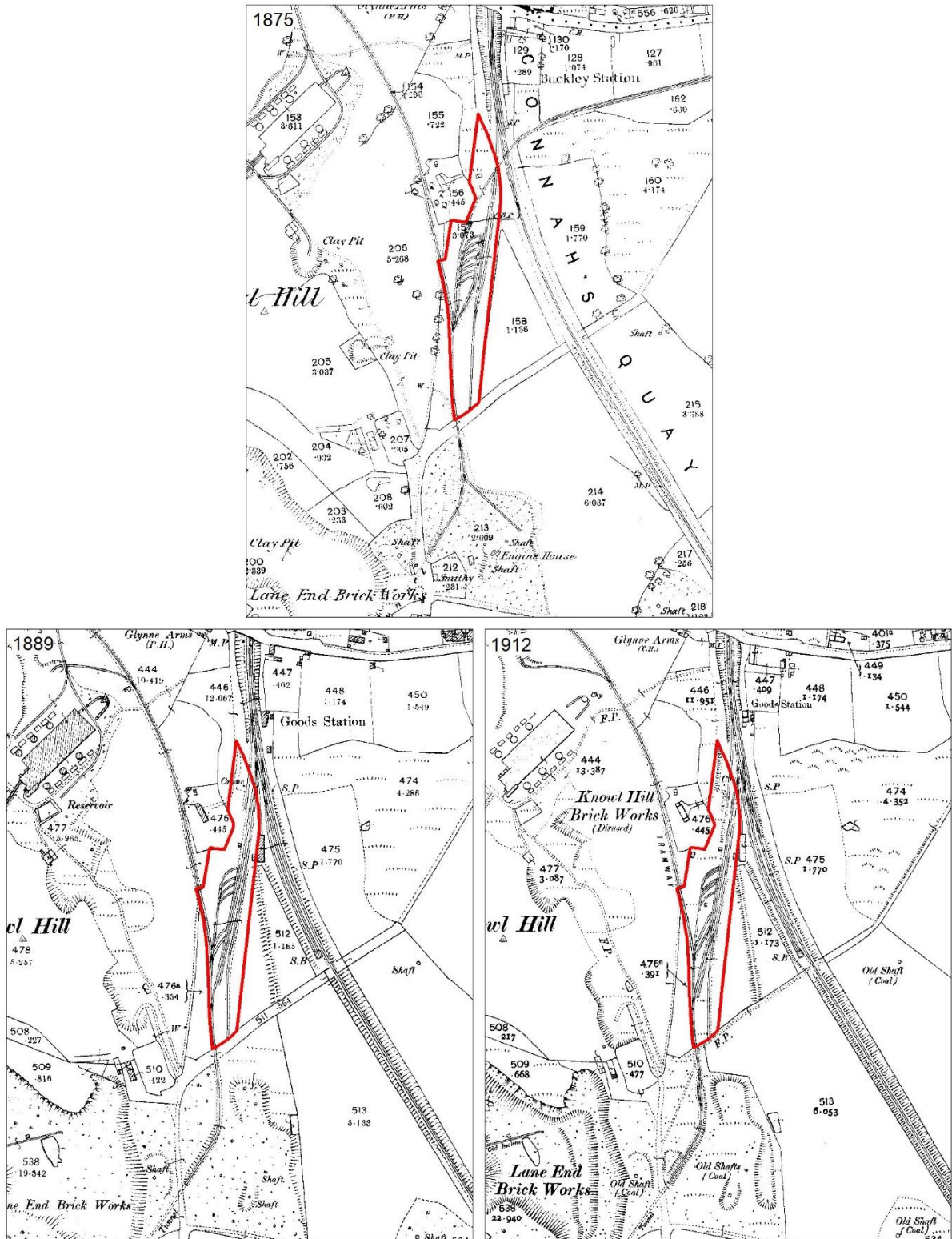


Fig. 7 Ordnance Survey 25" mapping 1875-1912, showing the scheduled area in red

2.12. The exchange wharf underwent several phases of change, as evidenced by the early editions of the Ordnance Survey 25" mapping (Fig. 7). In 1875 the wharf contained

seven curving sidings, whereas this had been reduced to four sidings by 1889, the whole area then being relaid with two pairs of curving sidings and one single siding by 1912. It is the remains recorded in this last depiction which survive today, the wharf remaining in use until just after the Second World War.

- 2.13. The 1st edition mapping also shows that the tramway also continued through the Lane End Brickworks as far as Hancock's Pottery, which was known as the Daisy Hill Works. Hancock's was the only pottery to be furnished with a purpose-built tramway. The pottery ended production in 1886 (Jones 2014, 41).
- 2.14. There are a number of contemporary photographs which show Buckley Station and some of the standard gauge sidings (Davies *et al.* 2007, pl. 150-169), although the only known photograph which depicts Hancock's Wharf is an undated postcard (Fig. 8).

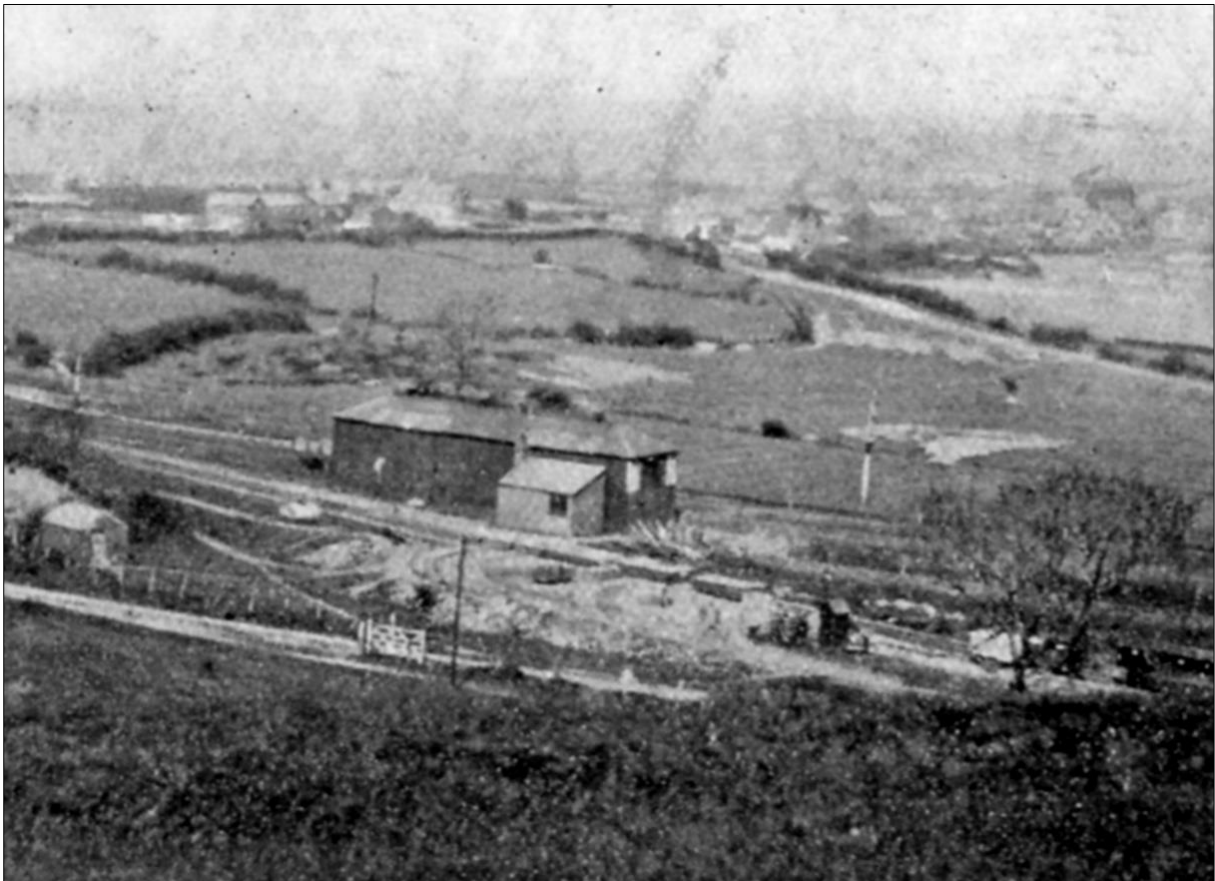


Fig. 8 Undated postcard showing the exchange wharf with the standard gauge engine shed behind (courtesy of Gary Paul Davies)

3 Previous Investigations

- 3.1. Significant sections of tramway within the scheduled area were exposed during excavations led by James Bentley which took place intermittently from the late 1960s to around 1990. The results demonstrated the often good state of preservation, revealing well preserved sections of brickwork, often with iron rails still in situ, assisting greatly with our understanding of the function of the tramway system and its methods of construction. Sadly, however, without funding to secure the preservation of the remains time subsequently took its toll and the area was reclaimed by vegetation, but not before some elements were removed or damaged.



Fig.9 A section of tramway uncovered in 1967, showing the five-way junction, viewed from the north-north-west. Photo James Bentley (courtesy of the Buckley Society)



Fig. 10 A section of tramway uncovered in 1967, showing the five-way junction, viewed from the south-south-west. Photo James Bentley (courtesy of the Buckley Society)



Fig. 11 Part of the exchange sidings c. 1990. Photo James Bentley (courtesy of the Buckley Society)



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Fig. 12 1m-resolution LiDAR digital terrain model

4 Survey and Mapping

- 4.1. The project made full use of available historic cartography, as well as LiDAR data, in order to interpret the visible earthworks within the study area. The 1m-resolution LiDAR digital terrain model (DTM) proved particularly useful when overlain with the Ordnance Survey 3rd edition 25" map. This combination of sources was checked during a number of field visits in January 2018, in order to produce the hachured plans of the earthworks at the end of this report (Figs 30-31).
- 4.2. A detailed total station survey was conducted in January 2018 for the transfer wharf (PRN 106379), following vegetation clearance by NEWW volunteers.
- 4.3. The exchange sidings occupy a level area, to the west of, and raised above, the standard gauge siding. The edge of the wharf is founded on large sandstone blocks, onto which are laid a variety of bricks and tiles, forming a terrace around 1.2m wide and 0.55m above the bed of the sidings. A tramway (Bentley's traverser tramway) ran along the terrace. A variety of industrial bricks were used to build a revetment along the inner edge of the terrace, forming the edge of the exchange wharf, a further 0.5m above the terrace (Fig. 13).



Fig. 13 A section of the tramway wharf with the scale resting on the traverser tramway. Photo CPAT 4446-0010

- 4.4. The tramway sidings survive as low brick 'paths', now mostly obscured by vegetation, the width of the brickwork indicating a gauge of 3'6".
- 4.5. The remains of two pairs of tramway sidings, and one single siding, can still be traced as low, curving, brick-paved ridges which are largely obscured by vegetation. It is evident that some short section of L-shaped iron rail still remain in situ. An area of large tiles lies on the wharf, marking the site of a small building.



Fig. 14 The brick base of a tramway siding approaching the standard gauge siding.
Photo CPAT 4446-0022

- 4.6. At the southern end of the wharf it is possible to trace two parallel tramways approaching the traverser tramway, the junctions with which still survive in part (Fig. 16), while displaced rails lie along the line of one of the tramways (Fig. 15).



Fig. 15 Displaced tramway rails along a siding approaching the traverser tramway.
Photo CPAT 4446-0027



Fig. 16 The junction of one tramway with the traverser tramway. The standard gauge siding is to the right. Photo CPAT 4446-0030

- 4.7. It is now difficult to follow the line of the tramways as they approach the wharf from the south owing to often dense vegetation, although probing suggest that the brickwork survives for the most part.
- 4.8. The line of the early 19th-century tramway, which formed part of the Aston Tramroad, can still be traced as a short section of low earthworks to the north of the wharf (see Figs 30-31).
- 4.9. The following photographs show a series of views of the tramway wharf taken in the 1980s and 1990s, with comparative views taken in January 2018.



Fig. 17 James Bentley on the site of the traverser tramway in 1991, with the standard gauge siding to the left. Photo John Bright (courtesy of the Buckley Society)



Fig. 18 A similar view of the traverser tramway in January 2018. Photo CPAT 4446-0024



Fig. 19 View of the five-way points in January 1990. Photo Cadw



Fig. 20 View of the five-way points in January 2018. Photo CPAT 4446-0031



Fig. 21 View of a pair of tramway sidings in February 1989. Photo Cadw



Fig. 22 The same view as above in January 2018. Photo CPAT 4446-0025



Fig. 23 One of the tramways approaching the traverser siding alongside the standard gauge siding in June 1994. Photo Cadw



Fig. 24 The same view as above in January 2018. Photo CPAT 4446-0039



Fig. 25 Tramway points at the junction with the traverser tramway in February 1989. Photo Cadw



Fig. 26 The same view as above in January 2018. Photo CPAT 4446-0044

- 4.10. There are a number of sections of tramway alongside the main footpath where the brickwork and sleeper positions are still readily visible, giving at some impression of the construction (Fig. 27).



Fig. 27 A section of brick base for the tramway to the Mount Pleasant Brickworks, with the footpath to the left. Photo CPAT 4446-0034

- 4.11. The remains of a number of buildings survive in the immediate area of the wharf, including the site of the 'meter house', which is depicted on a Great Central Railway survey of the early 1900s (Boyd 1991, 75). One section of displaced brickwork is visible amongst a mound of grassed-covered rubble immediately to the north of the wharf. The remains of a small rectangular brick-built building (PRN 126537) lie to the north-west of the wharf. The walls survive to a height of around 0.6m, although badly damaged by a fallen tree. The building is visible on the undated postcard of the wharf (Fig. 8). To the north-east of the wharf the site of a mainline engine shed is marked by low earthwork banks.
- 4.12. The masonry ruins of a cottage (PRN 126535) lie 45m north-north-west of the wharf, outside the scheduled area (Fig. 16). The walls survive in places to a height of around 0.9m, with internal walls defining four rooms. The building was still standing until at least the 1950s. There was also a small a small brick-built building (PRN 126536), perhaps a privy, immediately to the north, below a tramway embankment.



Fig. 28 The overgrown remains of the cottage. Photo CPAT 4446-0026

- 4.13. To the south of the engine shed there is a substantial embankment which carried a standard gauge siding southwards to a 19th-century colliery. To either side of the embankment there are a series of parallel ridges, around 3.4m apart, which have the appearance of cultivation ridges. There are also remnants of similar ridges further to the south, although these are no readily visible on the ground and can only be identified using the 1m-resolution LiDAR, but are also shown on a 1951 vertical aerial photograph (540/488/4425).



Fig. 29 The low earthworks of cultivation ridges alongside the embankment for the standard gauge colliery siding. Photo CPAT 4446-0043

- 4.14. The southern end of the nature reserve, outside the scheduled area, contains the remains of a cutting where the tramway entered a tunnel on its approach to Lane End Brickworks. The tunnel entrance was uncovered by James Bentley around 1970, but was subsequently reburied. The site of a passing loop can be readily identified, although there is no obvious sign of a smithy (PRN 103725) which is depicted in this area in 1875.
- 4.15. The spoil tips for two collieries survive as prominent features, although the largest, to the west, has been substantially reduced in height with material having been taken for road construction. These are the remains of Pentrobin Colliery (PRN 103686) and two shafts are shown here in 1871, together with an engine house, while a single shaft (PRN 98343) is shown on the smaller site.

5 Conclusions

- 5.1. Despite Buckley's impressive industrial past a visit to the town today reveals little evidence to suggest the extent and importance of what were once major regional industries. The remains of brickworks, potteries and collieries are now extremely scarce, the area having seen extensive redevelopment during the last 20 years. It is therefore surprising that an important element of Buckley's industrial heritage still survives on the eastern fringes of the town. Hancock's Tramway Exchange Wharf is virtually all that remains of a once extensive network of tramways which linked the main industrial sites with the ports of Aston Quay, and later Connah's Quay, on the River Dee. The wharf is not only a rare survival of such an exchange facility, but its form and construction make it a unique in Wales, a fact recognised by its statutory protection.
- 5.2. The wharf developed from the 1870s, after the arrival of the standard gauge railway replaced an earlier tramroad, and remained in operation until the late 1940s. The 3'6" (1.07m)-gauge tramway brought bricks from the Lane End Brickworks, through a tunnel, and onto the wharf, where a number of sidings delivered specially constructed wagons to be loaded onto the mainline. Trade in the other direction brought coal in to fuel the brickworks.
- 5.3. Much of the tramway wharf was uncovered from the 1970s to the 1990s, revealing an impressive level of preservation with much of the brick-laid tramway base surviving, often flanked by *in situ* rails. While this demonstrated the significance of remains it also unfortunately exposed them to the elements, as well as providing an opportunity for removal of sections of the track and related artefacts.
- 5.4. Over the last quarter of a century nature has gradually reclaimed the wharf and it is now difficult to identify the layout of the tramways, the only obvious survival being the retaining walls for the wharf, alongside the mainline siding. Following vegetation clearance by volunteers it has now been possible to undertake a measured survey of the wharf, providing an accurate record of the layout for the sidings and associated features.
- 5.5. The whole area is now managed by North East Wales Wildlife which, together with its scheduled status, should ensure the wharf's future for some time to come. The

encroaching vegetation is, however, a cause for some concern since the action of roots will inevitably displace the brickwork of the tramways, as well as the revetment of the wharf. It would therefore be appropriate to control the growth of new saplings and also the encroachment of bracken.

- 5.6. There is considerable local interest in the exchange wharf and it forms part of the Buckley Trail, although sadly there is a lack of information available on the site itself. The provision of one or more interpretation panels should therefore be considered.

6 References

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1834 Ordnance Survey Surveyors' Drawings 341 and 342

1841 Tithe map for Hawarden parish

1871 Ordnance Survey 1st edition 6" map, Flintshire 14

1875 Ordnance Survey 1st edition 25" map Flintshire 14-06

1899 Ordnance Survey 2nd edition 25" map, Flintshire 14-06

1907 Buckley and Connah's Quay Mineral Branch D-RD/C/1/1/17

1912 Ordnance Survey 3rd edition 25" map, Flintshire 14-06

1988-91 Sketch plan of Knowle Hill Tramway excavations by J. Bentley (Flintshire D-JB/C/5/5)

7 Acknowledgements

- 7.1. The author would like to thank the following for the help and assistance: Will Davies and Fiona Grant, Cadw; Kate Wilson, NEWW; Paul Davies and Carol Shone, the Buckley Society; Gary Paul Davies for permission to reproduce the postcard of the wharf; and Wendy Owen for assisting with the survey.

8 Archive deposition Statement

- 8.1. The project archive has been prepared according to the CPAT Archive Policy and in line with the CIfA *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives guidance* (2014).
- 8.2. The paper and digital archive will be deposited with the National Monuments Record (NMR), RCAHMW, including a copy of the final report. This archive will include all written, drawn, survey and photographic records relating directly to the investigations undertaken. A copy of the digital archive only will also be lodged with the Historic Environment Record, Clwyd-Powys Archaeological Trust.

Site Archive

CPAT Event PRN: 140216

44 digital photographs, CPAT film No. 4446

Survey

2199_survey.dwg	Total station survey of wharf
2199_profile.dwg	Total station profile of wharf revetment
2199_exchange_wharf.ai	Survey drawing of wharf
2199_mapping.ai	Hachured plan of the study area

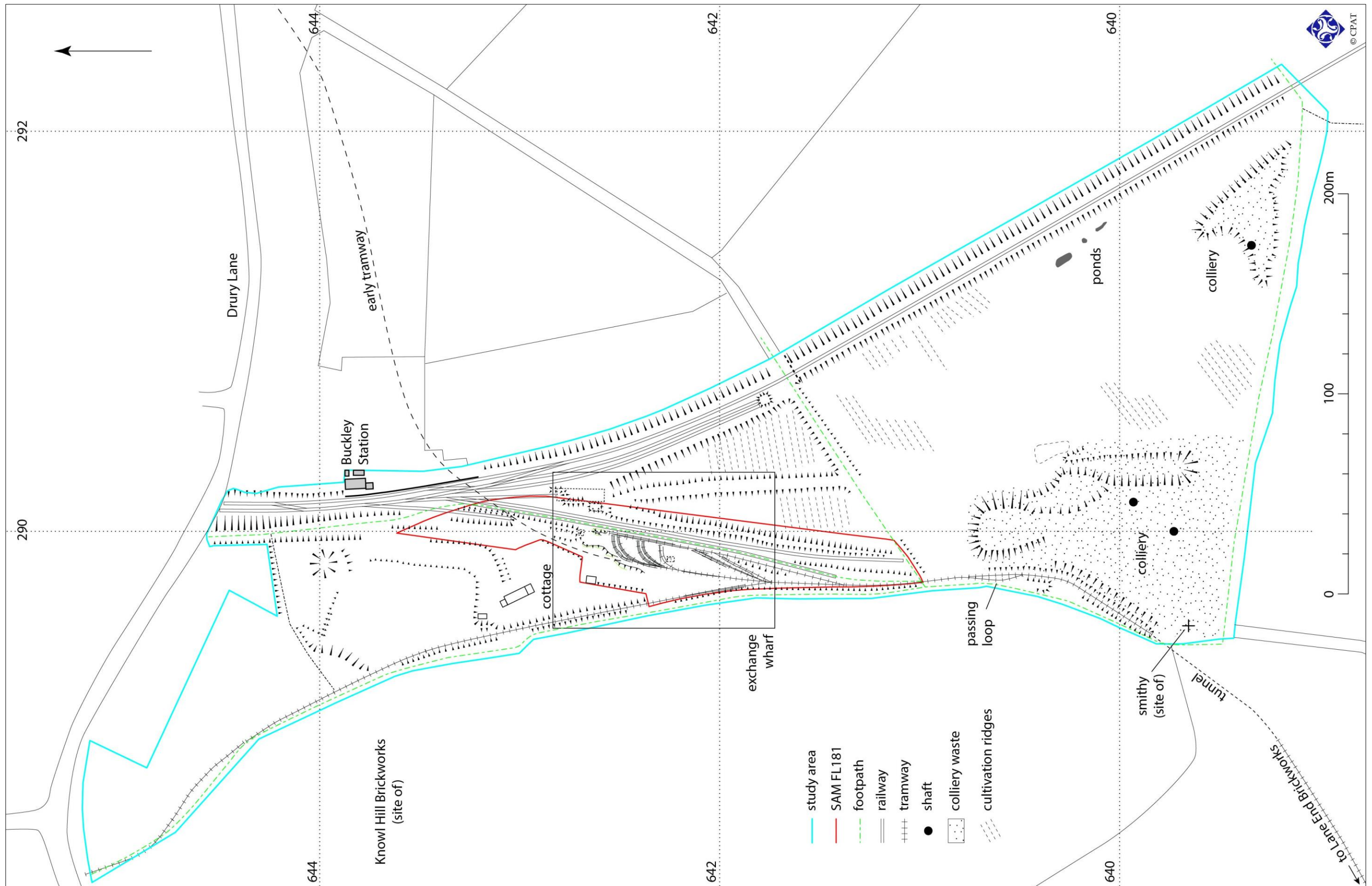


Fig. 30 Earthwork survey derived from 1m-resolution LiDAR data, fieldwork and measured survey. Details of the standard gauge railway have been added from the Ordnance Survey 3rd edition 25" mapping.

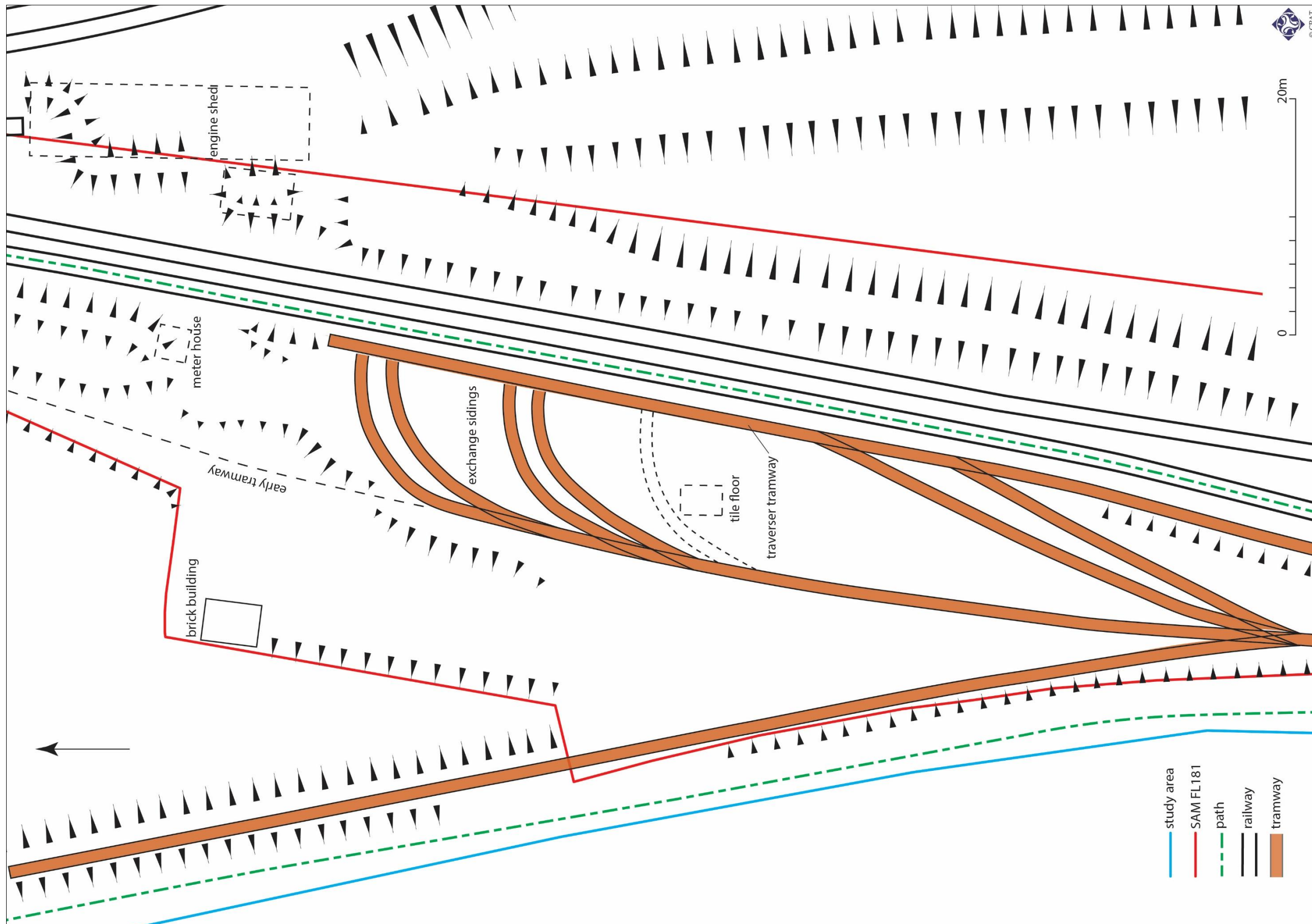


Fig. 31 Detailed measured survey of Hancock's exchange wharf and sidings