

**Archaeological Monitoring and Recording:
Holyhead Wheel lathe facility,
Anglesey**

September 2025



Report No. 2407

Archaeological Monitoring and Recording:
Holyhead Wheel Lathe Facility, Anglesey

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Prepared for Balfour Beatty

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| 1 | 25/09/25 | Original | Emily Glass / Paul W Huckfield | Charley James-Martin |
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Summary

Archaeology Wales (henceforth – AW) was commissioned by Balfour Beatty (henceforth – ‘the Client’) to oversee the archaeological element of groundworks related to the construction of a new wheel lathe facility at Arriva Trains Wales, Ferry Terminal, Holyhead, Anglesey, LL65 2RN.

The archaeological works undertaken constituted a programme of archaeological monitoring and recording (AM&R or ‘Watching Brief’; see AW WSI, 2023). During these works, the upper walled remains of a large (70ft) locomotive turntable were revealed at the southern site boundary.

Following further consultations with Gwynedd Archaeological Planning Services – Heneb (henceforth – HGAPS) mitigation comprising an archaeological excavation and recording programme was undertaken. This was to include as much of the structure as possible within the current sidings boundary and was additional rather than a requirement. Network Rail should be commended for commissioning and funding this work in good faith to enable a suitable record to be made of this archaeological resource.

The turntable structure [102] appeared to be the stratigraphically earliest structures on site. Although no direct dating evidence was seen, this structures could have been constructed during the railway earliest development, and constructed prior to the 1887 map, but then falling out of use before the survey for the 1900 map.

All work was undertaken to the standards and guidance set by the Chartered Institute for Archaeologists (CIfA); Standard and the Universal guidance for archaeological monitoring and recording (2023a&b). AW is a Registered Organisation with CIfA.

Crynodeb

Comisiynwyd Archaeoleg Cymru (o hyn ymlaen – AW) gan Balfour Beatty (o hyn ymlaen – ‘y Cleient’) i oruchwylio’r elfen archaeolegol o’r gwaith tir sy’n gysylltiedig ag adeiladu cyfleuster turn olwyn newydd yn Arriva Trains Wales, Terfynfa’r Fferi, Caergybi, Ynys Môn, LL65 2RN.

Roedd y gwaith archaeolegol a wnaed yn rhaglen o fonitro a chofnodi archaeolegol (AM&R neu ‘Waching Brief’; gweler AW WSI, 2023). Yn ystod y gwaith hwn, datgelwyd olion wal uchaf trofwrdd locomotif mawr (70 troedfedd) ar ffin ddeheuol y safle.

Yn dilyn ymgynghoriadau pellach gyda Gwasanaethau Cynllunio Archaeolegol Gwynedd - (o hyn ymlaen - HGAPS) cynhaliwyd rhaglen liniaru a oedd yn cynnwys cloddio a chofnodi archaeolegol. Roedd hyn i gynnwys cymaint o’r strwythur â phosibl o fewn ffin bresennol y seidins ac roedd yn ychwanegol yn hytrach nag yn ofyniad. Dylid canmol Network Rail am gomisiynu ac ariannu’r gwaith hwn yn ddidwyll er mwyn galluogi cofnod addas o’r adnodd archaeolegol hwn.

Ymddengys mai’r strwythur trofwrdd (102) yw’r strwythurau cynharaf yn stratigraffig ar y safle. Er na welwyd unrhyw dystiolaeth ddyddio uniongyrchol, gellid bod wedi adeiladu’r strwythurau hyn yn ystod datblygiad cynharaf y rheilffordd, ac fe’u hadeiladwyd cyn map 1887, ond yna cawsant eu rhoi’n segur cyn yr arolwg ar gyfer map 1900.

Cwblhawyd yr holl waith yn unol â’r safonau a’r canllawiau a osodwyd gan Sefydliad Siartredig yr Archaeolegwyr (CIfA); y canllawiau Safonol a Chyffredinol ar gyfer monitro a chofnodi archaeolegol (2023a&b). Mae AW yn Sefydliad Cofrestredig gyda CIfA.

1. Introduction

- 1.1.1. Archaeology Wales (henceforth – AW) was commissioned by Balfour Beatty (henceforth – ‘the Client’) to undertake a program of Archaeological Monitoring and Recording (AM&R) related to the construction of a new wheel lathe facility at Arriva Trains Wales, Ferry Terminal, Holyhead, Anglesey, LL65 2RN (henceforth-‘the Site’) (Figure 1).
- 1.1.2. This archaeological mitigation followed on from an application submitted to the Local Planning Authority, Cyngor Sir Ynys Môn/Isle of Anglesey County Council (Application No. DET/2023/1). This had been to determine if prior approval was required for the construction of a wheel lathe building (Figure 2).
- 1.1.3. Following pre-planning consultations with Gwynedd Archaeological Planning Services (henceforth H-GAPS) mitigation comprising archaeological monitoring and recording (AM&R) was suggested to lessen any loss to the archaeological resource. This would be undertaken during all associated groundworks.
- 1.1.4. The work was to ensure that all archaeological and historical components of the site were fully investigated and recorded if they were revealed because of activities associated with the development.
- 1.1.5. During the AM&R the upper walls of the locomotive turntable were exposed at the southernmost end of the Site. Following further consultation with H-GAPS and Network Rail, it was agreed that supplementary mitigation, in addition to that previously agreed would need to be undertaken.
- 1.1.6. As the proposed development would run across roughly one third of the turntable and ultimately cut through the structure, a programme of excavation and recording on this section of the feature was agreed in consultation

between H-GAPS, the Client, and Network Rail (Figure 3).

- 1.1.7. All works were undertaken over various dates between October 2023 and July 2025. The work followed the methodologies set out within the Written Schemes of Investigation produced AW (AW 2023) and agreed by H-GAPS.
- 1.1.8. The project was managed by Paul W Huckfield (AW Project Manager) and the monitoring was undertaken by Menna Griffiths, Einir Smith, and Lucy Morrison (AW Project Archaeologist). Excavation and recording of the turntable was undertaken by Emily Glass (AW Project Officer), with assistance from Lucy Morrison, and Hannah Lycette-Smith (AW Project Archaeologist).
- 1.1.9. All work was carried out to the standards and guidance set by the Chartered Institute for Archaeologists (CIfA); *Standard for Archaeological Monitoring and Recording* (2023a), and *Universal Guidance for Archaeological Monitoring and Recording* (2023b). AW is a Registered Organisation with the CIfA.

2. Site Description

- 2.1.1. The application area is located to the south of the ferry terminal at the centre of Holyhead, immediately adjacent to the main North Wales Coastal rail line. The Site is an existing brownfield site on a linear plot of land which included various sidings for maintenance access to trains. The land parcel is bounded by the A55 North Wales Express Way to the west and the A5 London Road to the north-east.
- 2.1.2. The underlying geology of the proposed development site is defined by South Stack Formation - Psammite and pelite. Metamorphic bedrock formed between 635 and 541 million years ago during the Ediacaran period (BGS 2025).

3. Archaeological and Historical Background

- 3.1.1. The archaeological resource within the immediate surrounding area of the proposed development is dominated by general prehistoric and Roman potential. Despite the area likely having been truncated by post medieval expansion, there is some residual potential deeper surviving deposits relating to earlier occupation.
- 3.1.2. The Site is not in a Conservation Area and is not affected by any nature conservation designations.
- 3.1.3. Historic mapping shows the Site has been part of the operational rail infrastructure from as early as the 1st edition Ordnance Survey (OS) map (1889). Then it was part of the Chester to Holyhead line operated by the London and North Western Railway Company.

4. Methodology

- 4.1.1. The work was undertaken to meet the standard required by The Chartered Institute for Archaeologist's Standard for Archaeological Monitoring and Recording (2023a).
- 4.1.2. The watching brief preserved, by record, detailed information on all archaeological deposits within the designated area. The site archaeologist recorded stratigraphically, all archaeological deposits, horizons and artefacts encountered.

5. Results

- 5.1.1. An ongoing programme of Archaeological Monitoring and Recording was carried out during groundworks within the application area between October

2023 and July 2025. For ease of reporting however, the Site has been subdivided into three areas within this document (Figure 4).

- 5.1.2. Each of the areas will be discussed as a separate entity and set out as interpreted phases of construction within that specific area, from its earliest use through to demolition. As there is no secure dating of the structures across the Site as a whole, the phases of activity discussed are specific to that area discussed with no correspondence between.
- 5.1.3. Features have been grouped by their relationship to individual structures (as shown in Figures 5). These groups, along with a full list of contexts can be found in the Context Inventory (Appendix I).

5.2. Area 1

- 5.2.1. Areas 1 was located in the northernmost half of the Site and aligned north-west to south-east. It measured roughly 100m in length and had been cleared of its modern railway infrastructure prior to commencement of work (Plate 1). This area is where the main wheel lathe building will be housed.
- 5.2.2. Basal deposit encountered was (115) the natural geology, this fluctuated in height across the site, being 0.7m beneath the current ground level at the north-west and 1m at the south-east. This was overlain by (114) a mid brown silty clay. Covering all was levelling deposit (100), formed of a dark friable silt, rich in cinder waste and coal dust with frequent stone inclusions. This deposit again varied in thickness, ranging from 1m to 0.4m (Plate 2).

Phase 1

- 5.2.3. Stratigraphically, the earliest phase of structures were [102] the holdfast or pivot base for the earliest turntable on the siding (Plate 3). This overlay deposit (114) at the north-eastern corner of Area 1. This feature, comprising an irregular diamond shaped stone slab with central circle sitting slightly proud of the base, measured approximately 2.3m in length, 1.26m in width and 0.3m

in thickness.

- 5.2.4. Around the circumference of the convex circle a series of holes had been drilled. Two of these had metal fittings, similar in shape to a keyhole, around them (Plate 4). Turntables were used to redirect trains, as the early steam locomotives could only run in one direction, and this feature would have fixed the base of the central collum of the turntable mechanism.
- 5.2.5. A section of the turntables outer brick coping [103] also survived and was located approximately 6m to the north-west of the base. This was comprised of a brick surface with lime mortar bonding (Plate 5). Historic Mapping clearly shows the location of the turntable, recorded as being 40ft, on the eastern Holyhead Sidings boundary, adjacent to the Coaling Shed in 1887 (Figure 6). The turntable has gone by the time of the 1901 map, with sidings and a rectangular structure shown in its place. The remains of this earlier turntable survives poorly having been truncated by later structures.

Phase 2

- 5.2.6. The outer brick coping [103] had been truncated by a stone capped culvert [109], which in turn abuts the later inspection pit (Plate 6). Culvert [109] is orientated north-west to south-east and constructed of large whitish grey tabular stone slabs laid above a crude stone lined culvert, now in poor condition (Plate 7). The exposed section measured approximately 2m in length and 0.5m in width but continued into the bulk. It was oriented north-west to south-east and was visible within the south-east facing section of the Area 1 (Plate 8).

Phase 3

- 5.2.7. Abutting [103] were the remains of a brick inspection pit [101]. This was orientated north-west to south-east. It measured approximately 20m in length, 2m in width and 0.6m in height (Plate 9).

- 5.2.8. The walls were comprised of unfrogged red brick, bonded with lime mortar in an English garden bond with steps for access and egress at either end (Plate 10). The walls measured 0.46m thick and were six courses tall internally, and eight courses tall externally with the brick measuring approximately 0.23m by 0.08m. Within the structures internal elevations there were three copper valves sat within iron boxes (Plate 11). The floor of the structure comprised of red bricks laid in a stretcher bond in a north to south orientation, bonded with lime mortar, within which two iron hatches were inlaid, one at the northern end and one at the south. These covered the sumps, which still have their metal filters in place (Plates 12 and 13).
- 5.2.9. The inspection pit has been truncated and damaged in a number of places along its course by later modern groundworks, including a cut for modern plastic pipe that ran east to west and a fuel pipe capped in concrete, poured across width of inspection trench and to full height of the interior (Plate 14).
- 5.2.10. Immediately to the west of inspection pit [101] was brick surface [104]. This had been truncated by modern utilities and would likely have been part of the floor within the engine shed that covered the inspection pit (Plate 15). This feature was approximately 0.1m above the top of the inspection pit and comprised eleven rows of unfrogged red brick bonded with lime mortar laid in a running bond with white curb stones along its western edge running in a north-east to south-west direction.
- 5.2.11. The engine shed that possibly once covered the inspection pit is not visible on any of the historic mapping. A linear structure listed as a 'coaling shed' is shown on the 1887, 1899, and 1901 map, but this is located further to the west, overlapping the Site boundary and was in operation at the same time as first turntable and so cannot be a candidate.

Phase 4

5.2.12. At some unspecified date the engine shed was removed and the inspection pit infilled with made ground layer (100). As the siding developed, and its operational role changed, four modern manhole shafts were sunk across it (Plates 16 and 17) and a series of concrete bases [110] and [111] set out across the Area (Plate 18). These formed part of the British Rail HST (High Speed Train) fuelling point that occupied this part of the Site until 2013 (Plate 19) when the siding was decommissioned.

5.3. Area 2

5.3.1. Areas 2 occupied the central body of the Site and measured 60m in length and like Area 1, had been cleared of its modern railway infrastructure prior to commencement of work (Plate 20). This area was the location for the attenuation tank (Plate 21).

5.3.2. Basal deposit encountered was the natural geology (208) and (209), this was overlain by a series of levelling deposits (202), formed of a dark friable silt, rich in cinder waste and coal dust with frequent stone inclusions. This deposit again varied in thickness, ranging from 1.5m to 0.1m (Plate 22).

Phase 1

5.3.3. The earliest stratigraphic phase encountered within Area 2 were the remains of stone walls [213]. These were seen in the southern corner of the east facing section of the attenuation tank excavation. The walls were roughly 'L-shaped' in plan and possibly formed the corner of a structure, oriented north/south - east/west (Plate 23). The wall had a course rubble core with crudely dressed outer facing stones. Historic mapping does not show any structures in this location, though the original southern boundary of the sidings runs slightly north-east to south-west close to [213].

Phase 2

- 5.3.4. Stone structure [213] was infilled and capped with made ground layer (206). Overlying this, to the north of Area 2 was the truncated remains of brick surface [203]. This was of the same construction and orientation as floor [104] in Area 1 and may well be of the same time period. The remains of the floor were constructed from twelve rows of unfrogged red brick, unbonded, and laid in a running bond with white curb stones along its eastern edge (Plate 24). Abutting [203] and partially covering the edging stones along its eastern edge was concrete bases [216].

Phase 3

- 5.3.5. To the west of [203], at a depth of 1.43m, was cut (228). This was almost circular in plan, with a diameter of 9.6m (Plate 25) and had been cut into the natural geology (208). Feature (228) was interpreted as the turntable base seen on the 1924 OS maps (Anglesey XI.2 and XI.6, both revised in 1923). These maps depict a circular feature, positioned towards the sidings original south-eastern boundary (Figure 7). This turntable, which was rebuilt to be 45ft in size (Steam Railway Magazine, 96, 2025), stood in place for 20 years before technological innovations in steam engine design rendered it redundant, as larger trains required larger turntables.

Phase 4

- 5.3.6. Cut (228) had been infilled with a redeposited natural, mixed with darker soils (229), before being levelled with a dark blackish grey silty deposit (225). This contained occasional inclusions of stone, slag and brick fragments. This deposit had in turn been capped by further levelling layers.
- 5.3.7. Historic mapping and aerial photography (Figure 8) show that after the decommissioning and removal of the 45ft turntable the siding were extended further to the south-east, absorbing the local allotment gardens.
- 5.3.8. As with Area 1, modern square brick manholes were constructed across Area

2. Piping recovered from these bore the date 1954 (Plates 26).

Phase 4

- 5.3.9. This phase of work is primarily represented by modern concrete bases [216] (Plate 27). These possibly relate to activity connected with the HST fuelling point in Area 1. These were capped by (200) a fairly loose, mid ashy grey silt and rubble, with very frequent concrete and brick inclusions.

5.4. Area 3

Area 3 was located in the southernmost half of the Site. It measured 42m in length and is the location of the 70ft turntable (Plate 29). The turntable was formed of a curving brick outer wall [304] and a light-grey concrete slab floor [305] with the group number [G3].

The majority of the internal fill of the turntable was removed to allow recording of the structure, with a section of bulk along the eastern edge left untouched to maintain the integrity of the external fence line (see Figure 3).

Phase 1

- 5.4.1. As the turntable was left *in situ*, no basal deposits were encountered. However, the earliest phase of activity in Area 3 would have been the levelling of the site, prior to the construction cut for the installation of the locomotive turntable.
- 5.4.2. Prior to the expansion of the sidings in the 1940s, Area 3 was occupied by allotment gardens. The development of heavy locomotives during this period, with increased weights and lengths, meant that the 40ft turntable, visible on the 1924 OS map within the centre of the siding (see Figure 7), was not capable of dealing with the new bigger and heavier engines. Therefore, a larger structure would be required with a longer turning mechanisms. The new 70ft locomotive turntable was constructed at the end of the expansion area to

provide suitable distance for the increased lengths. This feature is clearly visible on the 1968 OS 1:2500 map (Figure 9).

- 5.4.3. Evidence for a cut was not visible following the removal of a section of the outer wall [304], to accommodate the new track bed (Plate 30). The structure may have been built above the then ground level and the ground level raised to abut it.

Phase 2

- 5.4.4. The outer walls of turntable G3 were seen to be constructed from unfrosted purple engineering bricks, which have been skimmed with white render (Plate 31). The excavated portion of the turntable had a diameter of 13.7m and surviving height of 1.6m. The outer wall [304] had a vertical external elevation of approximately twelve courses with a mixture of headers and stretchers in an English bond construction and an upper, inner course of curved ashlar coping bricks. The walls were bonded with hard, fine-grained dark grey mortar.
- 5.4.5. Wall [304] stepped outwards to provide a stable base, with the uppermost outer edge constructed from poured concrete surround, in a radiating ribbed pattern that acts as a walking surface, 0.7m in width (Plate 32).
- 5.4.6. The circumference of the wall was punctuated on the eastern side by a rectangular C-shaped structure, set back from main turntable ring by 1.4m. This feature was noted as being of the same construction as the wall but capped with concrete. Its aperture, opening out towards the centre of the turntable, was 1.46m in width, by 1.6m in height. This structure would originally have allowed access to the interior of the turntable and had a wooden hatch, the fixings of which could still be seen, covering the void beneath (Plates 33 and 34).
- 5.4.7. The floor of the turntable [305] was shown to be a compact, light-grey concrete slab floor, laid in sections and likely reinforced and poured in-situ

(Plate 35). Floor [305] undulated, extending out from the base of wall [304] and dipping towards the centre for a distance of 7m, before rising to form a central circular platform 1.6m in diameter that formed the central pivot of the turntable (Plate 36). Around the circumference of this ran a circular drainage gully 2m in length. The central area appears to have been skimmed over with a thin layer of mortar, a small inscribed circle was still visible, but the holes for fixings have been covered.

- 5.4.8. The ledge around the base of [304] contained evidence of a number of indentations, pressed into the concrete, and remains of a series of metal fittings, these had been cut down when the turntable was decommissioned (Plate 37). These features held the rail track for the turntable mechanism to rotate.

Phase 3

- 5.4.9. The interior of the turntable contained three main backfilling episodes. The lowest (302) was a soft and loose dark blackish-grey and black sandy silt with silts and crushed stone. It contained frequent clinker, ash, coal, and coal dust. Overlying this was fill (301), a densely packed deposit, full of redeposited sandstone and siltstone dark friable soil mixed in. The uppermost backfill deposit was (300), a loose, dark blackish-grey mixed sandy silts and clay silts with inclusions of cinder waste and coal dust, wood, metal, building debris, pipes, and reinforced concrete. The wood included railway sleepers and beams, some of which had circular holes drilled part-way through. It is not clear whether these derived from the turntable structure itself or were dumped in along with other waste matter (Plate 38).
- 5.4.10. Recorded backfill deposits (300), (301) and (302) were all contained within [304] with (300) extending out and sealing it (Plates 39 and 40).
- 5.4.11. The 1968 OS 1:2500 map (National Grid Maps SH2481 & SH2581, 1944-1974,

Revised 1967) shows the location of the 70ft locomotive turntable (Figure 9) and suggests that it was still in operation during this period. However, the introduction of the diesel locomotive on the mainline in 1947 would see its usage decrease.

- 5.4.12. As the numbers of diesels across the network in the late 1950s increased, the larger locomotive turntable became surplus to requirements. With the withdrawal of steam traction in 1968, turntable G3 was eventually stripped of reusable materials and filled in with waste deposits and building rubble.

6. The Finds

- 6.1.1. All the artefacts noted during the AM&R were dated to the 20th century and came from the lowest internal backfill of the locomotive turntable. These included utilitarian white crockery fragments, earthenware jars and a Hamilton torpedo-shaped glass water bottle.
- 6.1.2. Some of the white crockery fragments had base stamps that related to their railway use. These were in the form of either the arrow logo or 'BR' for British Rail or 'BTHS', which stood for the British Transport Hospitality Service.
- 6.1.3. The Hamilton torpedo-shaped glass bottle displayed the following: 'R. Ellis and Son, Ruthin, Manufacturers of Superior Aerated Water to the Royal Family'. These bottles needed to be stored on their sides, which stopped the cork from drying out and allowing the gas in the carbonated water to escape. This would have dated to the earlier part of the 20th century.
- 6.1.4. All items were associated with the dumping of rubbish, possibly from a nearby railway related midden heap, into the turntable void after it had been extensively robbed of its features.

7. Conclusion

- 7.1.1. Archaeology Wales was commissioned by the Client to undertake a program of Archaeological Monitoring and Recording related to the construction of a new wheel lathe facility at Arriva Trains Wales, Ferry Terminal, Holyhead, Anglesey, LL65 2RN.
- 7.1.2. The work was to ensure that all archaeological and historical components of the site were fully investigated and recorded if they were revealed because of activities associated with the development.
- 7.1.3. The turntable pivot base [102] appeared to be the stratigraphically earliest structures on the Site. Although no direct dating evidence was seen, this structure could have been constructed during the railways earliest development, and constructed prior to the 1887 map, but then falling out of use before the survey for the 1900 map. Both the Holyhead turntable and the engine inspection pit are similar to structures recorded at the Hillhouse Sidings in Huddersfield, which have a similar date range.
- 7.1.4. Turntable G3, despite its solid construction, which was presumably also a time-consuming endeavour, was in use for a relatively short time and reflects the pace of technological expansion within the railways. Once dieselisation was fully instigated, there was no need for turning mainline engines on large structures such as this and by the late 1960s it became defunct, was stripped and levelled off with backfill.
- 7.1.6. The turntable functioned on a "vacuum turning gear" by Cowans, Sheldon & Co. Ltd. of Carlisle (Plate 41). This was a railway turntable powered by vacuum brakes, used to turn locomotives and other rolling stock. Cowans Sheldon was a world-renowned manufacturer of railway turntables and cranes, with their vacuum-powered systems being popular with early railway companies and used for both vacuum and later electric-driven turntables.

- 7.1.7. This system utilised the principles of vacuum brakes, which were common on British railways, to provide the power needed to rotate the turntable. Instead of relying on hand-cranking, the vacuum system provided a more automated and powerful way to rotate the heavy turntable.
- 7.1.8. Vacuum-powered turntables were crucial for turning locomotives, especially those with limited or no reverse capabilities, allowing them to be positioned efficiently at depots and termini.

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Maps consulted

Historic maps accessed from Welsh Tithe Maps (<https://places.library.wales>) and National Museum of Scotland collection (<https://maps.nls.uk>).

| Date published | Description | Scale |
|----------------|--|------------------------|
| 1889 | Ordnance Survey. Town Plans. Holyhead (Caer Gybi) - Anglesey XI.2.25. Surveyed: 1887, Published: 1889. | 1:5000 |
| 1889 | Ordnance Survey Anglesey Sheet X.NE & XI.NW Surveyed: 1887, Published: 1889. | Six inches to the mile |
| 1901 | Ordnance Survey Anglesey Sheet X.NE & XI.NW Revised: 1899, Published: 1901. | Six inches to the mile |
| 1924 | Ordnance Survey. Anglesey XI.2 Revised: 1923, Published: 1924. | Six inches to the mile |
| 1953 | Ordnance Survey. Anglesey Sheet X.NE & XI.NW Revised: 1949, Published: 1953 | Six inches to the mile |
| 1968 | Ordnance Survey SH2481-SH2581 - AA Revised: 1967, Published: 1968. | 1:2500 |

Figures

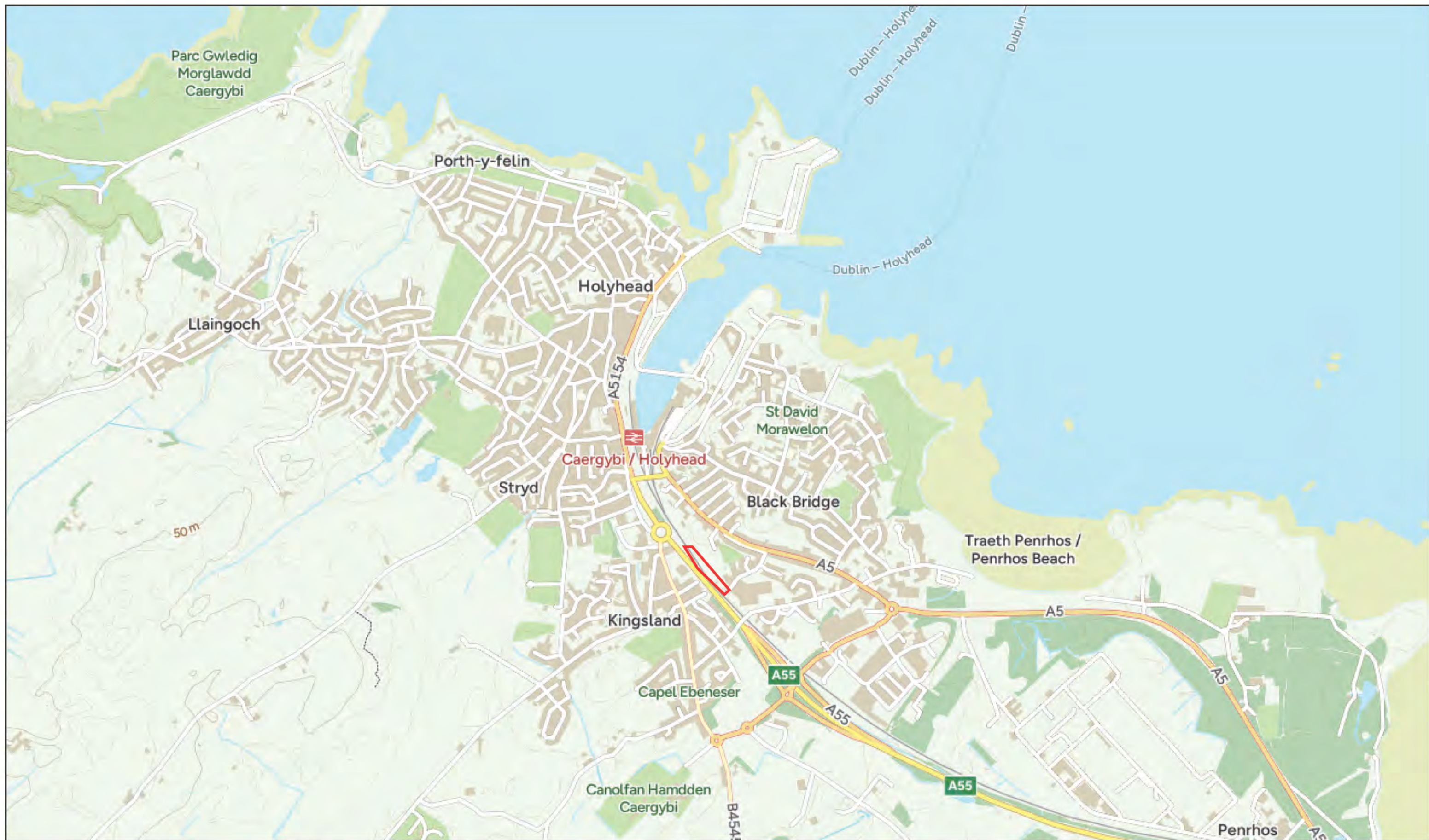
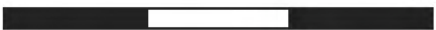


Figure 1. Location of development site.

 Application boundary



0  750m

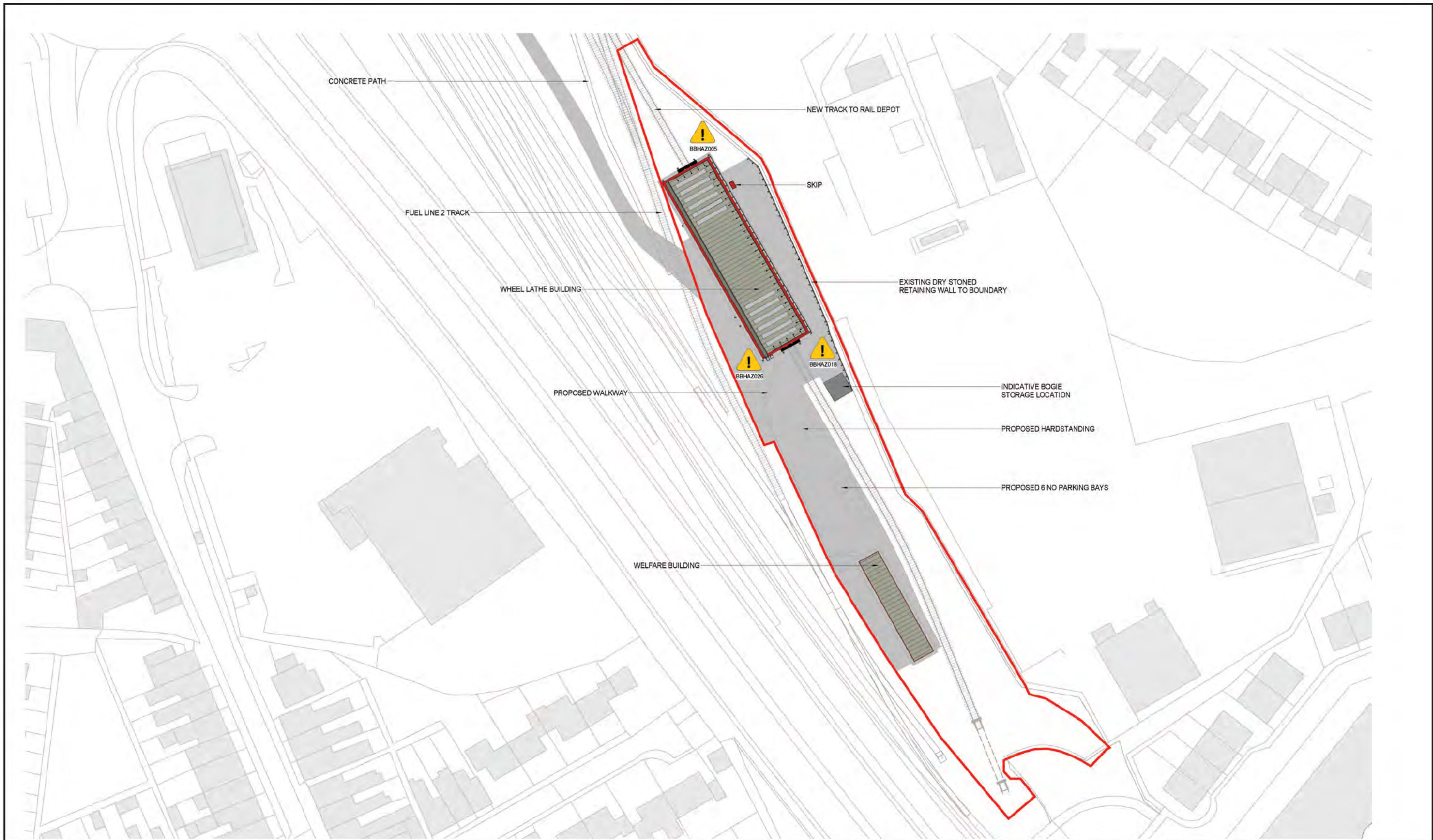


Figure 2. Proposed layout of the Wheel lathe development (from plan supplied by client).



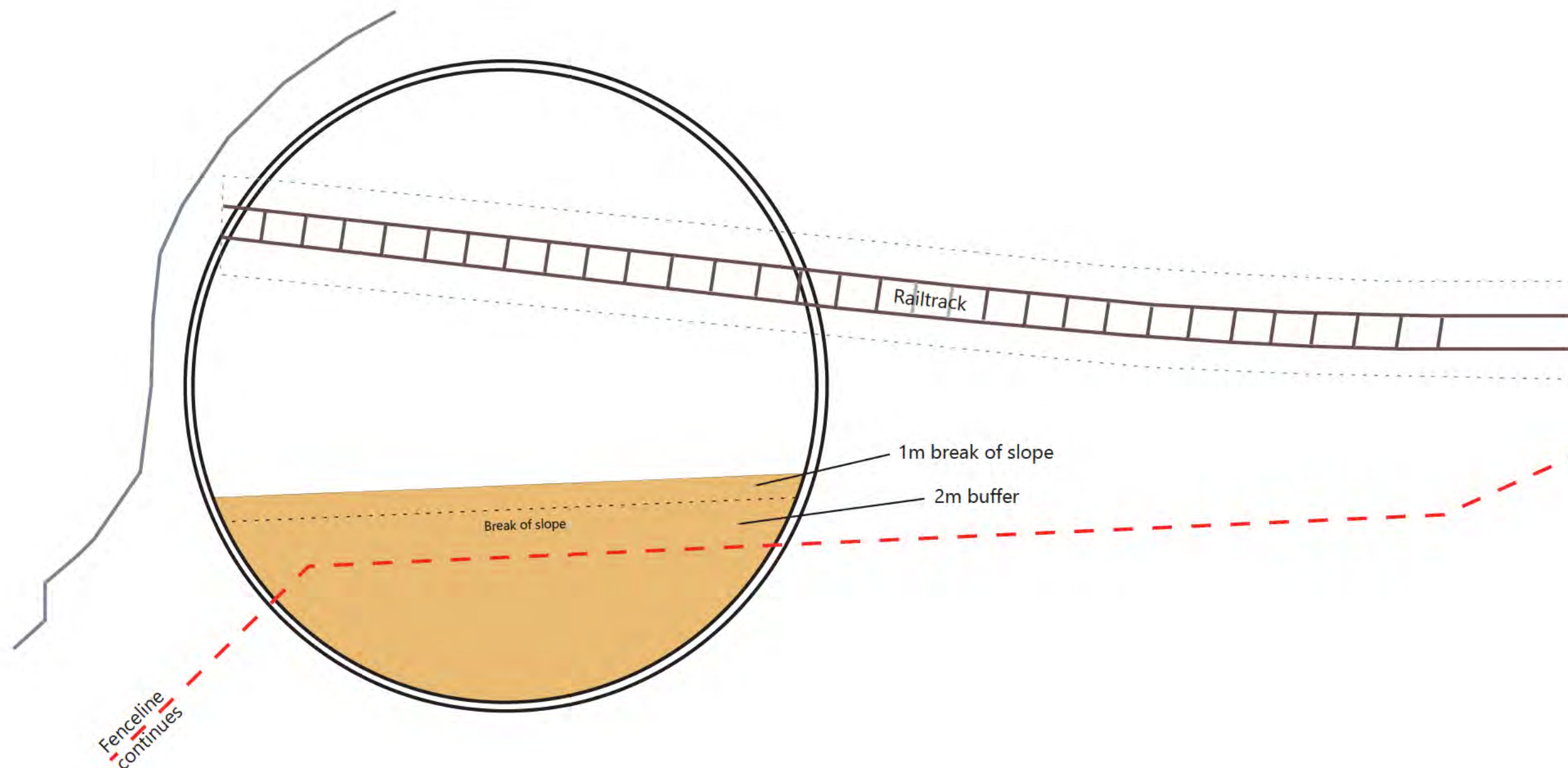


Figure 3. Plan showing location and extent of unexcavated bund left within the turntable (from plans supplied by client).



Proposed course
of railtrack



Rail buffer area



Retaining wall



Current fenceline



Break of slope



Unexcavated bund



0 8m

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Figure 4. Sub-division of the Site, as discussed within the report.



0 80m

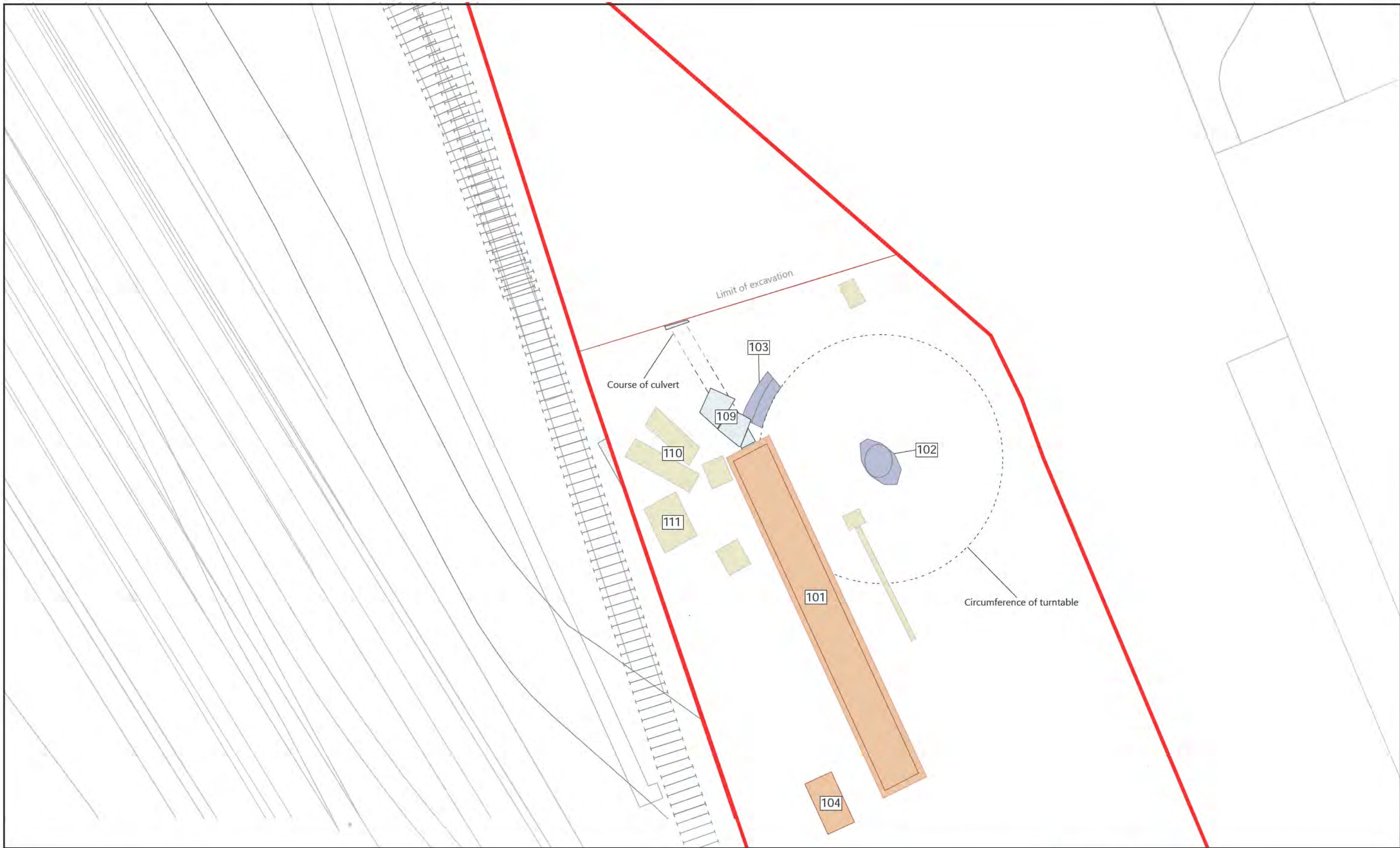







Figure 5. Plan of features in Area 1

- | | | | |
|---|------------------|---|----------------------|
|  | Phase 1 features |  | Phase 4 features |
|  | Phase 2 features |  | Development Boundary |
|  | Phase 3 features | | |



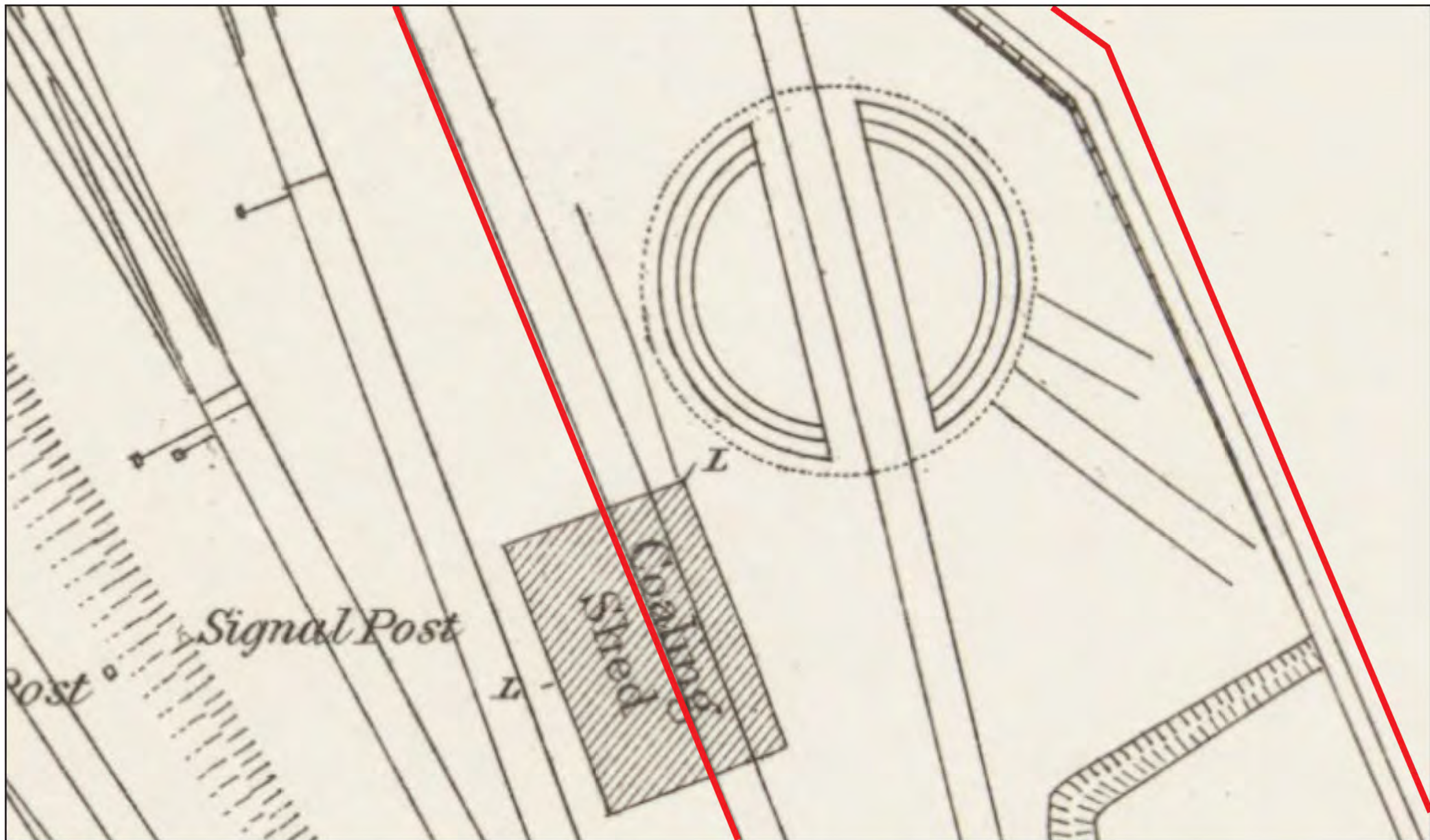


Figure 6. Detail from the Ordnance Survey. Holyhead (Caer Gybi) - Anglesey XL2.25.
 Surveyed: 1887, Published: 1889.



Application boundary



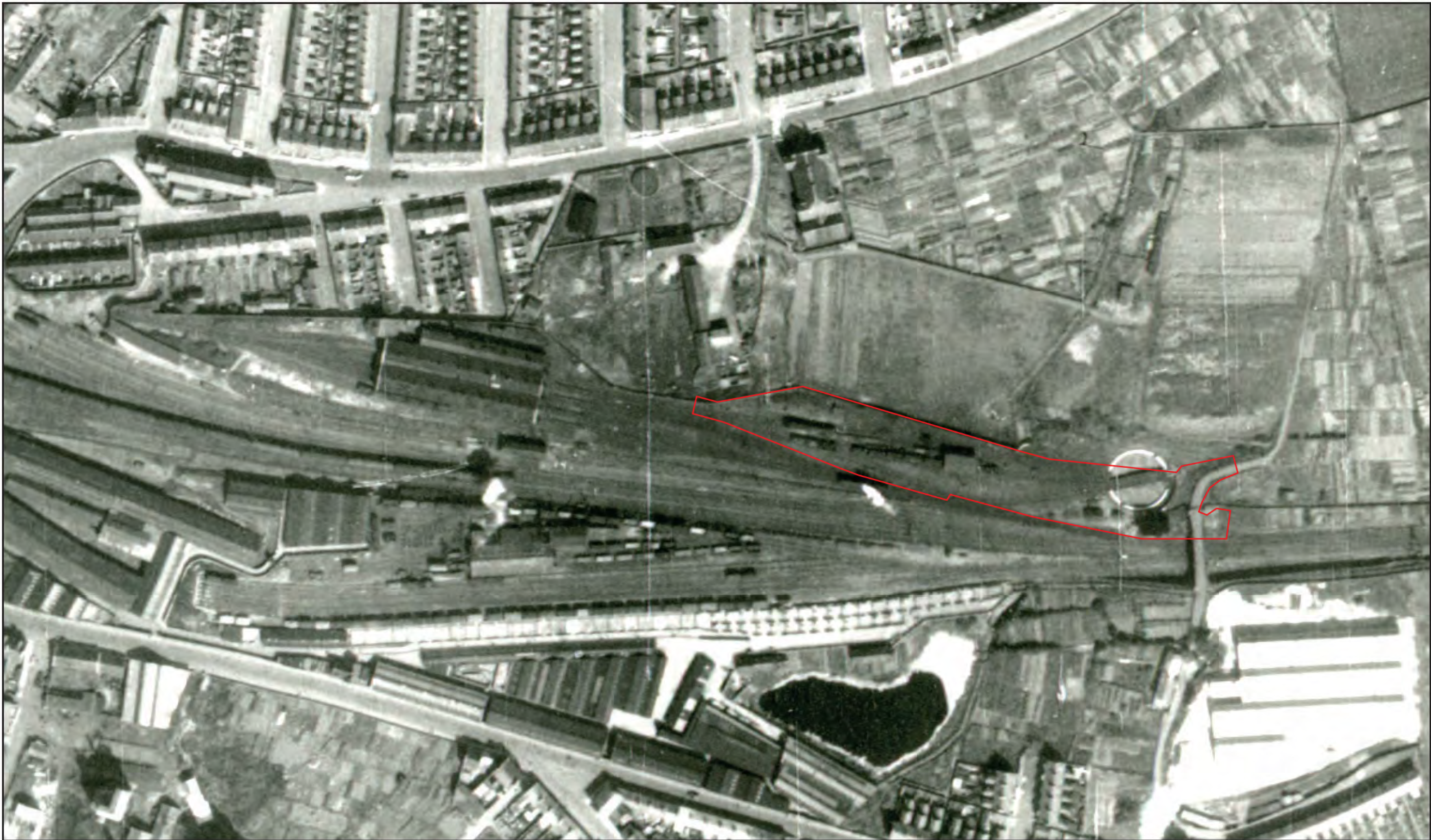


Figure 7. Aerial Photograph. circa 1949, showing the expansion of the siding to current size.



Application boundary



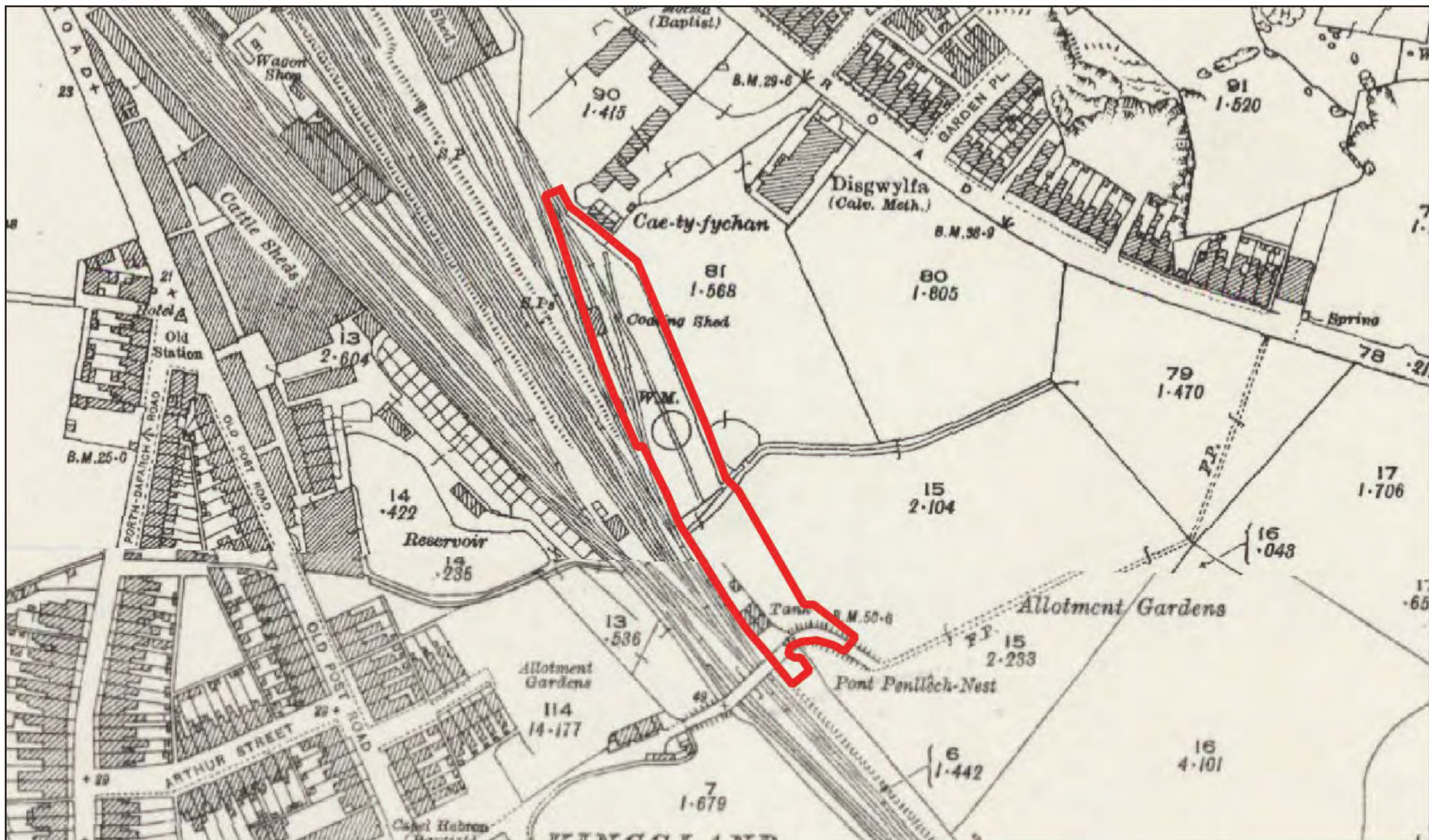


Figure 8. Ordnance Survey. Anglesey XI.6. Revised: 1923, Published: 1924.



Application boundary



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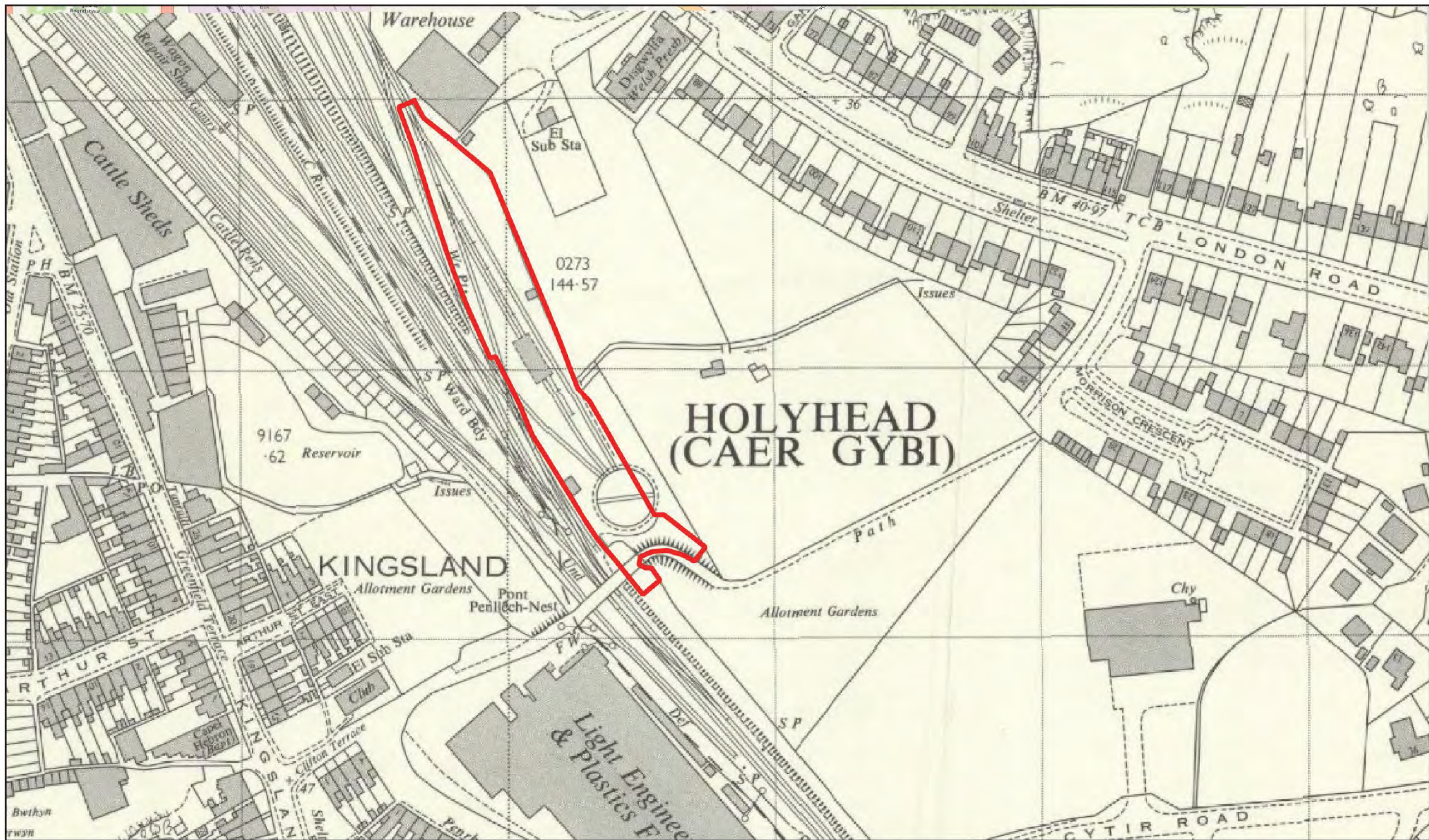


Figure 9. Ordnance Survey. SH2481-SH2581 - AA. Revised: 1967, Published: 1968



Application boundary



0

150m

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Plates



Plate 1. View across the Area 1, prior to work commencing, looking north.



Plate 2. Levelling deposit (100) covered the whole Site, looking south-east.



Plate 3. Remains of the base of the turntable mount (Area 1). Looking north-east.

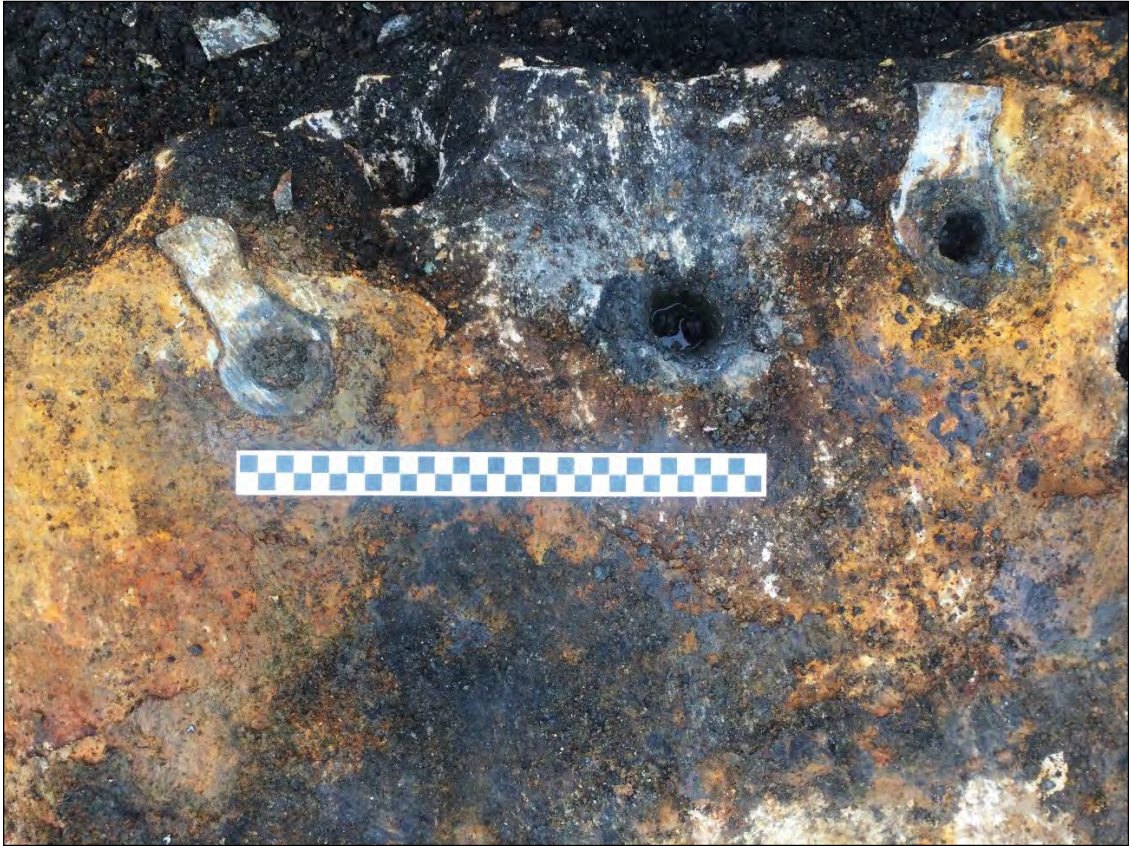


Plate 4. Metal keyhole type surrounds around the holes in the turntable circumference.



Plate 5. Remains of the brick outer edge of the turntable surround, looking west.



Plate 6. Turntable [103], cut through by culvert [109], looking south-east.



Plate 7. Stone slabs covering culvert [109].



Plate 8. Culvert [109] visible in south-east facing section of northern boundary (Area1).



Plate 9. The northern end of inspection pit [101] under excavation, looking south-east.



Plate 10. Northern steps of [101], with [103] and [109] visible, looking north-west.



Plate 11. One of the hose fitting set either side of the walls of the inspection pit.

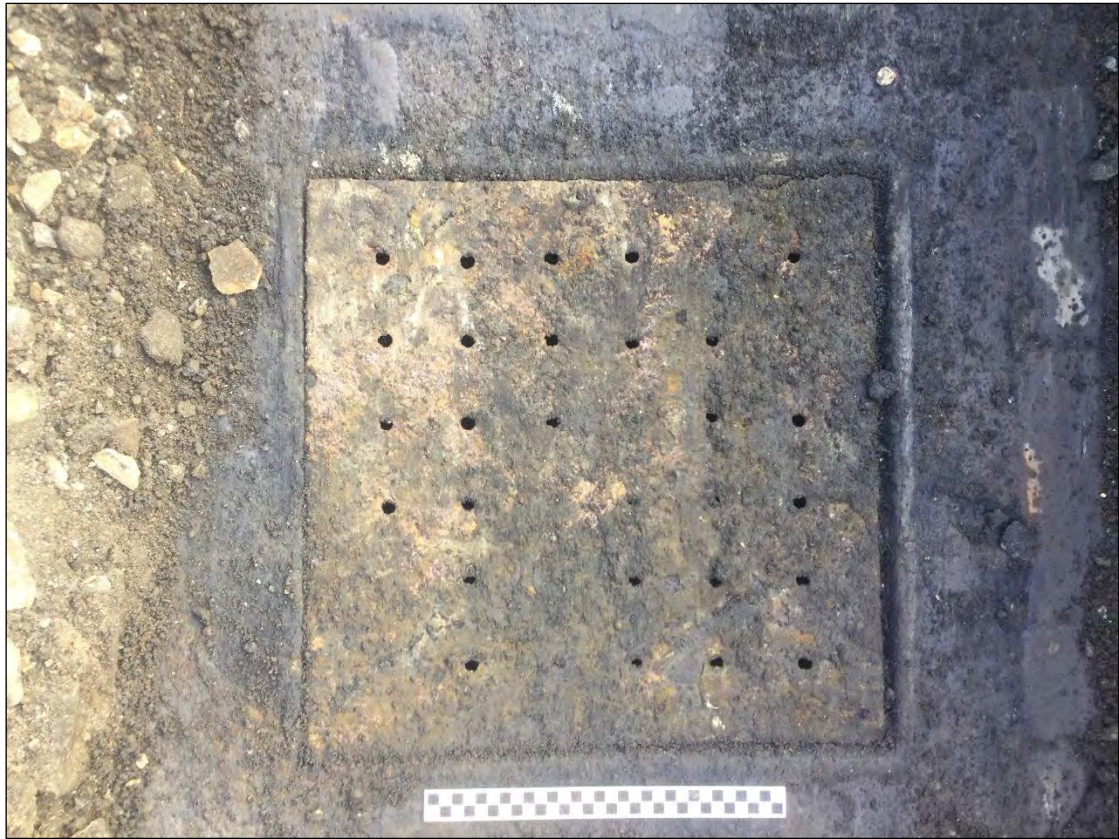


Plate 12. Cover for the northern sump.



Plate 13. Interior of the sump, with filter still in place.



Plate 14. View to the north-west along inspection pit [101], showing modern intrusions.



Plate 15. Remains of floor [104], looking north-west.



Plate 16. Modern manhole adjacent to northern end of inspection pit [101].



Plate 17. Modern concrete brick manhole at southern end of Area 1.



Plate 18. Concrete platforms [110] and [111], that formed part of the HST fuelling point.



Plate 19. HST fuelling point. Seen in 2012 (Image www.railscot.co.uk/img/40/291).



Plate 20. Area 2, prior to commencement of work. Looking south-east.



Plate 21. Excavation of the attenuation tank, looking north.



Plate 22. Area 2 under excavation showing natural (208) and deposit (206), looking south.



Plate 23. 'L-shaped stone structure [213], looking south.



Plate 24. Truncated brick surface [203] with [216] overlying it, looking north-north-east.



Plate 25. Circular remains of the 40ft turntable (228).



Plate 26. Piping dated 1954 recovered from the modern manhole (Area 2).



Plate 27. Concrete plinth [204] that formed the final phase of activity in the central area.



Plate 28. View across Areas 1 And 2 following groundworks.



Plate 29. Turntable (G3), looking south-east.



Plate 30. Removal of external wall [304].



Plate 31. Turntable wall [304], showing white render.



Plate 32. Ribbed walkway around outer edge of the turntable.



Plate 33. Recessed access hatch to allow entry, looking west.



Plate 34. Photo of turntable G3, circa 1960, with inspection hatch to the left
(<https://www.flickr.com/photos/steve75c/4916025349/in/photostream/>).



Plate 35. Turntable floor [305]



Plate 36. Central area of turntable G3 where the mount was located.



Plate 37. Negative features that once held the rail track for turntable G3.



Plate 38. Turntable G3 after removal of the infill.



Plate 39. Excavation of the turntable showing internal deposits, looking north-west.



Plate 40. Fills (302), (301) and (300) within turntable (G3). Looking north-east.



Plate 41. Historic photo of turntable G3 in operation.

Appendix I: Context Inventory

| Trench | Area | Context No. | Group No. | Same as | Type | Fill of | Interpretation | Description | Length (m) | Width (m) | Thickness (m) | Spot date | Initials and date |
|--------|------|-------------|-----------|---------|-----------|---------|-------------------|---|------------|-----------|---------------|---------------|-------------------|
| | 1 | 100 | | | Deposit | | Made ground layer | Compact, dark black coal dust and silt with lenses of deposited light yellowish grey degraded stone, with frequent subrounded stone and red brick rubble | 20m+ | 10m+ | 1m+ | Modern | MLG Oct 2023 |
| | 1 | 101 | G1 | | Structure | | Inspection pit | Red brick, Linear inspection pit. English garden bond with lime mortar bonding material. Orientated NW-SE, walls are 0.46m thick and has brick steps for access and egress at the southern and northern ends. Walls comprise of English Garden bond and are bonded with lime mortar; walls are 6 courses tall internally and 8 courses tall externally with bricks measuring approximately 0.23m by 0.08m. Within the walls was three copper valves sat within iron lines boxes. The floor comprised of red bricks laid in a stretcher bond in an N-S orientation and bonded with lime mortar. Within the floor was two Iron grates which covered the sump below. | | | | Post medieval | MLG Oct 2023 |
| | 1 | 102 | G2 | | Structure | | Holdfast | Stone slab with a large convex circle with drill holes around its circumference. | | | | Post medieval | |
| | 1 | 103 | G2 | | Structure | | Turntable | Curved brick feature with lime mortar bonding. Much of the turn table no longer survives, culvert [109] and inspection pit (101) built through it. | | | | Post medieval | |
| | 1 | 104 | G1 | | Structure | | Floor | Red brick floor surface, Twelve rows of brick laid in a running bond with lime mortar bonding material. With white curb stones running NE-SW along the western boundary of the floor. | 1 | 1 | | Post medieval | |
| | 1 | 105 | | | Structure | | Manhole Shaft | Red brick manhole shaft located northeast of inspection pit (101) visible in south and west facing sections. Eleven courses of red brick laid in English garden bond with cement bonding, with a 0.2m thick layer of concrete capping. | 1.5 | 1 | 1.2 | Modern | MLG Oct 2023 |

[illegible]

| | | | | | | | | | | | | | |
|--|---|-----|------|-----|-----------|------|------------------|---|-------|--------|-------|------------|---------------------|
| | 2 | 200 | | | Layer | | Modern Hardcore | Fairly loose, mid ashy grey silt and rubble, with very frequent concrete and brick inclusions. Laid very recently by contractors | | | 0.45 | Mode rn | LM April 2024 |
| | 2 | 201 | | | Layer | | Bedding Layer | Very loose, light brownish yellow sand, encountered beneath layer (200) and structure (203) | | | 0.06 | | LM April 2024 |
| | 2 | 202 | | | Layer | | Levelling Layer | Mixed levelling layer, with layers of loose, dark greyish black silt, with very frequent coke, ash and coal inclusions. Contains a lens of compact, dark orangey brown silty clay, with occasional small gritstones | | | 0.8 | | LM April 2024 |
| | 2 | 203 | | | Structure | | Brick Floor | Red brick surface, one course deep, with no bonding material. Overlies bedding deposit (201). Disturbed by later deposition of concrete along eastern edge | 3.8 + | 1.15 + | 0.1 | | LM March 2024 |
| | 2 | 204 | VOID | | VOID | VOID | VOID | VOID | VOID | VOID | VOID | VOID | LM April 2024 |
| | 2 | 205 | | 210 | Layer | | Modern Hardcore | Compact, light blueish grey stone aggregate. Placed very recently by contractors | | 6.0 + | 1.2 | | LM April 2024 |
| | 2 | 206 | | 211 | Layer | | Industrial Layer | Soft and loose, dark black silt, with frequent inclusions of coal, charcoal and coke and occasional inclusions of brick, timber, concrete chunks piping | | | 0.45 | | LM April 2024 |
| | 2 | 207 | | | Layer | | Sub-base | Soft, light brownish orange sand, encountered briefly along western edge of trench | | 1.5 | 0.45 | | LM April 2024 |
| | 2 | 208 | | 212 | Layer | | Natural Geology | Loose, light greyish yellow and orange silty clay with small to large blocks of limestone. Natural sedimentary limestone/shale | | | 2.0 + | | LM April 2024 |
| | 2 | 209 | | | Layer | | Natural Geology | Loose, mid whiteish grey silty clay, with abundant gravels. Natural gravels | | | 0.1 + | | LM April 2024 |
| | 2 | 210 | | 205 | Layer | | Modern Hardcore | Compact, light blueish grey stone aggregate. Overlies layer (211). Placed very recently by contractors | | | 0.2 | | LM May 2024 |

| | | | | | | | | | | | | | |
|--|---|-----|------|-----------|-----------|------|-------------------|--|------|------|-------|------------|---------------------|
| | 2 | | | | | | Industrial Layer | Soft and loose, dark black silt, with frequent inclusions of coal, charcoal and coke and occasional inclusions of brick, timber, concrete chunks piping. Overlies layers (212) (218) and structure (213) | | | 0.6 | | LM May 2024 |
| | 2 | 211 | | 206 | | | | | | | | | |
| | | 212 | | 208 | | | Natural Geology | Loose, light greyish yellow and orange silty clay with small to large blocks of limestone. Natural sedimentary limestone/shale. Cut by construction cut (214) | | | 1.5 + | | LM May 2024 |
| | 2 | | | | | | | | | | | | |
| | | 213 | | | structure | | Stone Wall | East - west running stone wall, with roughly faced finish. Coursing not intact due to damage. Possibly the corner of a structure which continues in a north - south orientation | | | | | LM May 2024 |
| | 2 | | | | | | | | | | | | |
| | | 214 | | | Cut | | Construction Cut | Linear construction cut, with vertical sides. East - west orientated. Cuts natural geology (212) | | | | | LM May 2024 |
| | 2 | | | | | | | | | | | | |
| | | 215 | | 219 | Layer | | | Very firm, dark greyish black humic clay with medium orangey grey lenses | | | 0.2+ | | LM May 2024 |
| | 2 | | | | | | | | | | | | |
| | | 216 | | | structure | | Concrete bases | Light whitish grey concrete blocks located adjacent to (204). Linear in plan. | 3.8 | 2.4 | 1 | Mode rn | LM March 2024 |
| | 2 | | | | | | | | | | | | |
| | | 217 | VOID | VOID | VOID | VOID | VOID | VOID | VOID | VOID | VOID | VOID | LM May 2024 |
| | 2 | | | | | | | | | | | | |
| | | 218 | VOID | VOID | VOID | VOID | VOID | VOID | VOID | VOID | VOID | VOID | LM May 2024 |
| | 2 | | | | | | | | | | | | |
| | | 219 | | 215 | Layer | | | Very firm, dark greyish black humic clay with medium orangey grey lenses | | | 0.2+ | | LM May 2024 |
| | 2 | | | | | | | | | | | | |
| | | 220 | | 300 0? | Layer | | Modern hardcore | Modern hardcore surface | | | 0.4m | | EG Nov 2024 |
| | 2 | | | | | | | | | | | | |
| | | 221 | | | Layer | | Levelling deposit | Dark blackish grey silty sands with light yellowish orange sands, fine grained and compacted. | | | 0.14m | | EG Nov 2024 |

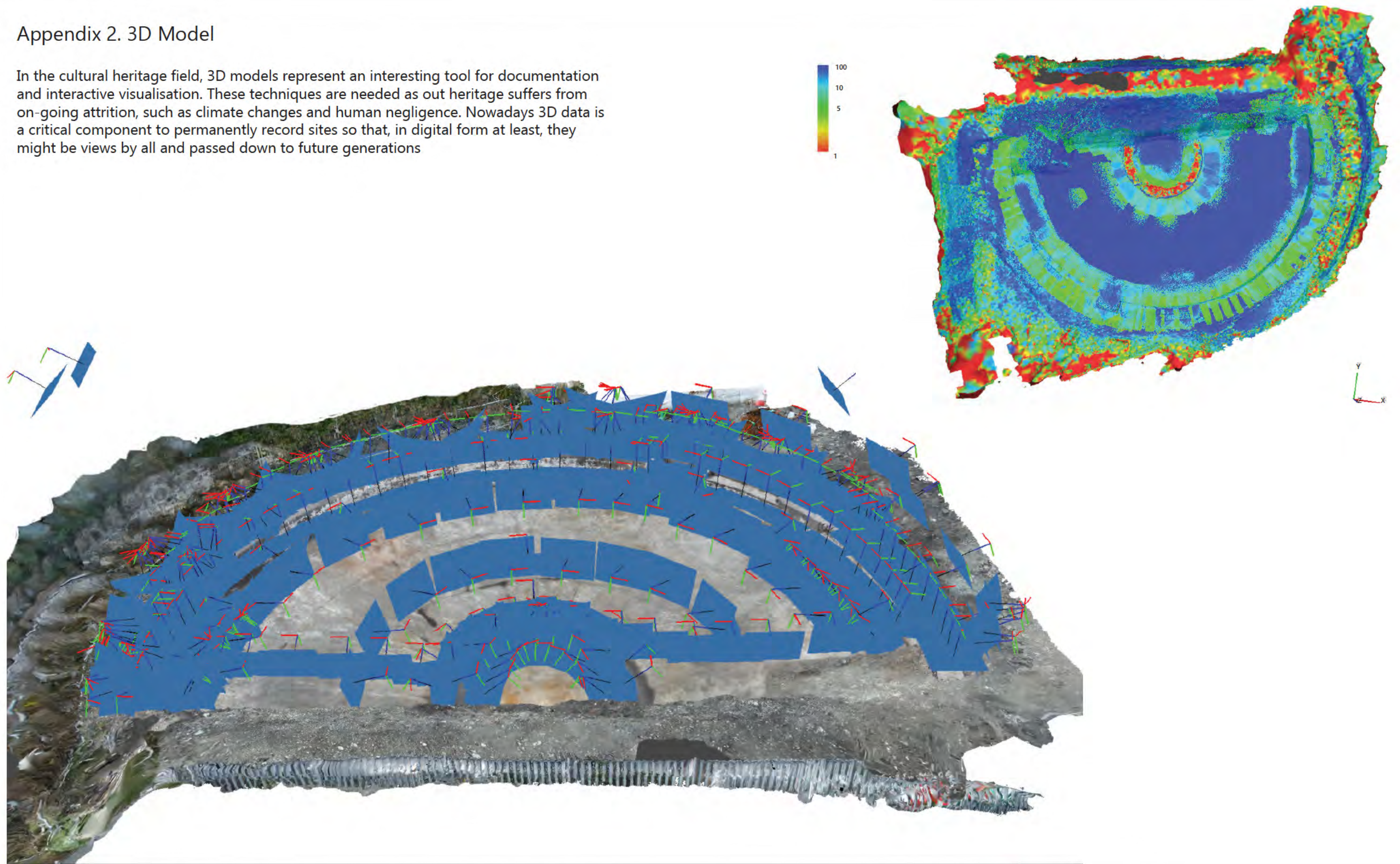
| | | | | | | | | | | | | | |
|--|---|-----|--|--|------------|-----|-------------------------------|---|--------|--------|---------------|--|-------------|
| | 2 | 222 | | | Layer | | Levelling deposit | Very dark blackish to dark grey brown mixed deposit of sands and silty sands with coal dust, coke and cinder fragments. Compacted. | | | 0.26m | | EG Nov 2024 |
| | 2 | 223 | | | Layer/fill | 202 | Backfill or levelling deposit | Dark blackish and brownish grey silty clay with tip lines and bands of different sized inclusions. | | | 0.38m | | EG Nov 2024 |
| | 2 | 224 | | | Layer/fill | 202 | Backfill or levelling deposit | Dark brownish silty and sandy bands with light blue/grey slag and clinker patches. | | | 0.44m | | EG Nov 2024 |
| | | 225 | | | Layer/fill | 202 | Backfill or levelling deposit | Dark blackish grey sticky silty sands, fine with occasional inclusions of stone, slag and brick fragments. | | | 0.1m + | | EG Nov 2024 |
| | | 226 | | | Layer | | Levelling deposit | Colour varies from dark yellowish brown at the top to dark blackish brown at the bottom, mixed silty sands, pebbles and stones. | | | 0.18m | | EG Nov 2024 |
| | | 227 | | | Layer | | Natural | Natural geology | | | 0.63m | | EG Nov 2024 |
| | | 228 | | | Cut | | Landscaping/construction cut | Cut in north corner of area. Curved in plan. Related to construction of railway turntable | | | Unknown | | EG Nov 2024 |
| | | 229 | | | Fill | 228 | Backfill or levelling deposit | Redeposited natural mixed with darker soils. | | | 0.43m | | EG Nov 2024 |
| | | | | | | | | | | | | | |
| | 3 | 300 | | | Fill | 103 | Deliberate Backfill | Loose, dark blackish-grey mixed sandy silts and clay silts with separate patches of clay and sand. | 21.40m | 12.30m | 0.95m - 1.10m | | EG Aug 2024 |
| | 3 | 301 | | | Fill | 103 | Deliberate Backfill | Loose, with densely packed stone inclusions, light white and yellowish-white stone and crushed stone with light greyish-brown clayey silts. Likely composed of redeposited bedrock - sandstone and siltstone with other soils mixed in. | 21.40m | 12.30m | 0.80m | | EG Aug 2024 |
| | 3 | 302 | | | Fill | 103 | Deliberate Backfill | Soft and loose, dark blackish-grey and black fine grained silts, sandy silts, crushed stone and coal dust. | 21.40m | 12.30m | 0.70m | | EG Aug 2024 |

| | | | | | | | | | | | | |
|--|---|-----|----|-------|-----|---------------------|--|----------------------------|----------|---------------|--|-------------|
| | 3 | 303 | | Cut | | Construction Cut | Construction cut for locomotive turntable, assumed to be circular in shape with vertical sides and an unknown base. Full extents not currently visible and cut edges not visible due to structural elements of turntable remaining in-situ. | 22.65m + | 13.70m + | 2m + | | EG Aug 2024 |
| | 3 | 304 | G3 | Wall | 103 | Circular outer Wall | Circular wall around outer edge of locomotive turntable. Composed of 12 courses of purple engineering bricks and an upper, inner course of curved capping brick. On the uppermost outer edge there is a poured concrete surround as a walking surface. Only the inner face of wall is visible and wall is bonded with hard, fine-grained dark grey mortar. A rectangular access chamber is located on the eastern side as part of the wall construction. | c.70m circumference length | 1.37m | 1.12m - 1.25m | | EG Aug 2024 |
| | 3 | 305 | G3 | Floor | 103 | Concrete slab Floor | Compact, light-grey concrete slab floor laid in sections and likely reinforced concrete poured in-situ. Floor undulates with a central flat circular platform that drops down to a circular drainage gully, then raises up around whole circumference to a narrow flat uppermost platform that runs around the interior base of wall 104. Floor 105 contains the remains of a number of metal fittings that had been truncated down once turntable was decommissioned. | 21.40m | 12.30m | Unknown | | EG Aug 2024 |

Appendix II: 3D Models

Appendix 2. 3D Model

In the cultural heritage field, 3D models represent an interesting tool for documentation and interactive visualisation. These techniques are needed as our heritage suffers from on-going attrition, such as climate changes and human negligence. Nowadays 3D data is a critical component to permanently record sites so that, in digital form at least, they might be viewed by all and passed down to future generations



Top right: False color graphic showing the density of photographic coverage around the structure

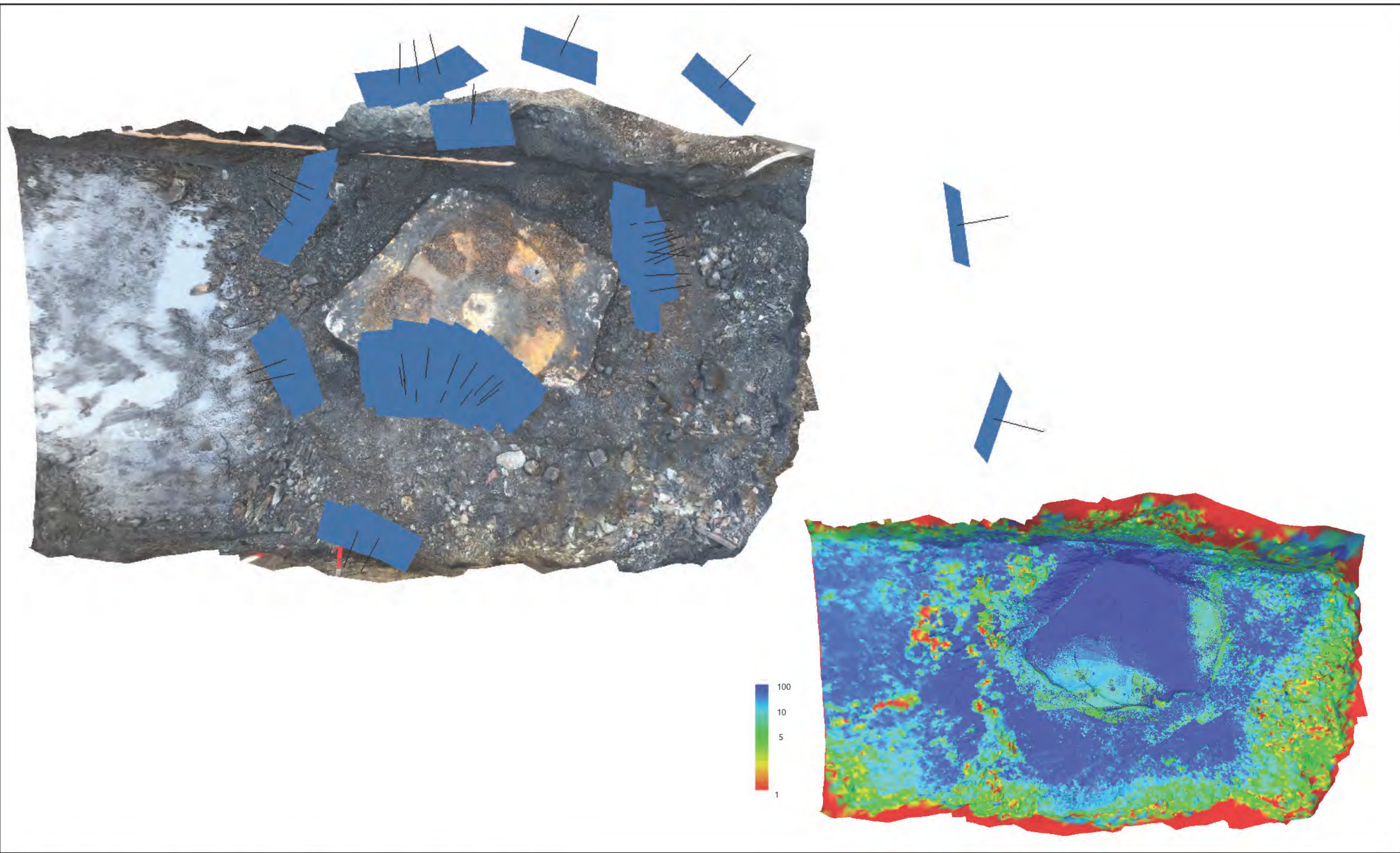
Bottom left: Image showing the automated recovery of camera poses with used tie and control points





Photogrammetric model of the turntable G3

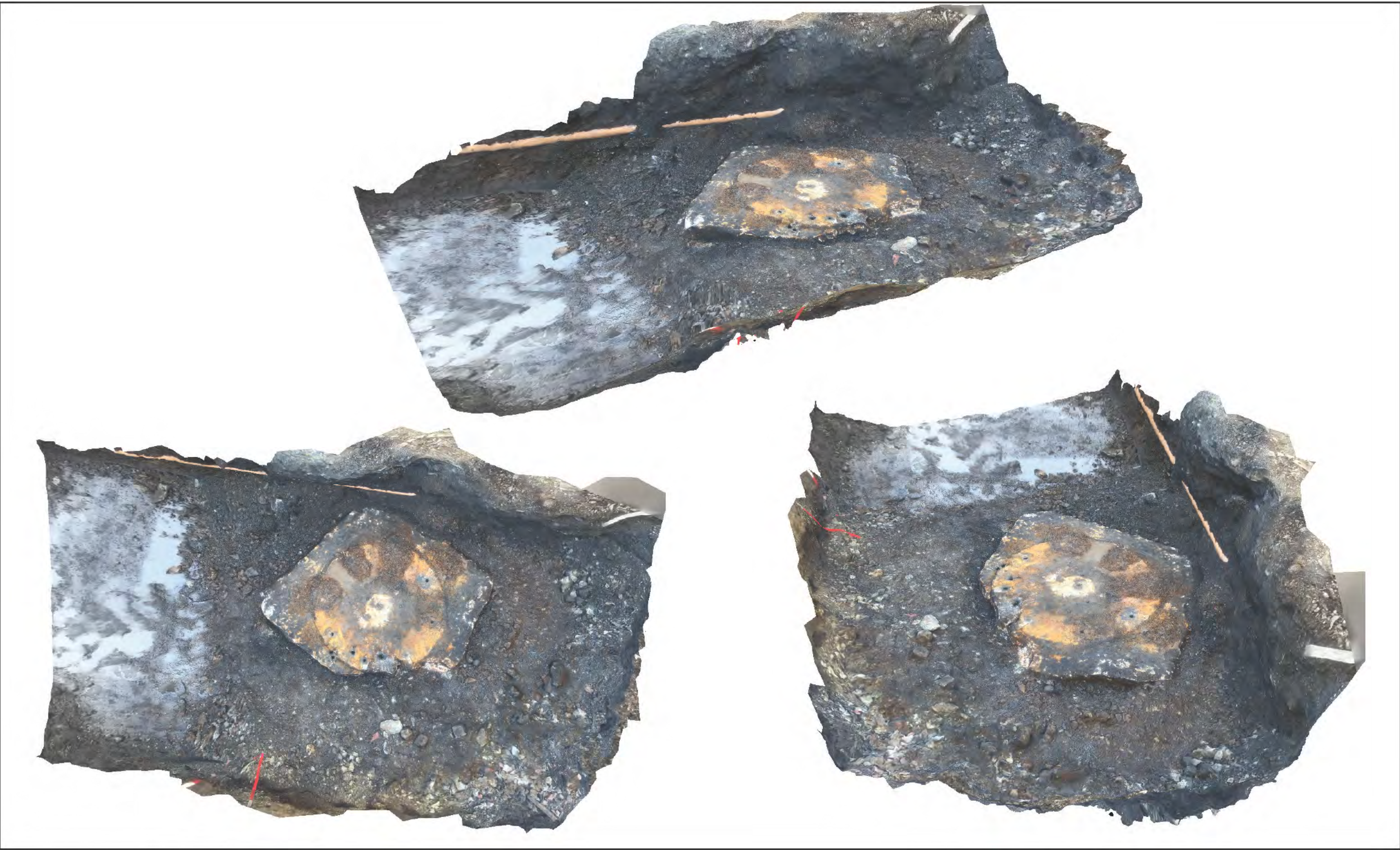




Top left: Image showing the automated recovery of camera poses with used tie and control points

Bottom right: False cover graphic showing the density of photographic coverage around the structure





Photogrammetric model of turntable base [102].



Appendix III: Written Scheme of Investigation

**WRITTEN SCHEME OF INVESTIGATION
FOR AN ARCHAEOLOGICAL
WATCHING BRIEF AT**

Arriva Trains Wales, Ferry Terminal, Holyhead, LL65 2PB

**Prepared for:
Balfour Beatty**

Project No: 3110

Sept 2023



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Non-Technical Summary

This Written Scheme of Investigation (WSI) details a programme of archaeological mitigation to be undertaken by Archaeology Wales Ltd (henceforth – AW) at the request of Balfour Beatty (henceforth – ‘the Client’).

- 1.1.1. The proposed work consists of the construction of a wheel lathe, welfare accommodation and ancillary works at land adjacent to the ferry terminal at the centre of Caergybi, LL65 2PB. Centred on NGR SH 25007 81709 (henceforth – ‘the Site’).

An archaeological watching brief to be undertaken during ground disturbance work associated with the proposed development was recommended by Gwynedd Archaeological Planning Services (henceforth GAPS), to prevent loss to the archaeological resource.

2. Introduction and Planning Background

- 2.1.1. This Written Scheme of Investigation (WSI) details a programme of archaeological mitigation to be undertaken by Archaeology Wales Ltd (henceforth – AW) at the request of Balfour Beatty (henceforth – ‘the Client’).
- 2.1.2. An application to determine whether prior approval is required for the installation of wheel lathe facility, welfare unit and associated works was submitted to the Local Planning Authority, Cyngor Sir Ynys Môn/Isle of Anglesey County Council (Application No. DET/2023/1). The scheme includes, the construction of a Wheel Lathe building, welfare building, bogie storage, hardstanding areas, walkways, and parking facilities, access road from existing access to fuel shed, and ancillary rail to access facility.
- 2.1.3. The Gwynedd Archaeological Planning Services (henceforth GAPS) has recommended, in its capacity as archaeological advisor to the Local Authority, that a program of mitigation in the form of an archaeological watching brief be recommended to be undertaken on an intensive basis during ground-disturbing works required for the development.
- 2.1.4. The purpose of the archaeological mitigation is to provide GAPS with sufficient information regarding the nature of archaeological remains on the site of the development, the requirements for which are set out in *Technical Advice Note (TAN) 24: The Historic Environment* (2017). The work is to ensure that all archaeological and historical components of the site are fully investigated and recorded if they are to be revealed because of activities associated with the development. This Specification has been prepared by Paul W Huckfield (Project Manager AW).
- 2.1.5. All work will be undertaken to the standards and guidance set by the Chartered Institute for Archaeologists (CIfA); *Standard and guidance for an archaeological watching brief* (2020). AW is a Registered Organisation with the CIfA.

3. Site Description

- 3.1.1. The proposed works will be on land adjacent to the ferry terminal at the centre of Caergybi LL65 2PB, immediately adjacent to the main North Wales Coastal rail line. Centred on NGR SH 25007 81709 (henceforth – ‘the Site’). The Site is bounded by the A55 North Wales Express Way to the west and the A5 London Road to the northwest. The existing brownfield site is a linear plot of land and includes various sidings for maintenance access to trains.
- 3.1.2. The underlying geology of the proposed development site is defined by South Stack Formation - Psammite and pelite. Metamorphic bedrock formed between 635 and 541 million years ago during the Ediacaran period. (BGS 2023).

4. Historical and Archaeological Background

- 4.1.1. The archaeological resource within the immediate surrounding area of the proposed development is dominated by general prehistoric and Roman potential. Despite the area likely having been truncated by post medieval expansion, there is some residual potential deeper surviving deposits relating to earlier occupation.
- 4.1.2. The Site is not in a Conservation Area and is not affected by any nature conservation designations. The site has been part of the operational rail infrastructure since the conception of the railway in this location. Historic mapping shows the site used in this capacity as early as the 1st edition OS map (1889). Then it was part of the Chester to Holyhead line (GAT16077) operated by the London and North Western Railway Company. The site once housed the Holyhead turntable, which was in use until the 1980’s and evidence of this may well be preserved beneath the current ground surface.
- 4.1.3. Prior to the construction of the line the site formed part of an open agricultural fieldscape associated with various dispersed farmsteads to the south of the town, as shown on the 1841 Tithe Map. There are no listed buildings or scheduled monuments within close proximity of the development site.
- 4.1.4. The later post medieval landscape is heavily represented surrounding the application area. These sites are predominantly agricultural and religious in nature, with sites ranging from relic field boundaries (GAT68742) and dry stonewalls (GAT68741) to a range of chapel buildings.

5. Objectives

- 5.1.1. This WSI sets out a program of works to ensure that the watching brief will meet the standard required by The Chartered Institute for Archaeologist’s *Standard and guidance for archaeological watching briefs* (2020).

5.1.2. The objective of the watching brief will be:

- to allow the investigation and recording of any archaeological features that are uncovered during the proposed groundworks within the application area.
- to provide the opportunity, if needed, for the watching archaeologist to signal to all interested parties, before the destruction of the material in question, that an archaeological find has been made for which the resources allocated to the watching brief are not sufficient to support the treatment to a satisfactory or proper standard.
- To enhance and contribute to the understanding of the heritage of the local area. Ensuring any yet undiscovered archaeological material is not unduly destroyed or lost.
- To contribute to the wider Research Framework for the Archaeology of Wales-Later Post Medieval and Industrial. Sub-categories Transport, Economy, and Power.

5.1.3. A written report will be compiled following the fieldwork. Sufficient desk-top research will be undertaken to ensure that the results of this work are properly understood, interpreted, and reported.

5.1.4. Sources to be consulted include:

- Published and unpublished reports,
- Historical maps (OS/Tithe), and historic aerial photographs (CRAPW),
- Documents from local, regional, and national archives (i.e. HER, NMR, NA),
- Information and photographic records from Heritage railways groups and societies (A directory of these is held by the National Railway Museum, York).

5.1.5. This will ensure a comprehensive assessment of the historic context within which the archaeological evidence rests, as well as aiming to highlight any relevant research issues within regional, national and, if relevant, international research frameworks.

6. Timetable of works

6.1. Fieldwork

6.1.1. The programme of mitigation will be undertaken during ground works associated with the proposed development. A start date has not yet been finalised, but it is anticipated that the works are likely to commence autumn 2023. GAPS will be updated with the exact

date the work is due to begin once known.

6.2. Report delivery

- 6.2.1. The report will be submitted to the Client and to GAPS within three months of the completion of the fieldwork. A copy of the report will also be sent to the regional HER.

7. Fieldwork

7.1. Detail

- 7.1.1. The work will be undertaken to meet the standard required by The Chartered Institute for Archaeologist's *Standard and guidance for watching briefs* (2020).
- 7.1.2. The watching brief should be undertaken using a tracked excavator equipped with a flat-bladed bucket working from a single front. During the groundworks the site archaeologist undertaking the watching brief will be afforded the required access by the main contractor in order to observe and where necessary to record any archaeological remains revealed. Groundwork will not be undertaken without the presence of the site archaeologist.
- 7.1.3. The watching brief will preserve, by record, detailed information on all archaeological deposits within the designated area, prior to their likely destruction as a consequence of the development. The site archaeologist will record and removed stratigraphically, all archaeological deposits, horizons and artefacts encountered. Less significant archaeological deposits and features will be recorded without significant delay to the work program.
- 7.1.4. Where significant or complex archaeological deposits or features are encountered there will be a requirement for work in those areas to cease and those areas to be fenced off and highlighted to all contractors employed on the site. Machines or contractors shall not enter this area until archaeological recording has been completed.
- 7.1.5. If significant archaeological features are encountered a meeting between the Client, GAPS and AW will be called at the earliest convenience. Contingency arrangements will be made. Contingency costs will be agreed in advance before any extension to the program commences and will follow a site meeting between Archaeology Wales, the Client (or their representatives) and GAPS.

7.2. Recording

- 7.2.1. Recording will be carried out using AW recording systems using a continuous number sequence for all contexts.
- 7.2.2. Plans and sections will be drawn to a scale of 1:50, 1:20 and 1:10 as required and related

to Ordnance Survey datum and published boundaries where appropriate.

- 7.2.3. All features identified will be surveyed using a GeoMax GNSS Netrover and tied into the OS survey grid and fixed to local topographical boundaries.
- 7.2.4. Photographs will be taken in digital format with an appropriate scale, using a 12MP camera with photographs stored in Tiff format.

7.3. Finds

- 7.3.1. The professional standards set in the *Chartered Institute for Archaeologists' standards and guidance for the collection, documentation, conservation, and research of archaeological materials* (2020) will form the basis of finds collection, processing, and recording.
- 7.3.2. Finds will be carefully excavated by hand. The excavation of fragile or particularly significant finds will be undertaken in consultation with an appropriate archaeological conservator. Finds will be bagged by archaeological context, the location of special finds and flint working deposits will be recorded three dimensionally.
- 7.3.3. In most cases all finds will be recovered from site, quantified and assessed by specialist. Finds retention and discard policies will be drawn up in conjunction with specialist advice and the requirements of the receiving archive or regional/national guidelines (NPAAW 2019) in conjunction with the *CIfA Selection Strategy Tool Kit* (CIfA 2019). If large quantities of material are identified, an onsite discard policy may be implemented under the guidance of relevant finds specialists and the local authority archaeologists.
- 7.3.4. Retained finds will be suitably bagged, boxed and marked. Following cataloguing and initial analysis finds of low archaeological significance may be discarded.
- 7.3.5. Finds recovered that are regarded as Treasure under The Treasure Act 1996 will be reported to HM Coroner for the local area.
- 7.3.6. Any finds which are considered to be in need of immediate conservation will be referred to a UKIC qualified conservator (normally Phil Parkes at Cardiff University).

7.4. Environmental Sampling Strategy

- 7.4.1. The proposed development is located on a brownfield site previously disturbed by a succession of activities associated with the railway. Environmental sampling is unlikely to be required unless excavations go beyond the disturbed layers and archaeology is encountered below that level.
- 7.4.2. Features or archaeological deposits that are encountered will be sampled by means of the most appropriate method (bulk, column, etc.) up to 40 litres in size.

- 7.4.3. If significant or complex deposits are encountered, a site-specific sampling strategy alongside a specialist environmental archaeologist will be draw up. All environmental sampling and recording and will follow *English Heritage's Guidelines for Environmental Archaeology* (2002).

7.5. Human Remains

- 7.5.1. In the event that human remains are encountered, their nature and extent will be established, and the coroner informed. All human remains will be left in situ and protected during backfilling. Where preservation in situ is not possible the human remains will be fully recorded and removed under conditions that comply with all current legislation and include acquisition of licenses and provision for reburial following all analytical work. Human remains will be excavated in accordance with the *Chartered Institute for Archaeologist's Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains: Technical Paper Number 13* (1993), and the *Chartered Institute for Archaeologist's Updated Guidelines to the Standards for Recording Human Remains* (2017).
- 7.5.2. A meeting with the Client, GAPS, and AW will be called if the human remains uncovered are of such complexity or significance that the contingency arrangement would not be of sufficient scope.

7.6. Specialist Advisers

- 7.6.1. In the event of certain finds, features or sites being discovered, AW will seek specialist opinion and advice. A list of specialists is given in the table below although this list is not exhaustive.

| Artefact type | Specialist |
|---------------------------------------|--|
| Lithics | Dr Julie Birchenall (Freelance) |
| Animal bone | Dr Richard Madgwick (Cardiff University) |
| CBM, heat affected clay, Daub etc. | Dr Siân Thomas (Archaeology Wales) Dr Phil Mills (Freelance) Sandra Garside Neville (Freelance) |
| Clay pipe | Charley James Martin (Archaeology Wales) |
| Glass | Rowena Hart (Archaeology Wales) |
| Cremated and non-cremated human bone | Malin Holst (University of York) Dr Richard Madgwick (Cardiff University) |
| Metalwork | Dr Rhiannon Philp (Archaeology Wales) Dr Kevin Leahy (PAS/University of Leicester) Quita Mould (Freelance) |
| Metal work and metallurgical residues | Dr Tim Young (GeoArch) |
| Neo/BA pottery | Dr Alex Gibson (Freelance) Dr David Mullin (Freelance) |

| | |
|---------------------------------------|---|
| IA/Roman pottery | Dr Jane Timby (Freelance) |
| Roman Pottery | Dr Siân Thomas (Archaeology Wales) Dr Peter Webster (Freelance) |
| Medieval and Post Medieval Pottery | Paul Blinkhorn (Freelance) |
| Charcoal (wood ID) | Dana Challinor (Freelance) |
| Waterlogged wood | Professor Nigel Nayling (University of Wales Trinity St Davids – Lampeter) |
| Pollen | Dr Rhiannon Philp (Archaeology Wales) |
| Charred and waterlogged plant remains | Wendy Carruthers (Freelance) Kath Hunter Dowse (Freelance) |

7.7. Specialist Reports

- 7.7.1. Specialist finds and palaeoenvironmental reports will be written by AW specialists, or sub-contracted to external specialists when required.

8. Monitoring

- 8.1.1. GAPS will be contacted prior to the commencement of archaeological site works, with as much notice as possible, and subsequently once the work is underway.
- 8.1.2. Any changes to the WSI that AW may wish to make after approval will be communicated to the Client and GAPS for approval on behalf of Planning Authority.
- 8.1.3. GAPS will be given access to the site so that they may monitor the progress of the watching brief. No area will be backfilled until GAPS has had the opportunity to inspect it and signs off the area. GAPS will be kept regularly informed about developments, both during the site works and subsequently during post-excavation.

8.2. Notification of important remains

- 8.2.1. Where it is considered that remains have been revealed that may satisfy the criteria for statutory protection, AW will submit preliminary notification of the remains to Cadw.

9. Post-fieldwork programme

9.1. The Site Archive

- 9.1.1. An ordered and integrated site archive will be prepared in accordance with: *Management of Research Projects in the Historic Environment (MoRPHE)* (Historic England 2006) upon completion of the project.
- 9.1.2. The site archive (including artefacts and samples) will be prepared in accordance with the National Monuments Record (Wales) agreed structure and deposited with an appropriate receiving organisation, in compliance with ClfA Guidelines (*Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives*, 2020). It will

also conform to the guidelines set out in '*The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales*' (National Panel for Archaeological Archives in Wales, 2019). The legal landowner's consent will be gained for deposition of finds. The project will adhere to the Welsh Archaeological Trust's joint *Guidance for the Submission of Data to the Welsh Historic Environment Records* (2022).

9.2. Analysis

9.2.1. Following a rapid review of the potential of the site archive, a programme of analysis and reporting will be undertaken. The report will adhere to the Welsh Archaeological Trust's joint *Guidance for the Submission of Data to the Welsh Historic Environment Records* (2022).

9.2.2. This will result in the following inclusions in the final report:

- Non-technical summary, in English and Welsh
- Location plan showing the area/s covered by the groundworks, all artefacts, structures, and features found
- Plan and section drawings (if features are encountered) with ground level, ordnance datum and vertical and horizontal scales.
- Written description and interpretation of all deposits identified, including their character, function, potential dating, and relationship to adjacent features. Specialist descriptions and illustrations of all artefacts and soil samples will be included as appropriate.
- An indication of the potential of archaeological deposits which have not been disturbed by the development
- A discussion of the local, regional, and national context of the remains by means of reviewing published reports, unpublished reports, historical maps, documents from local archives and the regional HER as appropriate.
- A detailed archive list at the rear listing all contexts recorded, all samples, finds, and find types, drawings and photographs taken. This will include a statement of the intent to deposit, and location of deposition, of the archive.

9.3. Report to client

9.3.1. Copies of all reports associated with the watching brief, together with inclusion of supporting evidence in appendices as appropriate, including photographs and illustrations, will be submitted to the Client and GAPS upon completion.

9.4. Additional reports

9.4.1. After an appropriate period has elapsed, copies of all reports will be deposited with the relevant county Historical Environment Record, the National Monuments Record and GAPS.

9.5. Summary reports for publication

- 9.5.1. Short archaeological reports will be submitted for publication in relevant journals; as a minimum, a report will be submitted to the annual publication of the regional CBA group or equivalent journal.

9.6. Notification of important remains

- 9.6.1. Where it is considered that remains have been revealed that may satisfy the criteria for statutory protection, AW will submit preliminary notification of the remains to Cadw.

9.7. Archive deposition

- 9.7.1. The final archive (site and research) will, whenever appropriate, be deposited with a suitable receiving institution, usually the relevant Local Authority museums service. Arrangements will be made with the receiving institution before work starts.
- 9.7.2. Although there may be a period during which client confidentiality will need to be maintained, copies of all reports and the final archive will be deposited no later than six months after completion of the work.
- 9.7.3. Copies of all reports, the digital archive and an archive index will be deposited with the National Monuments Record, RCAHMS, Aberystwyth.
- 9.7.4. Wherever the archive is deposited, this information will be relayed to the HER. A summary of the contents of the archive will be supplied to GAT.

9.8. Finds deposition

- 9.8.1. The finds, including artefacts and ecofacts, excepting those which may be subject to the Treasure Act, will be deposited with the same institution, subject to the agreement of the legal landowners.

9.9. Staff

- 9.9.1. The project will be managed by Paul W Huckfield (AW Project Manager), and the fieldwork undertaken by AW Staff. Any alteration to staffing before or during the work will be brought to the attention of GAPS and the Client.

10. Health and Safety

10.1. Risk Assessment

- 10.1.1. Prior to the commencement of work AW will carry out and produce a formal Health and Safety Risk Assessment in accordance with The Management of Health and Safety Regulations 1999. A copy of the risk assessment will be kept on site and be available for inspection on request. A copy will be sent to the client (or their agent as necessary) for

their information. All members of AW staff will adhere to the content of this document.

10.2. Other Guidelines

- 10.2.1. AW will adhere to best practice with regard to Health and Safety in Archaeology as set out in the FAME (Federation of Archaeological Managers and Employers) health and safety manual Health and Safety in Field Archaeology (2002).

11. Community Engagement and Outreach

- 11.1.1. Wherever possible, AW will ensure suitable measures are in place to inform the local community and any interested parties of the results of the site investigation work. This may occur during the site investigation work or following completion of the work. The form of any potential outreach activities may include lectures and talks to local groups, interested parties and persons, information boards, flyers and other forms of communication (social media and websites), and press releases to local and national media.
- 11.1.2. The form of any outreach will respect client confidentiality or contractual agreements. As a rule, outreach will be proportional to the size of the project.
- 11.1.3. Where outreach activities have a cost implication these will need to be negotiated in advance and in accordance with the nature of the desired response and learning outcomes.

12. Insurance

- 12.1.1. AW is fully insured for this type of work and holds Insurance with Aviva Insurance Ltd and Hiscox Insurance Company Limited through Towergate Insurance. Full details of these and other relevant policies can be supplied on request.

13. Quality Control

13.1. Professional standards

- 13.1.1. AW works to the standards and guidance provided by the Chartered Institute for Archaeologists. AW fully recognise and endorse the Chartered Institute for Archaeologists' *Code of Conduct*, *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* and the *Standard and Guidance for archaeological field evaluation* (CIfA 2020) currently in force. All employees of AW, whether corporate members of the Chartered Institute for Archaeologists or not, are expected to adhere to these Codes and Standards during their employment.

13.2. Project tracking

- 13.2.1. The designated AW manager will monitor all projects in order to ensure that agreed

targets are met without reduction in quality of service.

14. Arbitration

- 14.1.1. Disputes or differences arising in relation to this work shall be referred for a decision in accordance with the Rules of the Chartered Institute of Arbitrators' Arbitration Scheme for the Institute for Archaeologists applying at the date of the agreement.

15. References

British Geological Survey: *Geology of Britain viewer*.

www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html (accessed 11/09/23).

Chartered Institute for Archaeologists, 2020. *Standards and guidance for an archaeological watching brief*.

Chartered Institute for Archaeologists, 2020. *Standards and guidance for the creation, compilation, transfer and deposition of archaeological archives*.

Chartered Institute for Archaeologists, 2020. *Standards and guidance for the collection, documentation, conservation and research of archaeological materials*.

Chartered Institute for Archaeologist, 2017. *Updated Guidelines to the Standards for Recording Human Remains*.

English Heritage, 2002. *Guidelines for Environmental Archaeology*.

English Heritage, 2006. *Management of Research Projects in the Historic Environment (MORPHE)*.

Gwynedd Archaeological Planning Service, 2023. *Planning response to planning application DET/2023/1*. Ref: 0808tf/D3833.01.

IFA Wales/Cymru on behalf of the archaeological community of Wales. *A Research Framework for the Archaeology of Wales*. <https://www.archaeoleg.org.uk/> (accessed 11/07/23).

National Library for Wales. Welsh Tithe Maps. <https://places.library.wales/home>. (accessed 11/09/23).

National Panel for Archaeological Archives in Wales, 2019. *The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales*.

Welsh Archaeological Trusts, 2022. *Guidance for the Submission of Data to the Welsh Historic Environment Records (HER)*.

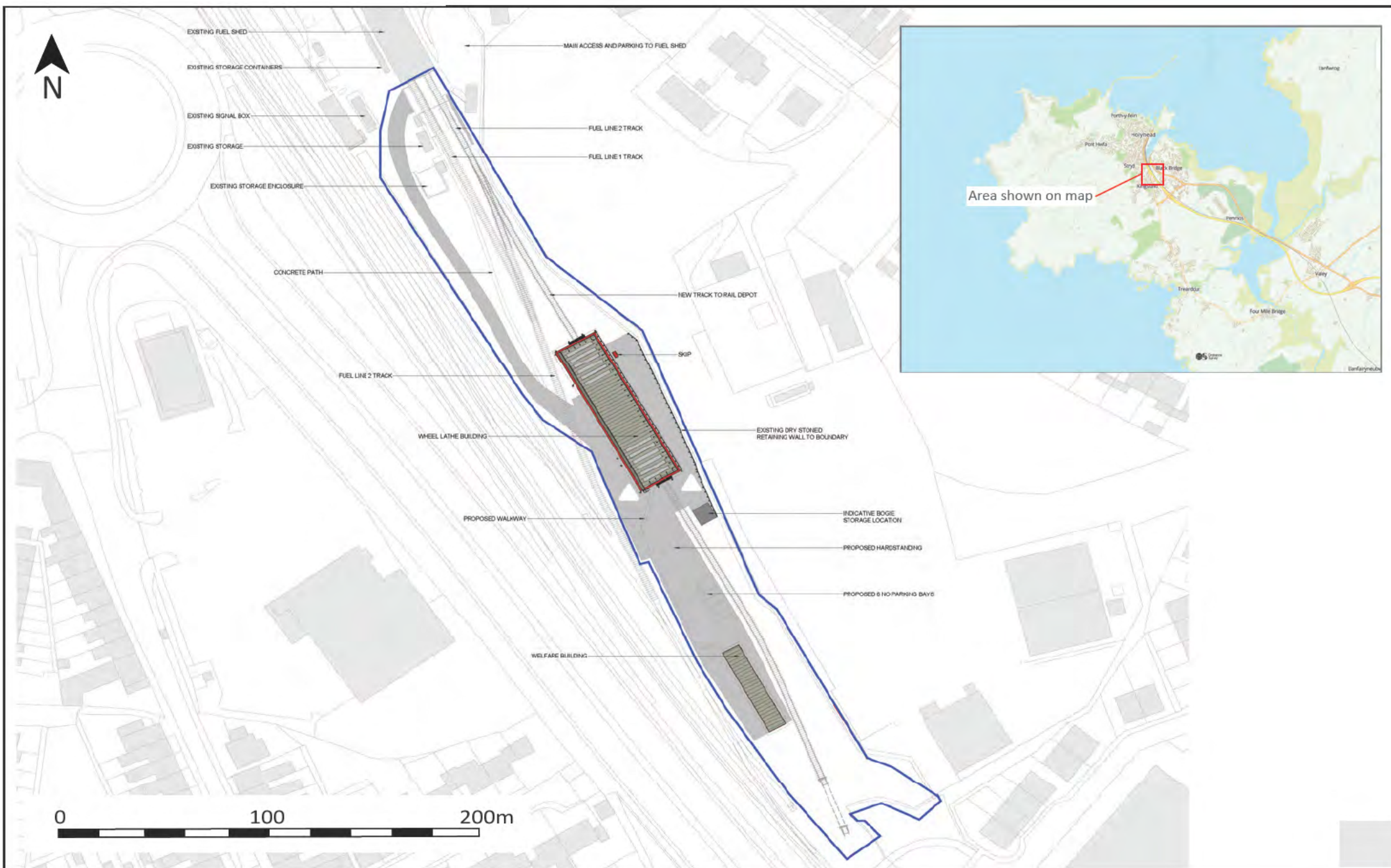


Figure 1. Location of development site (from plan supplied by client).

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Development area

Appendix IV: Selection Strategy

Selection Strategy

| Project Information | |
|----------------------------------|--|
| ID | 3110 |
| Name | Holyhead Wheel Lathe Facility |
| Project Management | |
| Project Manager | Paul W Huckfield |
| Post Excavation Manager | Rhiannon Philp |
| Organisation | Archaeology Wales |
| Stakeholders | |
| Collecting Institution(s) | Heneb – Gwynedd, HER; RCAHMW |
| Project Lead / Project Assurance | Emily Glass |
| Landowner / Developer | Balfour Beatty |
| Other | |
| Resources | No unusual resources required outside of AW normal operating equipment and personnel to implement this Selection Strategy. |

Context

Archaeology Wales (henceforth – AW) was commissioned by Balfour Beatty (henceforth – ‘the Client’) to undertake a program of Archaeological Monitoring and Recording (AM&R) related to the construction of a new wheel lathe facility at Arriva Trains Wales, Ferry Terminal, Holyhead, Anglesey, LL65 2RN (henceforth-‘the Site’).

During the AM&R the upper walls of the locomotive turntable were exposed at the southernmost end of the Site. Following further consultation with HGAPS and Network Rail, it was agreed that supplementary mitigation, in addition to that previously agreed, would need to be undertaken.

All work conformed to the standards and guidance set by the Chartered Institute for Archaeologists (2020). AW is a Registered Organisation with the CIfA.

Digital Data

| | | | |
|---|------------------|------------------|---------------------|
| Stakeholders | | | |
| Rhiannon Philp (PX manager), Paul W Huckfield (Project Manager), RCAHMW, Heneb – Gwynedd- HER | | | |
| Data Management Plan (DMP) | | | |
| Selection and De-selection | | | |
| DMP Attached as a separate document | | | |
| Amendments | | | |
| Detail any amendments to the above selection strategy here. | | | |
| Date | Amendment | Rationale | Stakeholders |
| | | | |

Documents

| | | | |
|--|--|--|--|
| Stakeholders | | | |
| Rhiannon Philp (PX manager), Paul W Huckfield (Project Manager), | | | |
| Selection and De-selection | | | |
| Selection | | | |
| <p>2.1. All original documentary material created during data gathering will be selected for inclusion in the final archive. Duplicates, photocopies of originals and research materials will be de-selected during archive completion</p> <p>2.2. Selection reviews will be undertaken after the following phases:</p> <ul style="list-style-type: none">• Fieldwork• Reporting• Archive Completion <p>2.3. Relevant Standards and Guidance:</p> <ul style="list-style-type: none">• CIfA. 2020. Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials.• CIfA. 2022 revision. Code of conduct: professional ethics in archaeology• Any information provided by Receiving Institutions <p>2.4. It is not envisaged that the selection decisions will deviate from standard guidelines</p> | | | |
| De-selection | | | |
| It is envisaged that the material de-selected from inclusion in the preserved archive will be | | | |

duplicates, re-productions, miscellaneous material, correspondence and GDPR/confidentiality created during the analysis phase of the project. De-selected material will therefore be retained to supplement AW/AE's research files. A copy of the complete digital working archive incl. the preserved archive is stored on AW/AE's server.

Amendments

Detail any amendments to the above selection strategy here.

| Date | Amendment | Rationale | Stakeholders |
|------------|---|---------------------------------------|--------------|
| 30/10/2025 | Physical documentary archive deselected | Full digital copy uploaded to RCAHMMW | AW; RCAHMMW |

Materials

Materials Selections Template

| No | Find type | Selection Strategy | Stakeholders |
|-----|--------------|--|--|
| 3.1 | Pottery | Retain until at least after Assessment. Further selection decisions to follow results of assessment. | Specialist; PXM; Receiving Institution |
| 3.2 | CBM | Retain until at least after Assessment. Further selection decisions to follow results of assessment. | Specialist; PXM; Receiving Institution |
| 3.3 | Metals | Retain until at least after Assessment. Further selection decisions to follow results of assessment. | Specialist; PXM; Receiving Institution |
| 3.4 | Worked Stone | Retain until at least after Assessment. Further selection decisions to follow results of assessment. | Specialist; PXM; Receiving Institution |
| 3.5 | Animal Bone | Retain until at least after Assessment. Further selection | Specialist; PXM; Receiving Institution |

| | | | |
|-----|---|--|--|
| | | decisions to follow results of assessment. | |
| 3.6 | Lithics | Retain until at least after Assessment. Further selection decisions to follow results of assessment. | Specialist; PXM; Receiving Institution |
| 3.7 | Small Finds | Retain until at least after Assessment. Further selection decisions to follow results of assessment. | Specialist; PXM; Receiving Institution |
| 3.8 | Environmental Material | Retain until at least after Assessment. Further selection decisions to follow results of assessment. | Specialist; PXM; Receiving Institution |
| 3.9 | Modern (post 20 th C) Material | Note in paperwork and discard on site. | Site Staff; PXM |

| | | | |
|-----------|-----|----------------------|----------------|
| No | ALL | Material type | All categories |
|-----------|-----|----------------------|----------------|

Stakeholders

Rhiannon Philp (PX manager), Paul W Huckfield (Project Manager)

Selection

- a) All artefacts are returned to AW/AE Finds and Environmental processing facility and dealt with in accordance with the professional standards set in the Chartered Institute for Archaeologists' Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials (2020). Selection may also be made prior to deposition based on Society of Museum Archaeologists' Selection, Retention and Dispersal of Archaeological Collections guidelines (1993), National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales (2017) and consultation of the receiving institution's deposition guidelines
- b) Selection reviews will be undertaken after the following phases:
 - Fieldwork
 - Assessment
 - Analysis (if required)
 - Archive Completion
- c) Relevant Standards and Guidance:
 - CIfA. 2020. Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials

- Historic England. 2011. Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (second edition)
- Society of Museum Archaeologists. 1993. Selection, Retention and Dispersal of Archaeological Collections
- National Panel for Archaeological Archives in Wales. 2017. The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales

d) It is not envisaged that the selection decisions will deviate from standard guidelines

Uncollected Material

All material will be collected in the first instance unless obviously modern (plastics/post 20th century artefacts).

De-Selected Material

After assessment stage material may be deselected based on the advice of the relevant material specialist and the requirements of the receiving institution. The selection strategy will be updated to reflect any decision made on de-selected material.

De-selected material will be assessed for educational value and retained/passed to an educational provider if deemed of use. If no further use is identified the de-selected material shall be discarded via Smiths Waste Management and deposited within their South Wales waste processing facility.

Amendments

Detail any amendments to the above selection strategy here.

| Date | Amendment | Rationale | Stakeholders |
|------------|------------------|--|----------------|
| 30/10/2025 | Finds deselected | All later post medieval or modern and within insecure contexts – discarded as per The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales | AW; Specialist |

Appendix V: Data Management Plan

Data Management Plan

Section 1: Project Administration

| |
|---|
| Project ID |
| 3110 |
| Project Name |
| Holyhead Wheel Lathe Facility |
| Project Description |
| Archaeology Wales (henceforth – AW) was commissioned by Balfour Beatty (henceforth – ‘the Client’) to undertake a program of Archaeological Monitoring and Recording (AM&R) related to the construction of a new wheel lathe facility at Arriva Trains Wales, Ferry Terminal, Holyhead, Anglesey, LL65 2RN (henceforth-‘the Site’). During the AM&R the upper walls of the locomotive turntable were exposed at the southernmost end of the Site. Following further consultation with HGAPS and Network Rail, it was agreed that supplementary mitigation, in addition to that previously agreed would need to be undertaken. All work conformed to the standards and guidance set by the Chartered Institute for Archaeologists (2020). AW is a Registered Organisation with the ClfA. |
| Project Funder / Grant reference |
| Balfour Beatty |
| Project Manager |
| Paul W Huckfield |
| Principal Investigator / Researcher |
| Emily Glass |
| Data Contact Person |
| Rhiannon Philp (rhiannon.philp@arch-wales.co.uk) |
| Date DMP created |
| 11/09/2025 |
| Date DMP last updated |
| 30/10/2025 |
| Version |
| V2 |
| Related data management policies |
| This DMP is guided by the Project Brief, ClfA Standards and guidance, trusted digital repository guidelines (RCAHMW) or other best practice guidance (see brief for details) |

Section 2: Data Collection

| What data will you collect or create? | | | | | | | | | |
|--|--------------------|----------------------------------|----------------------------------|----------------|------------|---|--------|--------------------|-----|
| The table below provides a summary of the data types, formats and estimated archive volume for data collected / created as part of this project. As the project progresses, more detail regarding files will be added to this DMP. | | | | | | | | | |
| <table><tr><th>Type</th><th>Format</th><th>Estimated volume (Data Archived)</th></tr><tr><td>Text/documents</td><td>PDF (.pdf)</td><td>6</td></tr><tr><td>Images</td><td>Photographs (.jpg)</td><td>895</td></tr></table> | Type | Format | Estimated volume (Data Archived) | Text/documents | PDF (.pdf) | 6 | Images | Photographs (.jpg) | 895 |
| Type | Format | Estimated volume (Data Archived) | | | | | | | |
| Text/documents | PDF (.pdf) | 6 | | | | | | | |
| Images | Photographs (.jpg) | 895 | | | | | | | |

| | | |
|--------------|---|----------|
| | Photographs (.jpeg) PDF (.pdf) | 108 2 |
| Spreadsheets | Excel spreadsheet (.xlsx) | 1 |
| GIS | Shapefiles (.shp plus associated files) | 5 groups |

How will the data be collected or created?

Data Standards / Methods

- Standard methods of data collection will be applied throughout the project, working to best practice guidance where applicable / available. In general, data acquisition standards are defined against RCAHMW Guidelines. Specific or additional guidance relevant to this project are listed below, and will
- be updated as the project progresses.
- Methods of collection are specified within the Project Design and will meet the requirement set out in the Project Brief, the organisation recording manual and relevant CIfA Standards and guidance.
- Where appropriate, project contributors external to the organisation will be required to include data standards, collection methodology and metadata with individual reports and data.
- Specific guidance:
 - Chartered Institute for Archaeologists, 2020. Standard and guidance for the archaeological investigation and recording of standing buildings or structures.
 - Historic England, 2016. Understanding Historic Buildings: A Guide to Good Recording Practice

Data storage / file naming

- The data produced will be uploaded at regular intervals during the project as a way of backing up the information.
- The working project archive will be stored in a project specific folder on the internal organisational server. The internal organisation server is backed up to a cloud-based storage system to maintain an up-to-date security copy of the organisation wide data.
- Project folders are named following established organisational procedures and the folder hierarchy and organisation devised will be understood by all members of staff involved in the project.
- Data collected will be downloaded and raw data will be stored in the appropriate folder.
- File naming conventions following established organisational procedures, based on RCAHMW file naming guidance, and include version control management.
- The data stored will be checked by the project manager regularly as a means of quality assurance.

Section 3: Documentation and metadata

What documentation and metadata will accompany the data?

- Data collected will include standard formats which maximise opportunities for use and reuse in the future (see Section 2, above).

- A RCAHMW metadata document will be included with the digital archive and include all data types included within the archive. A working copy will be kept on the organisational server in the Project Folder. A copy of the form containing HER required data will also be created.
- Data documentation will meet the requirement of the Project Brief, Museum Deposition Guidelines, Digital Repository Guidelines and the methodology described in the Project Design methodology.
- An archive catalogue documenting both physical and digital archive products will be maintained and submitted with both the Museum and Trusted Digital Repository

Section 4: Ethics and legal compliance

How will you manage any ethical, copyright and Intellectual Property Rights (IPR) issues?

- The project archive will include the names and contact details of individuals who intend to volunteer or participate in the excavation and post excavation stages. We have a GDPR compliant Privacy Policy which underpins the management of personal data; any personal data is managed through a secure cloud-based database and not retained on the project specific folders.
- Personal data will be removed from the archaeological project archive and permission to include individual's names in any reporting is gained prior to use.
- Copyright for all data collected by the project team belongs to the organisation, and formal permission to include data from external specialists and contractors is secured on the engagement of the specialist or contractor.
- Where formal permissions and/or license agreements are linked to data sharing, they will be included in the project documentation folders and will accompany the archaeological project archive.

Section 5: Data Security: Storage and Backup

How will the data be stored, accessed and backed up during the research?

- Organisational IT is managed by an external data management provider, who is also responsible for the management and verification of our daily back-ups and who supports access to security copies as needed
- Sufficient data storage space is available via the organisational server, which includes permissions-based access. The server is accessible by staff on and offsite through a secure log-in
- Off-site access to the project files on the organisation's server is provided to support back-up of raw data while fieldwork is ongoing. Where internet access for data back up is not possible, the raw data will be backed up to a separate media device (such as laptop and portable external hard drive).
- Project files will be shared with external specialists and contractors directly using the same system, with the wider project team gaining access to only the files needed using permissions-based access

Section 6: Selection and Preservation

Which data should be retained, shared, and/or preserved?

- The Selection Strategy and DMP will be reviewed and updated as part of the Post Excavation Assessment and Updated Project Design and following full analysis. Updated documentation will be included in all reporting stages.

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| <ul style="list-style-type: none"> • Prior to deposition, the Selection Strategy and DMP will be updated and finalised in agreement with all project stakeholders (including the Local Planning Archaeologist, Client, Museum, RCAHMW). • Selection will be informed by the Project Design, defined against the research aims, regional and national research frameworks, specialist advice and the significance of the project results. • The project will be published as an online technical report (accessible via RCAHMW and as part of this archive), with full access to research data. • The data archive will be ordered, with files named and structured in a logical manner, and accompanied by relevant documentation and metadata, as outlined in Sections 2 and 3 of this DMP. • Deselection will be undertaken automatically on any duplicate or unusable files, such as blurry or superfluous photographs. |
| What is the long-term preservation plan for the dataset? |
| <ul style="list-style-type: none"> • The digital archive will be deposited with the RCAHMW, which is working towards becoming a certified repository with Core Trust Seal. • The archive will be prepared for deposition by the project team and the costs for the time needed for preparation, and the cost of deposition have been included in the project budget. |
| Have you contacted the data repository? |
| <ul style="list-style-type: none"> • AW has an ongoing agreement with the RCAHMW who the intended repository for digital data are. |
| Have the costs of archiving been fully considered? |
| <ul style="list-style-type: none"> • A costing estimate has been produced to allow for the preparation of the archive and has been included in the project budget. |

Section 7: Data Sharing

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| How will you share the data and make it accessible? |
| <ul style="list-style-type: none"> • The museum and digital archive repository and will be updated as the project progresses. • The investigations have resulted in the following documents: Project Design, Archaeological Monitoring and Recording Report • A final version of the project report will be supplied to the Historic Environment Record, and any data which they request can also be provided directly. • The location (s) of the final Archaeological Archive will be included in the final report |
| Are any restrictions on data sharing required? |
| <ul style="list-style-type: none"> • A temporary embargo may be required on the sharing of the project results. If this is the case, specific details once agreed will be included in the updated version of this DMP and will be documented in the overarching Project Collection Metadata. • Data specific requirements, ethical issues or embargos which are linked to particular data formats will be documented within the relevant metadata tables accompanying the project archive |

Section 8: Responsibilities

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| Who will be responsible for implementing the data management plan? |
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- The Project Manager and Post Excavation Manager will be responsible for implementing the DMP, and ensuring it is reviewed and revised at each stage of the project.
- Data capture, metadata production and data quality is the responsibility of the Project Team, assured by the Project Manager and Post Excavation Manager.
- Storage and backup of data in the field is the responsibility of the field team.
- Once data is incorporated into the organisations project server, storage and backup is managed by an external company.
- Data archiving is undertaken by the project team under the guidance of the Post Excavation Manager, who is responsible for the transfer of the Archaeological Project Archive to the agreed repository.
- Details of the core project team can be found in the Project Design.

