



Tuckingmill fish trap and weir, Canworthy Water, Cornwall

Archaeological Survey and Watching Brief



Report No

2011R090

Report Name

Tuckingmill fish trap and weir, Cornwall

Report Author

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Event Type

Archaeological Survey

Watching Brief

Client Organisation

Environment Agency

Client Contact

Lesley Newport

Fieldwork dates (From) (To)

04/08/2011

17/08/2011

(Created By)

Francis Shepherd

(Create Date)

31/08/2011

Location (postal address; or general location and parish)

Tuckingmill Weir, Canworthy Water, Launceston

(Easting) X co-ord

SX 21553

(Northing) Y co-ord

91683

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Historic Environment, Cornwall Council is a Registered Organisation with the Institute for Archaeologists

Project background

Tuckingmill weir is located on the River Ottery to the north-west of Launceston and 0.8km west of Canworthy Water at NGR SX 21553 91683. The weir is shown on the First Edition OS map of c1880 (Fig 4) and an earlier leat, probably associated with a former mill, is shown on the Tithe map of c1840 (Fig 6). Historic Environment Projects, Cornwall Council were commissioned by the Environment Agency to undertake an historic building record of the weir and fish trap prior to structural alterations to create a new fish pass. HE Projects were also commissioned to carry out a watching brief during the groundworks.

Aims and objectives

The principal aim of the study was to gain a better understanding of the historic development and function of the existing structure and any archaeological features uncovered during the alteration works. The objectives were to obtain an archaeological record of the site prior to and during the alterations.

Working methods

The archaeological watching brief and survey were carried out according to the methodology set out in the Written Scheme of Investigation (WSI) for the work (Sturgess. 2011, see Appendix 1)

Fieldwork

HE Projects first visited the site on Thursday the fourth of August 2011. An archaeological survey was carried out and a photographic record made. HE Projects returned to the site on Wednesday the 17th to carry out a watching brief on the removal of a section of the weir.

Fieldwork: survey results

The fish trap had been constructed from concrete using a shutter pour method (Fig 8) and is likely to date from the late 20th century. It seems probable that the concrete was mixed and poured on site and the fish trap constructed in stages with the shuttering being created on the concrete poured previously. Remains of timber likely to be remnant shuttering were recorded during the watching brief (Fig 9). Concrete filled sandbags were noted on the inside bend of the structure (Section 1 Fig 15) and it seems likely that these were used to stabilise the banks prior to the construction of the shuttering.

The trap comprised a concrete-lined channel with a metal cage inserted part way along. A central 'island' had been created from concrete and seemed to have served as a working area (Fig 7). This structure which had borne the brunt of the river flow was in a severe state of disrepair.

The weir is shown on the First Edition of the c1880 OS map and significantly pre-dates the fish trap though no evidence of this original structure was identified. The current weir is concrete faced with a concrete beam running along its upstream edge. Into this beam have been inserted metal pins (Fig 10) that acted as fixtures for metal grilles that were placed along its length to prevent fish escaping the trap by leaping the weir (Terry Gilbert pers comm). The rusted remains of these grilles were recovered from the weir pool when it was drained and the weir over-pumped to allow the works to take place. The beam continues into the woodland beyond the river and is associated with a clay lined culvert that links a drainage ditch to the river (Figs 16 and 17).

One of the purposes of the archaeological survey was to identify any possible remains of the former mill leat that is shown on both editions of the OS mapping and on the Warbstow 1840 Tithe map (Figs 3, 4 and 5) linking the weir with Tuckingmill. The drainage ditch mentioned above is on the southern side of the river and seems to be acting as a field drain. Its fall runs towards the river, contrary to that required for the mill leat, and no evidence of it continues out of the patch of scrub into the adjacent field to the west. What appears to be relatively modern clay lined culvert (5 metres long)

links the eastern end of the ditch to an outflow approximately 10m downstream from the weir. It seems unlikely that the culvert is part of the leat: most likely it was inserted during the fish trap construction works. It seems unusual that the leat would be found upstream of the weir. Most often a leat would run to one side of the river branching from the weir itself (Watts 2002). If this drainage ditch is a part of the leat then the re-engineering of the weir must have been substantial.

Fieldwork: photographic recording

A photographic record was made using black and white photographs using 35mm fine grain archive quality film. Supporting colour photographs were taken with a 10MP digital camera.

The photo record comprised of general views and examples of structural and architectural detail, these images have been catalogued and stored by HE Projects.

Watching brief

The archaeologist was present during the groundworks required to alter the gradient of an area of the weir adjacent to the southern bank. The concrete 'island' (see above) of the fish trap was removed following safety concerns as its structural integrity was found to be significantly compromised when the river was over-pumped and the area around its foundations drained. This area was then capped with a thin layer of concrete to create a safe working environment.

A section of the weir was cut by the site contractors using a petrol-powered disc cutter and then broken up using a pneumatic breaker fitted to a wheeled excavator. The revealed sections were then photographed and recorded at 1:10 using 4H pencil and drafting film. These sections were subsequently archived, digitised and included below (Figs 13, 14 and 15).

Section 1 (Fig 15) revealed a reinforced bank that had been secured using sandbags filled with cement/concrete. On top of this a prefabricated platform had been placed and the front face had been finished using the shutter pour method mentioned above. The concrete beam running along the back of the weir was recorded forming the eastern face of the return.

In section 2 concrete with occasional shillet fragments were found down to the full extent of the excavation (0.85m deep). Occasional cobbles were found closer to the base though these were sporadic and could not be considered a different layer. The concrete beam that lay along the back of the weir (see above) was found to continue below the maximum depth of the excavation running out of section 2 (Fig 14) and recorded in section 1 (Fig 15) before disappearing into the bank to the north. The base of the cut was predominantly shillet but at one point a second concrete area of was also encountered (Fig 15). This area of concrete (0.6m wide) extended out from the face of the cut and appeared to continue north under the remains of the demolished fish trap in a similar manner to the beam mentioned above.

No other archaeological features or finds were encountered during the watching brief.

Discussion

The concrete weir at Tuckingmill and the associated fish trap appear to have both been constructed at the same time probably during the late 1960s or early 1970s (Terry Gilbert pers comm). The method of construction would support this assertion. This structure has largely been demolished as part of the improvement works though where possible the concrete retaining walls along the banks have remained untouched.

It seems likely that much of the weir was re-engineered during construction of the fish trap. This was not a cobble weir that had been simply capped, as is evidenced by the depth of concrete used. It is possible that some of the original weir structure remains below the concrete but the depth of construction did not warrant further investigation.

It is possible that the drainage ditch found in the scrubland to the south of the river and east of the weir is a small section of the mill leat. This was unaffected by the development.

References

- Sturgess J,C, 2011. *Tuckingmill fish trap and weir: Written Scheme of Investigation for an historic building record and archaeological watching brief*. 21/7/2011, HE Projects, Truro
- Velterop, R, 2010. *Tuckingmill Fish Trap and Weir Fish Pass Options Report*. Haskoning uk Ltd, Exeter
- Watts, M, 2002. *The Archaeology of Mills and Milling*. Tempus Publishing, Stroud, Gloucestershire

Project archive

The HE project number is **2011070**

The project's documentary, photographic and drawn archive is housed at the offices of Historic Environment, Cornwall Council, Kennall Building, Old County Hall, Station Road, Truro, TR1 3AY. The contents of this archive are as listed below:

1. A project file containing site records and notes, project correspondence and administration.
2. Field plans and copies of historic maps stored in an A2-size plastic envelope (GRE 758).
3. Electronic drawings stored in the directory ..\CAD ARCHIVE\SitesT\Tuckingmill fish trap and weir, River Ottery 2011107
4. Black and white photographs archived under the following index numbers: GBP 2200
5. Digital photographs stored in the directory ..\Images\Sites.Q-T\Tuckingmill fish trap and weir, River Ottery 2011107
6. English Heritage/ADS OASIS online reference: cornwall2-110055

This report text is held in digital form as: \Historic Environment (Documents)\HE Projects\Sites\Sites T\Tuckingmill fish trap and weir, River Ottery 2011\Tuckingmill fish trap and weir Report final.doc

Appendix 1

Historic Environment Projects
Cornwall Council

Tuckingmill fish trap and weir: Written Scheme of Investigation for an historic building record and archaeological watching brief

Client: The Environment Agency
Client contact: Lesley Newport
Client tel: 01208 265445
Client email: lesley.newport@environment-agency.gov.uk

Site history and project background

Tuckingmill weir is located on the River Ottery to the north-west of Launceston and 0.8km west of Canworthy Water at NGR SX 21553 91683. The weir is shown on the First Edition OS map of c1880 and an earlier leat, probably associated with a former mill, is shown on the Tithe map of c1840. Historic Environment Projects, Cornwall Council were commissioned by the Environment Agency to undertake an historic building record of the weir and fish trap prior to structural alterations to create a new fish pass. HE Project were also commissioned to carry out a watching brief during the groundworks.

Project extent

The project area includes the existing weir and fish trap including its immediate surroundings and areas affected by the proposed works.

Aims and objectives

The principal aim of the study is to gain a better understanding of the historic development and function of the existing structure and any archaeological features uncovered during groundworks. The objectives are to obtain an archaeological record of the site prior to and during alterations.

Working methods

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

Fieldwork: survey

Archaeological recording will include architectural features and details of sub-surface elements. Measured information and detail, as appropriate, will be added to copies of existing contractors drawings (supplied to HE by the client).

Fieldwork: description

Analysis of the fabric will be undertaken on site (recorded as notes) to allow a description to be written up at the archive stage.

Fieldwork: photographic recording

To include:

1. Black and white photographs using a 35mm camera on fine grain archive quality film.
2. Supporting colour photographs taken with a digital camera (with a resolution of 5MP or higher), to be used to illustrate the report and for possible presentation purposes.

The photo record will comprise:

- general views
- examples of structural and architectural detail

Methodology for the archive standard photography is set out as follows:

- Photographs of details will be taken with lenses of appropriate focal length
- Difficulties of back-lighting will be dealt with where necessary by balancing the lighting by the use of flash
- A metric scale will be included in all views, except where health and safety considerations make this impractical

Watching brief

The archaeologist shall be present during any groundworks where there is a likelihood that historic material will be disturbed. Any surviving remains which will be disturbed or destroyed shall be archaeologically excavated and recorded.

Recording methodology - general

- Site drawings (plans, sections, locations of finds) will be made by pencil (4H) on drafting film; all plans will be linked to the Ordnance Survey landline map; all drawings will include standard information: site details, personnel, date, scale, north-point.
- Plans and sections will be made of significant features, at an appropriate scale (preferably 1:20 or 1:10).
- All trench areas will be accurately located on a site location plan at an appropriate scale.
- All finds from significant stratified contexts will be collected and recorded.
- All archaeological contexts will be described to a standard format linked to a continuous numbering sequence. All contexts recorded will be recorded via the medium of HE pro forma context recording sheets.
- Registers of drawings, photographs, finds, samples and contexts will be maintained during the fieldwork.
- The excavated spoil will be carefully inspected for finds.

Creation of site archive

To include:

- Archiving of black and white photographs to HER standards. All monochrome photographs will be archived using the HE photo database
- Digital colour photographs (stored according to HER guidelines and copies of images made available to the client)
- A detailed site/building description
- Preparation of finished drawings
- Completion of the English Heritage/ADS OASIS online archive index

Archive report

A written report will include:

- Project background
- Aims and objectives
- Methodology
- Brief building description
- Results of watching brief
- Conclusions

- References
- Project archive index
- Supporting illustrations: location map, selected photographs

A paper copy and a digital (PDF) copy of the report, illustrations and any other files will be held in the Cornwall HER. Paper copies of the report will be distributed to the client, to local archives and national archaeological record centres.

Archive deposition

An index to the site archive will be created and the archive contents prepared for long term storage, in accordance with HE standards.

The archiving will comprise the following:

1. All correspondence relating to the project, the WSI, a single paper copy of the report together with an electronic copy on CD, stored in an archive standard (acid-free) documentation box
2. A2 drawn archive storage (plastic wallets for the annotated record drawings)
3. Archive standard negative holders and archive print holders, to be stored in the HES system until transferred to the Royal Cornwall Museum.
4. The project archive will be deposited initially at ReStore PLC, Liskeard and in due course (when space permits) at Cornwall Record Office.

Timetable

The study is anticipated to be commenced during August 2011.

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

Historic Environment Projects

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

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

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



Standards

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

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

Terms and conditions

Contract

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

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

Project staff

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

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

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

Joanna Sturgess BA

Archaeologist with HE, with a wide range of experience in recording historic buildings, landscapes, excavation and post-excavation. Past historic building works have included Cutmadoc Farmhouse, Lanhydrock; City Wharf, Truro; Harvey's Foundry, Hayle; Boswednack Serpentine works, Porthmeor farm and various mining sites. Other projects include Gwithian's past excavations, Lemon Quay excavation, Goonhilly Earth Station survey, Lower Boscaswell and Treveassa in West Penwith landscape surveys. Expertise includes archaeological use of CAD software and survey.

Nigel Thomas BA MIFA

Senior Archaeologist responsible for management of projects relating to historic building recording and surveys of historic landscapes. Past work has included recording and structural analysis at Launceston and Restormel Castles, medieval chapels at Rame, Bodmin and Hall (Bodinnick), as well as landscape surveys at Lanhydrock park and Godolphin gardens. Project manager for historic building analyses at Tintagel Old Post Office, Cotehele House, St Michael's Mount summit complex and Trerice for the National Trust. Project team leader for the Lostwithiel Town Characterisation Study. Member of the IfA Buildings Group and Survey and Illustration Group.

Sean Taylor BA AIFA

Archaeologist with HE, with a range of experience in undertaking archaeological assessments, excavations, evaluations, and watching briefs, and also landscape surveys. Also some experience in recording historic buildings. Past projects include supervising the Mitchell to Newlyn East SWW watching brief, and the Tremough, Scarcewater, and Tregony excavations. A large number of assessments have been carried out on road schemes, SWW pipelines, and various smaller projects. Landscape surveys include six assessments on the Lizard as part of the HEATH project and a number of surveys for the National Trust. Experienced user of AutoCAD, GIS, and EDM survey equipment. Holder of a CSCS card and qualified first aider.

Report distribution

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

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

Copyright

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

Use of the material will be granted to the client.

Freedom of Information Act

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

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

Health and safety statement

HE follows the Council's *Statement of Safety Policy*. For more specific policy and guidelines HE uses the manual *Health and Safety in Field Archaeology* (2002) endorsed by the Standing Conference of Archaeological Unit Managers.

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

Insurance

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

Jo Sturgess

Archaeologist

22/7/2011

Historic Environment Projects

Cornwall Council

Allen Building, Old County Hall,

Station Road,

Truro, Cornwall. TR1 3AY



Fig 1 Location of Tuckingmill Weir

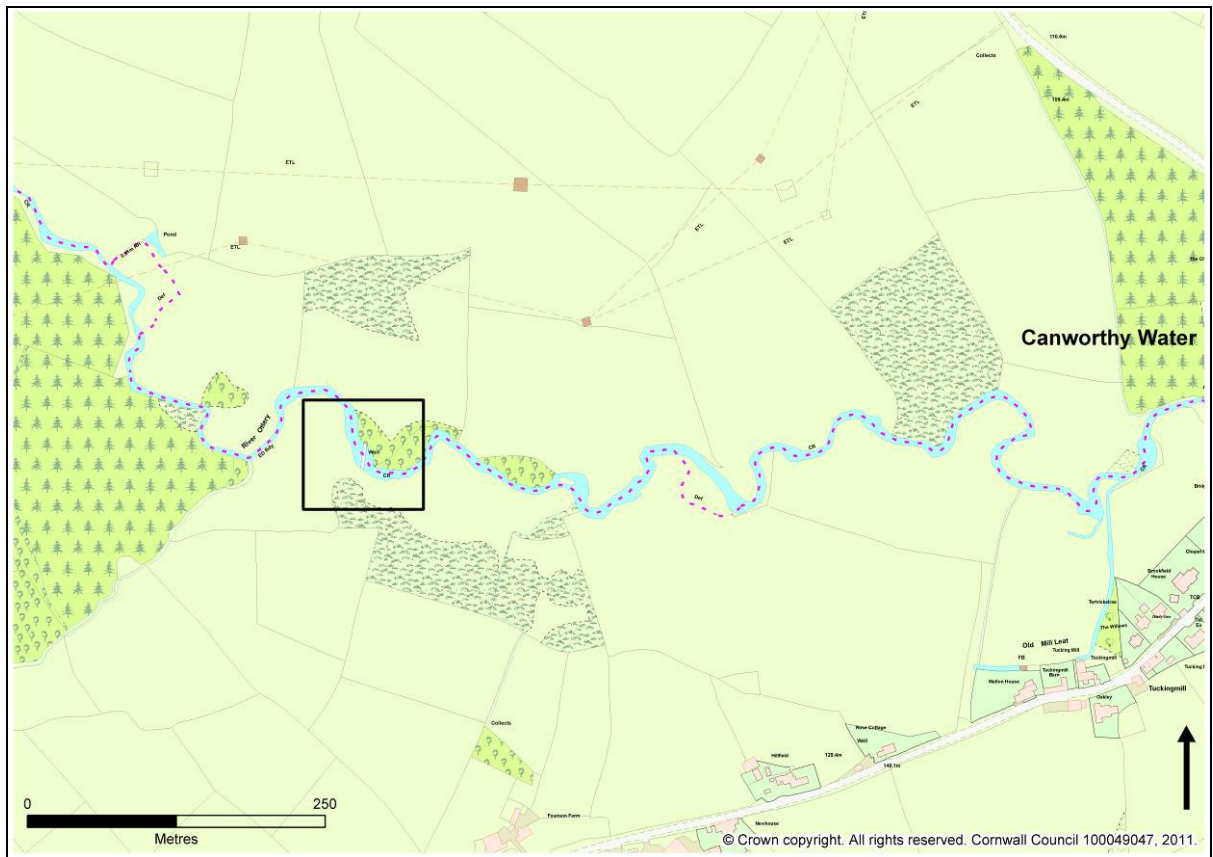


Fig 2 Ordnance survey digital mapping showing the site and its environs (2011)

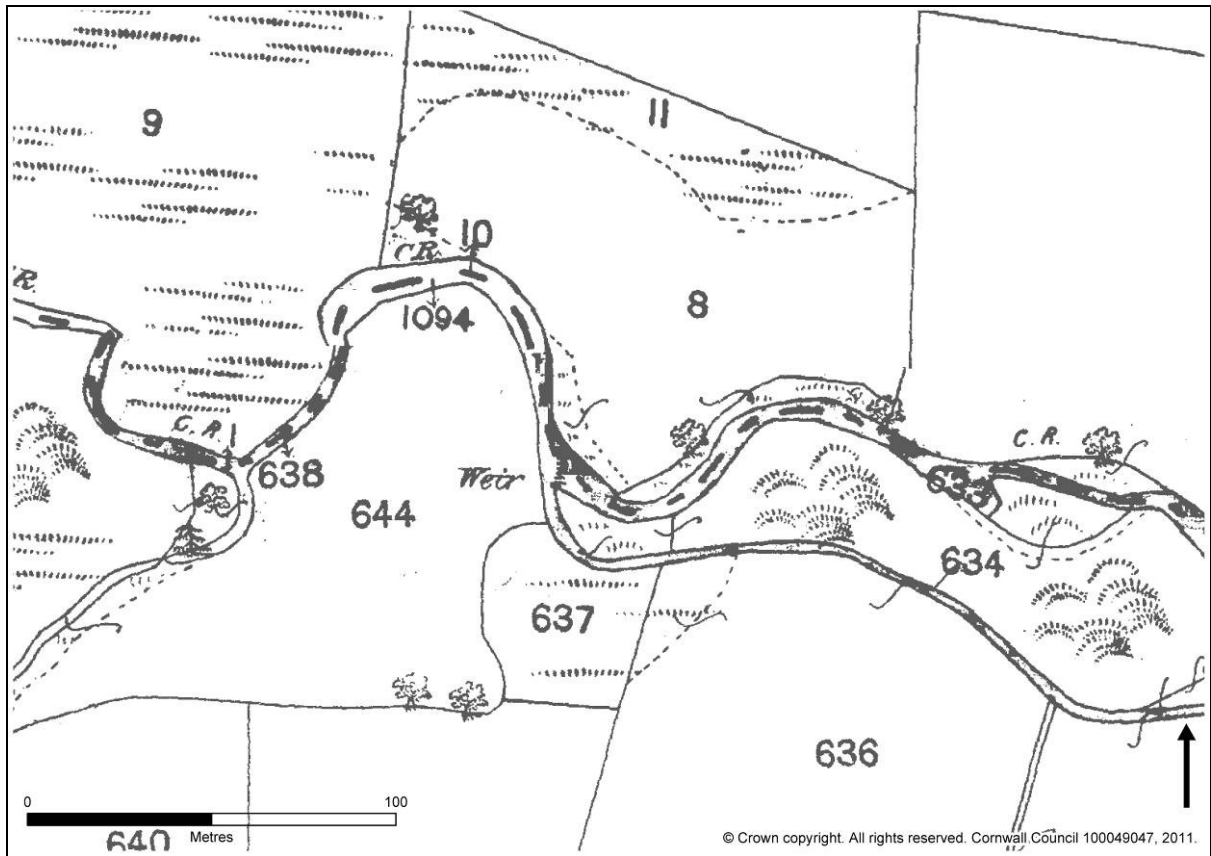


Fig 3 Detail from the Second Edition of the Ordnance Survey 25 Inch Map, c1907 showing Mill Leat and Weir

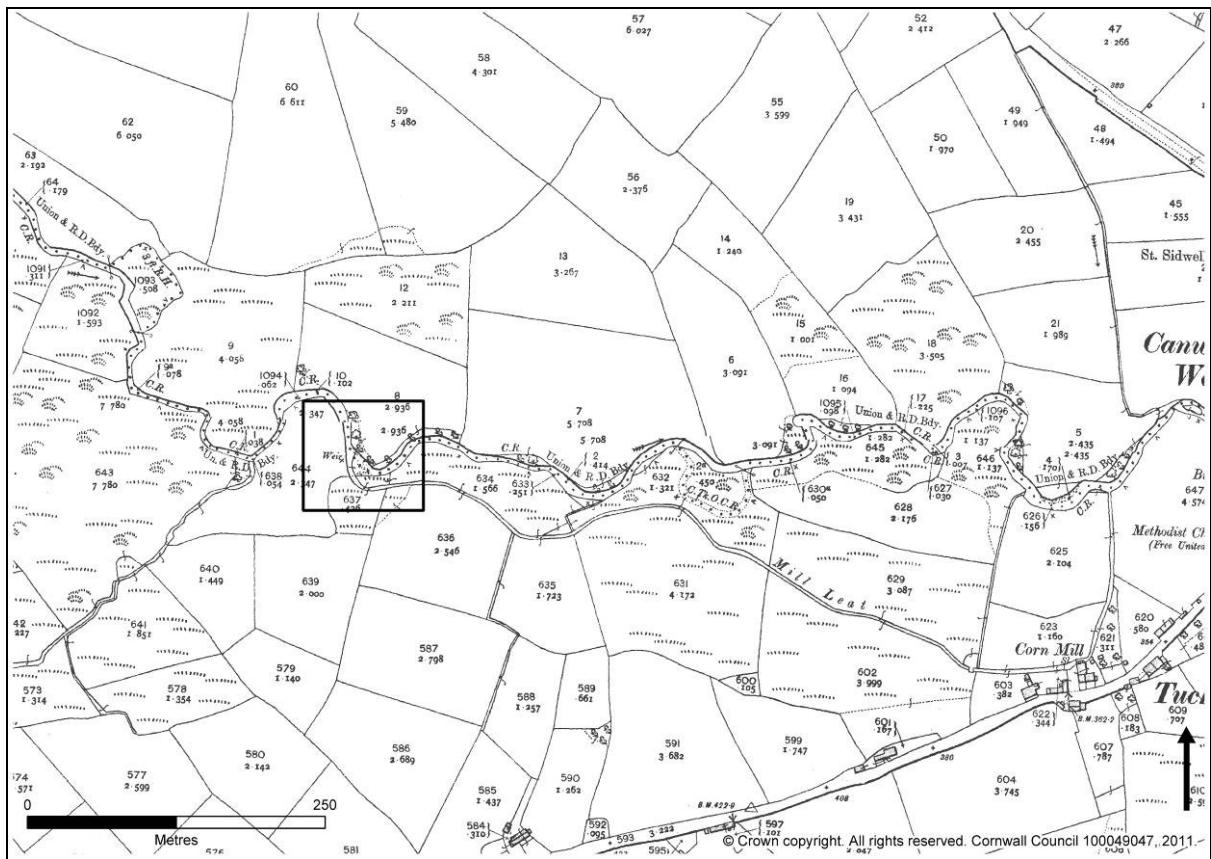


Fig 4 First Edition of the Ordnance Survey 25 Inch Map, c1880

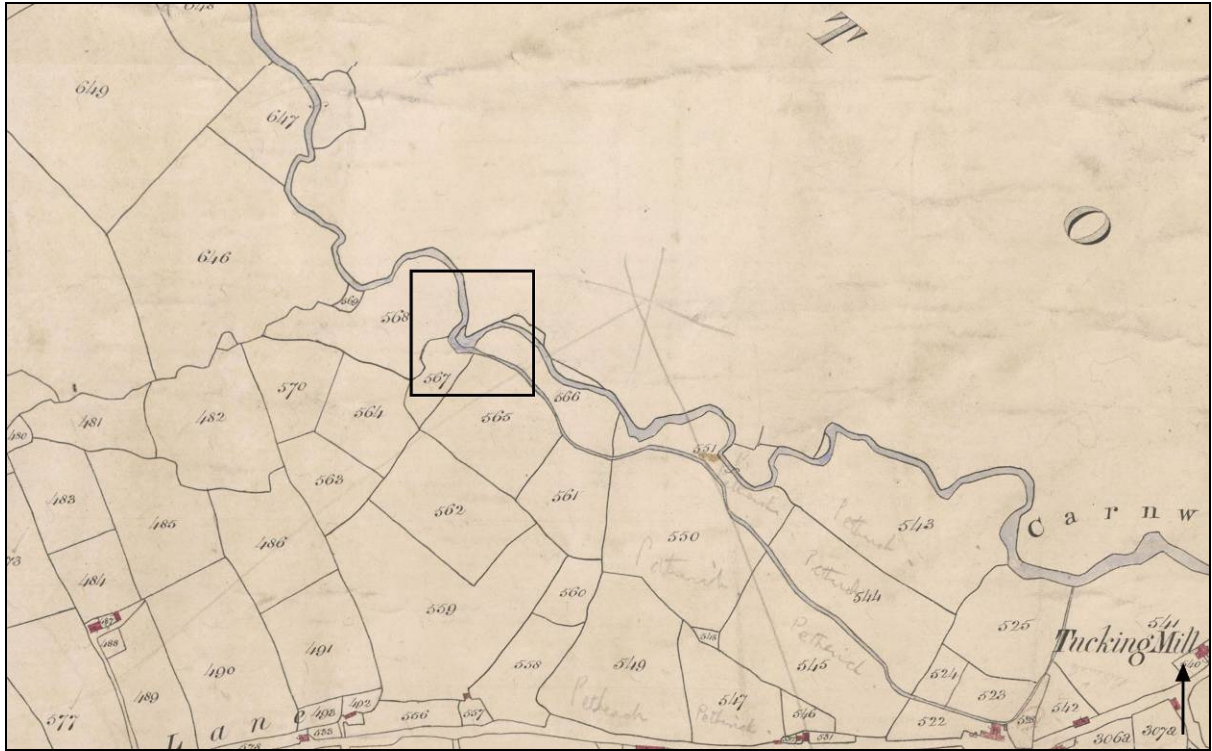


Fig 5 Detail from the 1840 Tithe Award Map for the parish of Warbstow



Fig 6 Tuckingmill weir



Fig 7 *Tuckingmill fish trap*



Fig 8 *Detail of shutter pour wall construction*



Fig 9 Remains of timber at the wall base



Fig 10 Hooks for mesh work along the concrete beam

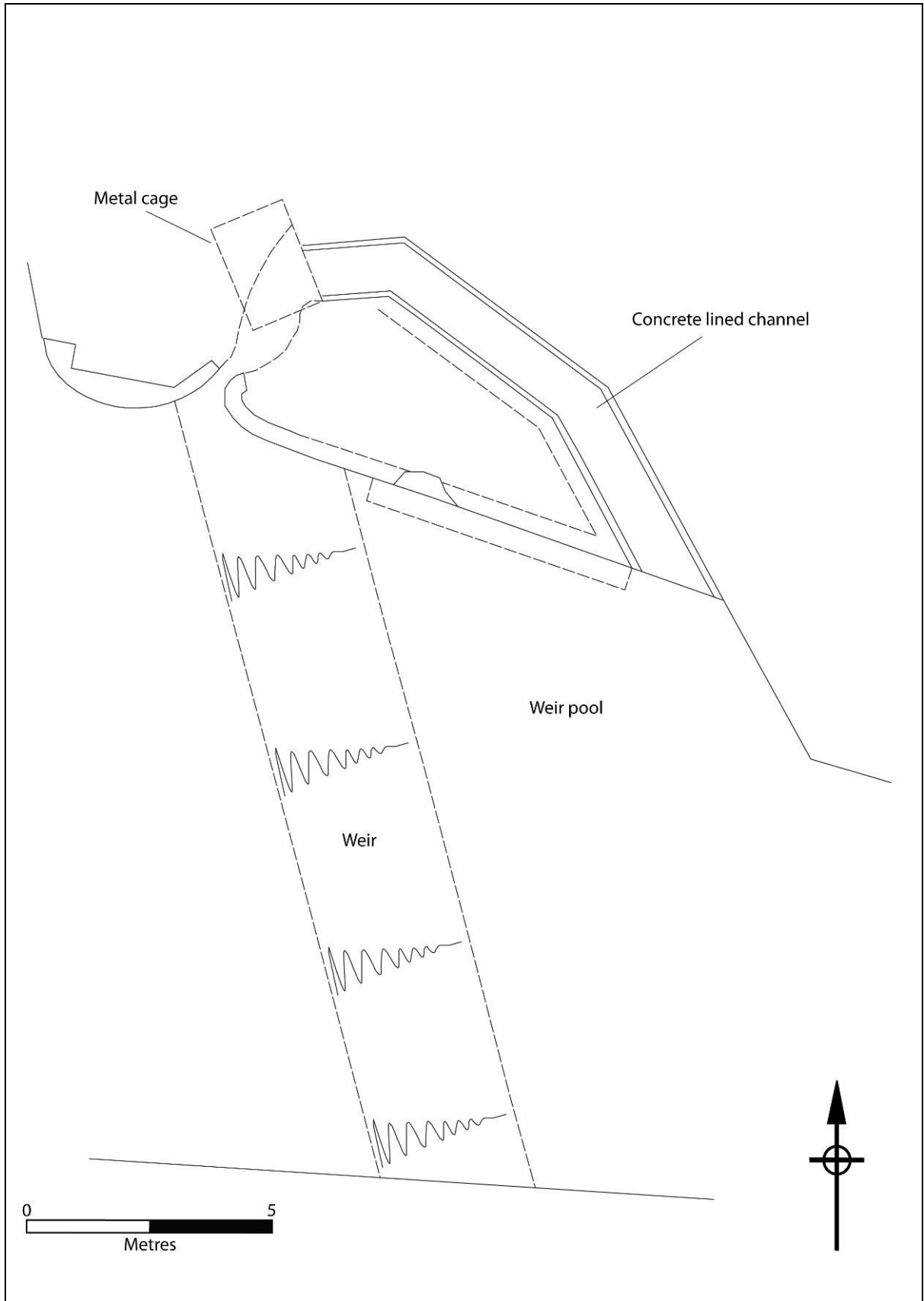


Fig 11 Pre-excitation plan of the weir adapted from 'Tuckingmill_existing plan.dwg' supplied by the Environment Agency 08/2011

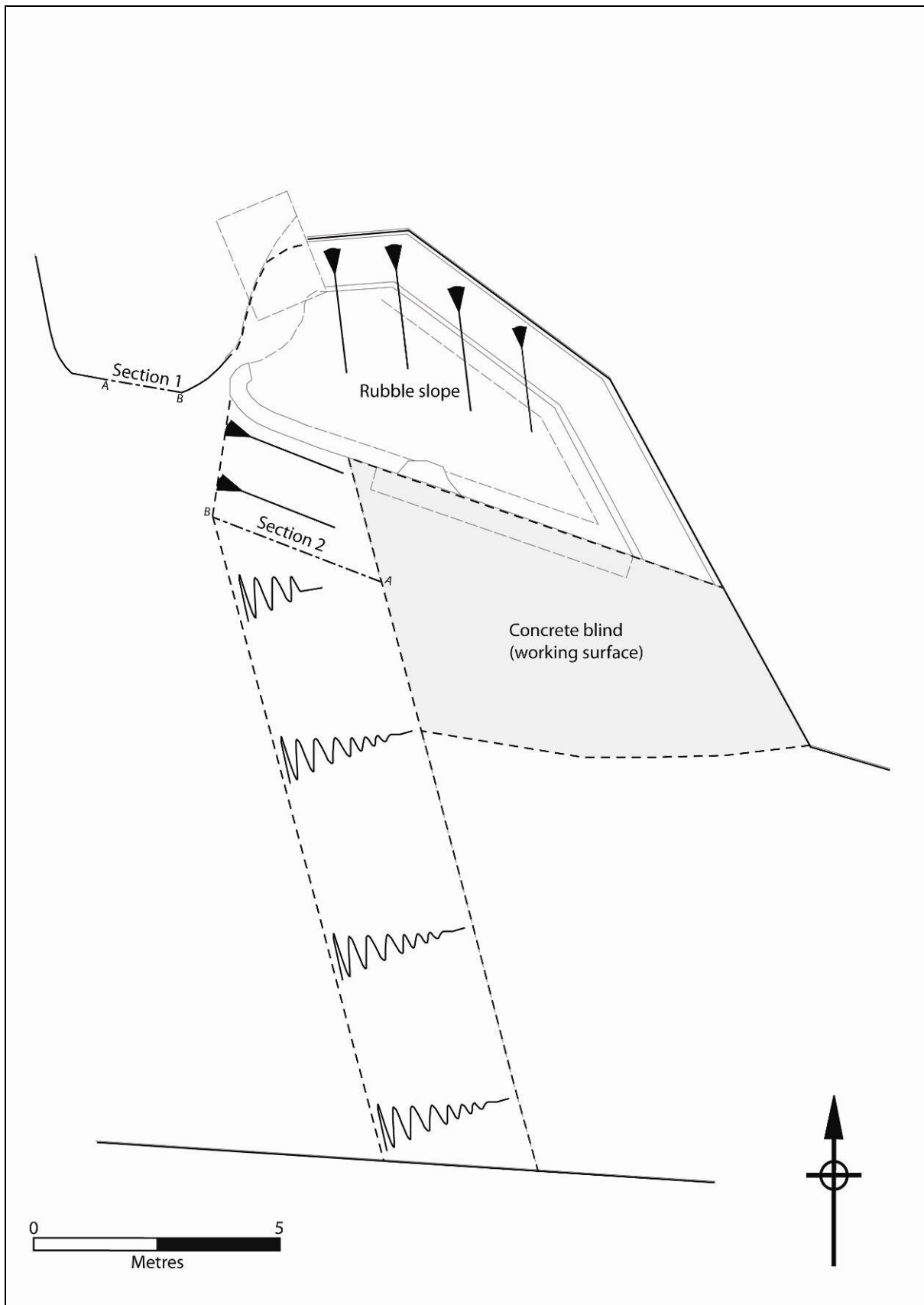


Fig 12 Post-excitation plan of the weir adapted from 'Tuckingmill_existing plan.dwg' supplied by the Environment Agency 08/2011

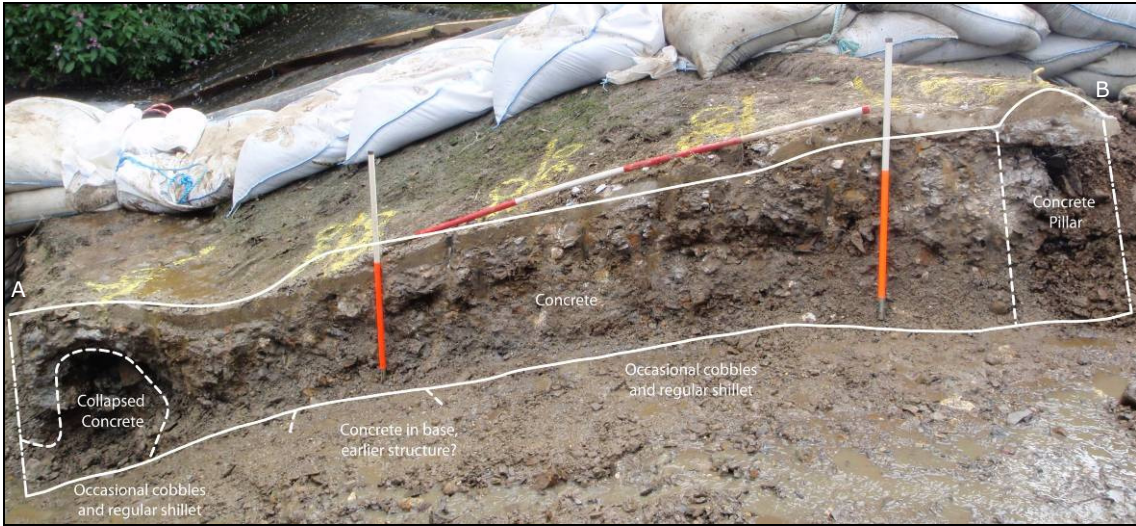


Fig 13 Section 2 overlain

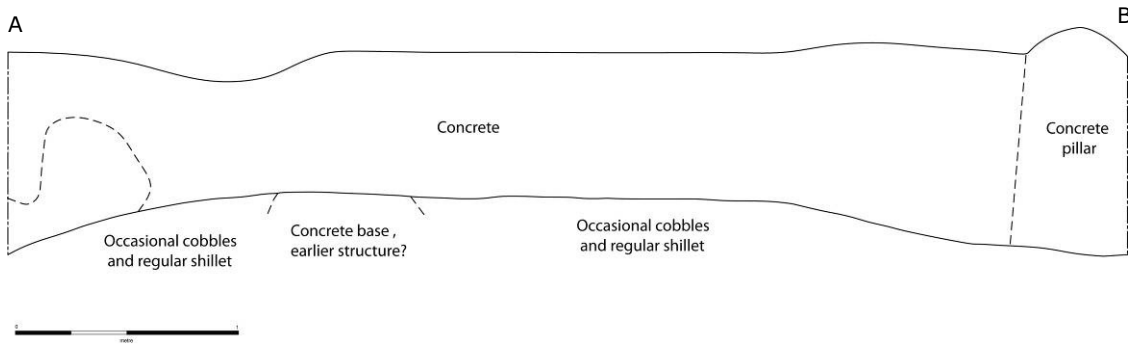


Fig 14 Section 2

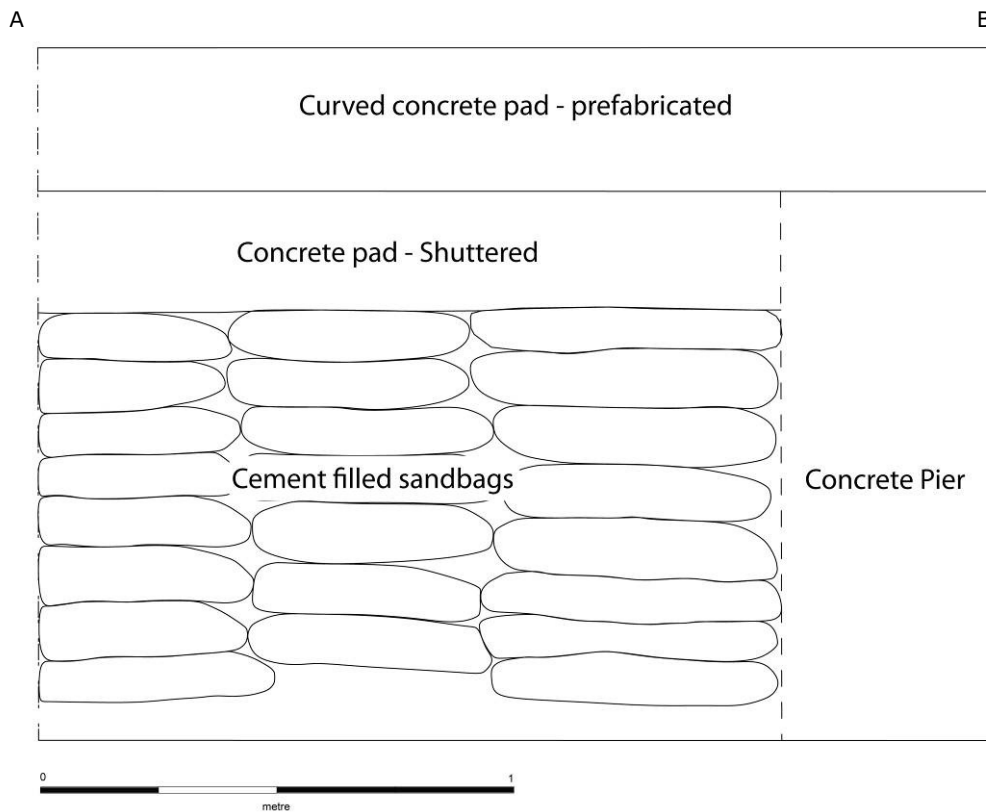


Fig 15 Section 1



Fig 16 *Culvert from the north west*



Fig 17 *Culvert from the south east*