

# CFA Archaeology Ltd

*archaeological consultants*

*Advice on Archaeology & Planning*

*Environmental Impact Assessment*

*Interpretation, Design & Display*

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*Field Evaluation & Excavation*

*Historic Building Recording*


*Site & Landscape Survey*


*Geophysical Survey*

## **Greenhouse 1 Drainage System, Newhailes Estate, Musselburgh**

### **Archaeological Watching Brief**

**Report No. 3331**

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Commissioned by	The National Trust for Scotland
Date issued	October 2015
Version	1
OASIS Reference	cfaarcha1-226282
Grid Ref	NT 325 724

This document has been prepared in accordance with CFA Archaeology Ltd standard operating procedures.

**Greenhouse 1 Drainage System,  
Newhailes Estate,  
Musselburgh**

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## **Illustrations (bound at rear)**

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Fig. 2 Plan of drainage trench on northern side of greenhouse

Fig. 3 Photograph of drainage trench on northern side of greenhouse, from west

Fig. 4 Photograph of drainage trench on southern side of greenhouse, from east

## **1. INTRODUCTION**

### **1.1 General**

This report presents the results of an archaeological watching brief carried out by CFA Archaeology Ltd (CFA) between June and September 2015 during the installation of a new drainage system within the grounds of Newhailes Estate, Musselburgh. The work was commissioned by The National Trust for Scotland (NTS).

### **1.2 Background**

Newhailes House and its associated estate grounds can be originally traced back to the 17<sup>th</sup> Century when the estate, at the time called Whitehill, was purchased by architect James Smith. Smith constructed the estate house in a Palladian Villa Style, before falling into financial trouble at the turn of the 18<sup>th</sup> Century. In 1709 the estate was sold to the Sir David Dalrymple, 1<sup>st</sup> Baronet of Hailes, and the estate was hence renamed Newhailes.

Newhailes Estate was owned and inhabited by successive generations of the Dalrymple family until 1971 when Mark Dalrymple died without an heir. Lady Antonia, Mark Dalrymple's widow resided in the house until 1997, when the estate was taken over by NTS. During this time, the grounds were subject to multiple different uses of land, including a curling pond, horse fields and a mink fur farm.

NTS has recently embarked upon a suite of conservation work within the grounds of the estate including archaeological excavations in the flower garden and walled kitchen garden; restoration works on the estate ha-ha wall; restoration of historical brickwork and buildings within the grounds; and the installation of the below ground drain, connecting Greenhouse 1, adjacent to the kitchen garden on the west side of the estate house, to an existing drain inspection chamber. The excavation of this drain was monitored by the watching brief which is the subject of this report.

### **1.3 Objectives**

The objectives of the project were:

- To establish the presence/absence, extent, condition, character, quality and date of any archaeological features or deposits within the proposed development area through an archaeological watching brief during ground breaking works
- To establish the vulnerability of any archaeological features to the proposed development
- To propose mitigation measures where appropriate to avoid, reduce or offset any predicted negative impacts on the archaeological resource.

## **2. WORKING METHODS**

Work was conducted with regard to the relevant Chartered Institute for Archaeologists' (CIfA) Standards and Guidance.

Four adjoining foundation trenches were excavated across an 8m by 6.5m area on the southern side of the property (Fig. 2). The trenches were excavated under constant archaeological supervision, using a mechanical excavator fitted with a smooth-bladed ditching bucket. Any archaeologically significant remains encountered were to be hand excavated.

## **3. ARCHAEOLOGICAL RESULTS**

### **3.1 General**

The greenhouse to be drained was aligned west to east, and is currently subject to restorative works. The ground cover in the area under excavation varied from re-deposited silty turf topsoil and paving slabs around the greenhouses, to levelled grass lawn further northeast.

Trenches were excavated for drainage along the length of the northern and southern elevations of the greenhouse. At the eastern gable of the greenhouse, the trenches converged on a single drain trench which ran for c.35m to meet an existing storm drain inspection chamber to the east-north-east (Fig 1).

### **3.2 Watching Brief**

The trench running along the southern elevation of the greenhouse was hand excavated to a depth of 0.1m, through re-deposited topsoil (**003**). No archaeological remains were discovered (Fig. 4).

Along the northern elevation of the greenhouse, the drainage trench was 0.8m deep at its north-western end, increasing to 1.5m in depth at the point where the two trenches converged at the southeast gable. This trench was excavated through 0.15m to 0.3m of re-deposited topsoil (**003**), overlying 0.3m to 0.4m of dark brown/black silty sand (**002**) which contained brick fragments, rubble and glass. This deposit overlay 0.3m of dark brown/green sandy clay subsoil (**001**). Towards the eastern end of the trench, near the convergence point, beige/orange gravelly clay natural (**000**) was revealed at a depth of 1.0m.

Three features (Figs. 2-3) were discovered in the trench along the northern glasshouse elevation, all of which were related to the greenhouse and associated drainage visible on the surface outwith the trench under watching brief. A concrete surface (**007**) was discovered close to the western end of the trench cut into silty sand (**002**) and overlying subsoil (**001**). A modern drainage inspection chamber was visible on the surface immediately adjacent, and given their proximity it is likely these are related, with the concrete surface being a form of foundation for the inspection chamber.

Around halfway along the northern elevation of the greenhouse, a glazed ceramic water pipe exits the greenhouse northwards and passes into overburden layer (003) after c.1m. The pipe (006) was encountered bisecting the watching brief trench 0.2m below the ground surface. The pipe was c. 0.2m in diameter, and was fortified by a surrounding deposit of mixed dark grey clay and building rubble (004) and a brick passage (005), cut into now topsoil deposit (002). The pipe was left in situ as the new drainage pipe passed underneath.

Near the north-eastern corner of the greenhouse, a small corner section of brick wall (008) was discovered cut into subsoil (001), overlying the natural. Four courses were visible. This was probably the foundations for a small outhouse or buttress on the elevation of the upstanding greenhouse, which was ruined but visible on the surface.

Southeast from the convergence point of the two trenches along the lawn to the existing storm drain, the trench was excavated through 0.1m of dark brown/black silty turf (009) and grass overlying 1.5 to 1.8 metres of mixed rubble and silty sand (010), containing modern debris, rubble, plastic drainage pipes and pea gravel at all levels; natural was not attained in this segment of the trench. No further archaeological remains were discovered.

#### 4. CONCLUSIONS

A watching brief was carried out during the installation of a new drain for Greenhouse 1, within the grounds of Newhailes Estate, East Lothian. A concrete surface, cast iron water pipe and small corner section of brick wall were discovered. These were all associated with the drainage or construction of the adjacent upstanding greenhouse due to continuations of these features seen on the surface outwith the trench. No other archaeological remains were discovered; the remainder of the trench was excavated through modern backfill and sterile subsoil deposits.

The project archive, comprising all CFA record sheets, maps and reports will be deposited with the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) and copies of reports will be lodged with the East Lothian Council Sites and Monuments Record.

A summary statement of the results from this project will be submitted for publication in *Discovery and Excavation in Scotland*. An online OASIS entry will also be completed.

## APPENDIX 1: Context Register

Context	Description
000	Light brown/orange sandy clay natural
001	Dark greenish brown sandy clay subsoil
002	Mixed silty sand buried topsoil with brick, rubble and glass inclusion
003	Dark grey/brown silty sand overburden containing numerous loose bricks and modern debris
004	Packing material around water pipe comprising mixed clay, rubble and iron fragments
005	Brick channel surrounding water pipe
006	12cm diameter cast iron water pipe running northeast from greenhouse
007	Concrete surface related to modern culvert
008	Small corner section of brick wall, part of greenhouse foundations
009	Turf and grass upper layer of lawn
010	Modern and mixed rubble/dark brown/black silty sand

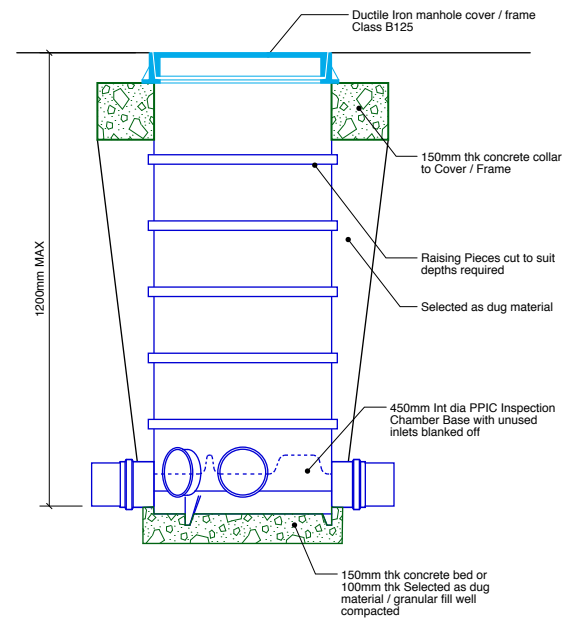
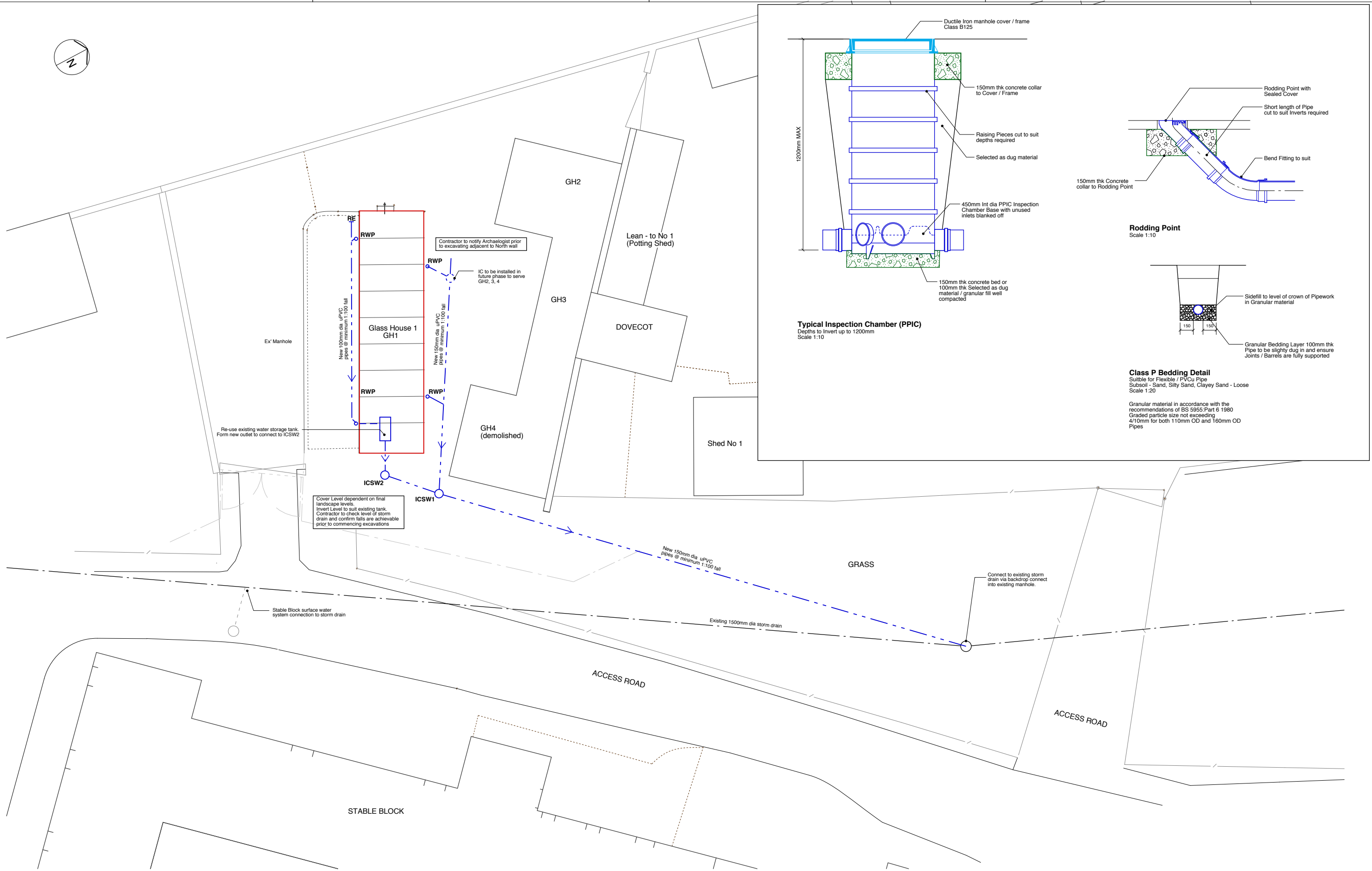
## APPENDIX 2: Photographic Register

Shot No.	Summary description of subject	Taken from
1-4	General shots of area marked out, pre-excavation	Various
5	Working shot excavating trench	NW
6	Working shot excavating trench	NW
7	Excavated trench on NE side of greenhouse	NW
8-9	Oblique shot of section showing pipe 006 crossing trench	SE
10-11	General shot of pipe 006 crossing trench	SW
12	General shot of pipe 006 crossing trench	SW
13	Plan shot of pipe 006 crossing trench	SE
14-15	General shot of small ruined drainage building showing exposed foundation 008	SE
16-17	General shot of exposed foundation 008	SE
18	Section of modern plastic perforated pipe discovered in NW-SE section of trench	NW
19	Shallow hand-excavated trench along SW wall of greenhouse	SW
20	Modern gravel backfill/disturbance in NW-SE section of trench	W
21	Excavation in progress, NW to SE section of trench	NW
22	Modern concrete surface within modern debris layer 012	NE
23	Segment of NW-SE segment of trench post excavation, west of wooden fence	NW
24	Segment of NW-SE segment of trench post excavation, west of wooden fence	NW
25	Segment of NW-SE segment of trench post excavation, west of wooden fence	N
26-27	Large blocks of rubble within modern debris layer 012	W-N
28	Excavating through rubble SE of wooden fence	N
29	Excavating through rubble SE of wooden fence	NW
30	General soil profile in NW-SE part of trench	SW
31	General shot of trench	W
32	General shot of trench	W
33	General shot of rubble in trench	N
34	General shot of rubble in trench	SW
35	Soil profile in NW-SE part of trench showing modern plastic sheeting close to the limit of excavation	SW
36	Excavating modern waste and rubble	W
37	Possible asbestos in and debris in spoil heap	SW

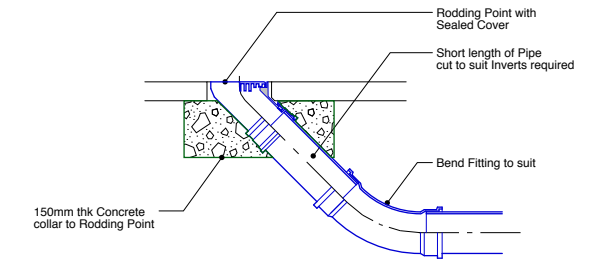
### APPENDIX 3: Discovery and Excavation in Scotland Entry

<b>LOCAL AUTHORITY:</b>	East Lothian
<b>PROJECT TITLE/SITE NAME:</b>	Greenhouse 1 Drainage System, Newhailes Estate: Archaeological Watching Brief
<b>PROJECT CODE:</b>	NHGD
<b>PARISH:</b>	Inveresk
<b>NAME OF CONTRIBUTOR:</b>	Ewan MacNeilage
<b>NAME OF ORGANISATION:</b>	CFA Archaeology Ltd
<b>TYPE(S) OF PROJECT:</b>	Watching Brief
<b>NMRS NO(S):</b>	-
<b>SITE/MONUMENT TYPE(S):</b>	-
<b>SIGNIFICANT FINDS:</b>	-
<b>NGR (2 letters, 6 figures)</b>	NT 325 724
<b>START DATE (this season)</b>	June 2015
<b>END DATE (this season)</b>	August 2015
<b>PREVIOUS WORK (incl. DES ref.)</b>	n/a
<b>MAIN (NARRATIVE) DESCRIPTION:</b> (May include information from other fields)	A watching brief was carried out during the installation of a new drain for Greenhouse 1, within the grounds of Newhailes Estate, East Lothian. Features associated with the construction and drainage of the greenhouse were discovered, including a concrete surface, cast iron water pipe and small corner section of brick wall. No other archaeological remains were discovered and the remainder of the trench was excavated through modern backfill and sterile subsoil deposits.
<b>PROPOSED FUTURE WORK:</b>	-
<b>CAPTION(S) FOR ILLUSTRS:</b>	None
<b>SPONSOR OR FUNDING BODY:</b>	The National Trust for Scotland
<b>ADDRESS OF MAIN CONTRIBUTOR:</b>	CFA Archaeology Ltd, Old Engine House, Eskmills Park, Musselburgh, EH21 7PQ.
<b>EMAIL ADDRESS:</b>	cfa@cfa-archaeology.co.uk
<b>ARCHIVE LOCATION (intended/deposited)</b>	Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) and East Lothian Council Sites and Monuments Record.

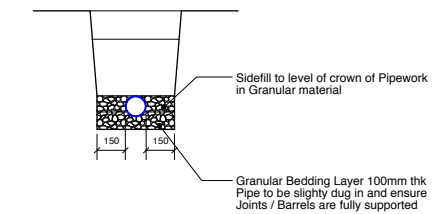




**Typical Inspection Chamber (PPIC)**  
 Depths to Invert up to 1200mm  
 Scale 1:10



**Rodding Point**  
 Scale 1:10



**Class P Bedding Detail**  
 Suitable for Flexible / PVCu Pipe  
 Subsoil - Sand, Silty Sand, Clayey Sand - Loose  
 Scale 1:20

Granular material in accordance with the recommendations of BS 5955:Part 6 1980  
 Graded particle size not exceeding 4/10mm for both 110mm OD and 160mm OD Pipes

Mark	Date	Revision

- NOTES**
- To be read in conjunction with all Architects / Engineers and other relevant drawings / Specifications.
  - Existing Drainage based on Elliott and Co. drainage drawings for Stable Block
  - The Contractor shall ensure that the stability of the building and adjoining premises is maintained at all stages of the construction.
  - He shall design, install and maintain all necessary temporary work, and programme the works accordingly.
  - If on opening up construction is not as anticipated, notify Engineer immediately, ensure structure is safe and stable and obtain instructions.
  - Comply fully with The Building Scotland Regulations 2004 and current editions of all relevant Standards, Codes of Practice and Regulations.
  - Workmanship to BS 8000 and normal good practice.



**Elliott & Company**  
 Consulting Engineers  
 9 Forrest Road  
 Edinburgh  
 EH1 2QH  
 0131-220 2486  
**Newhailes Estate**  
**MUSSELBURGH**  
 for National Trust for Scotland

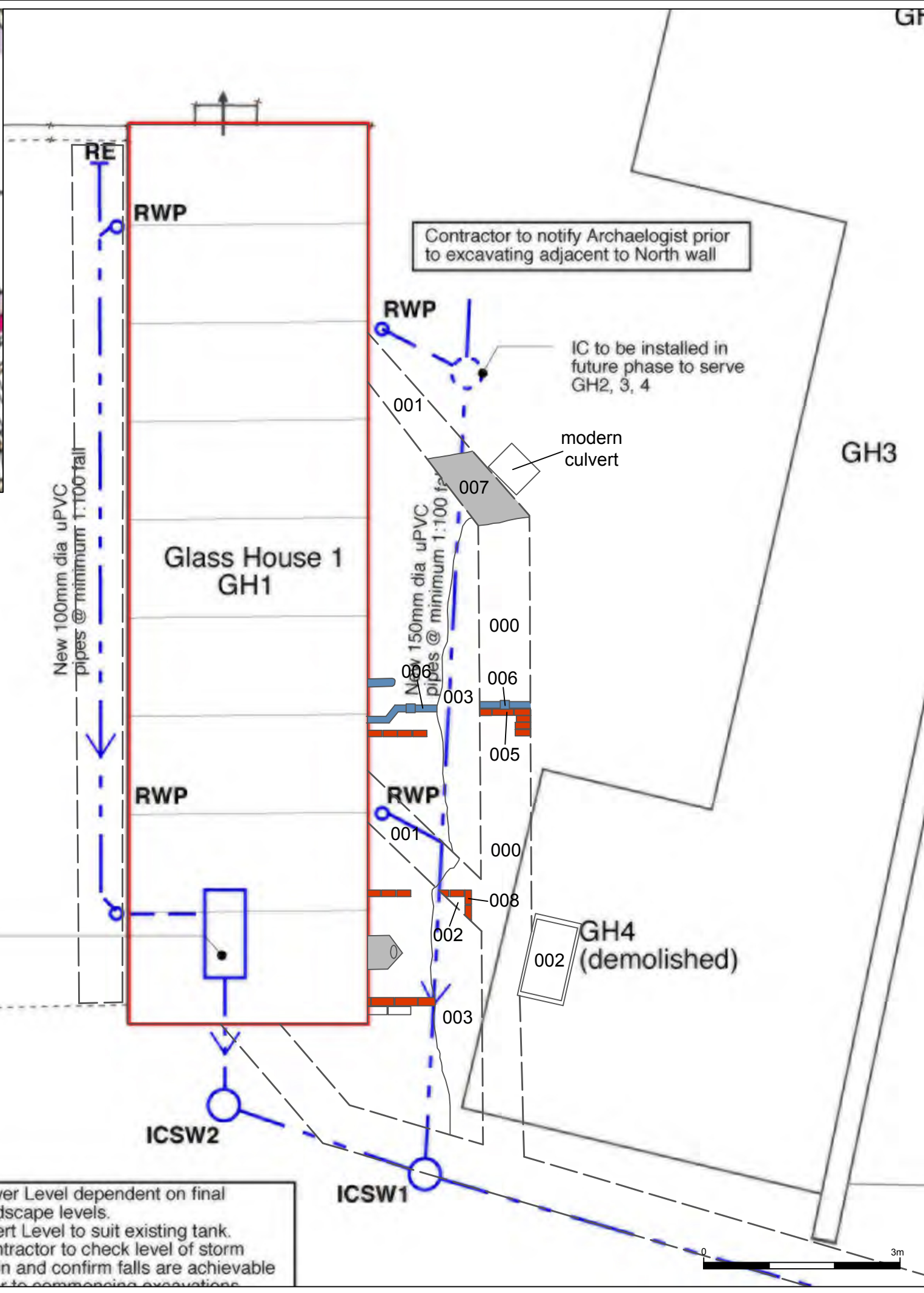
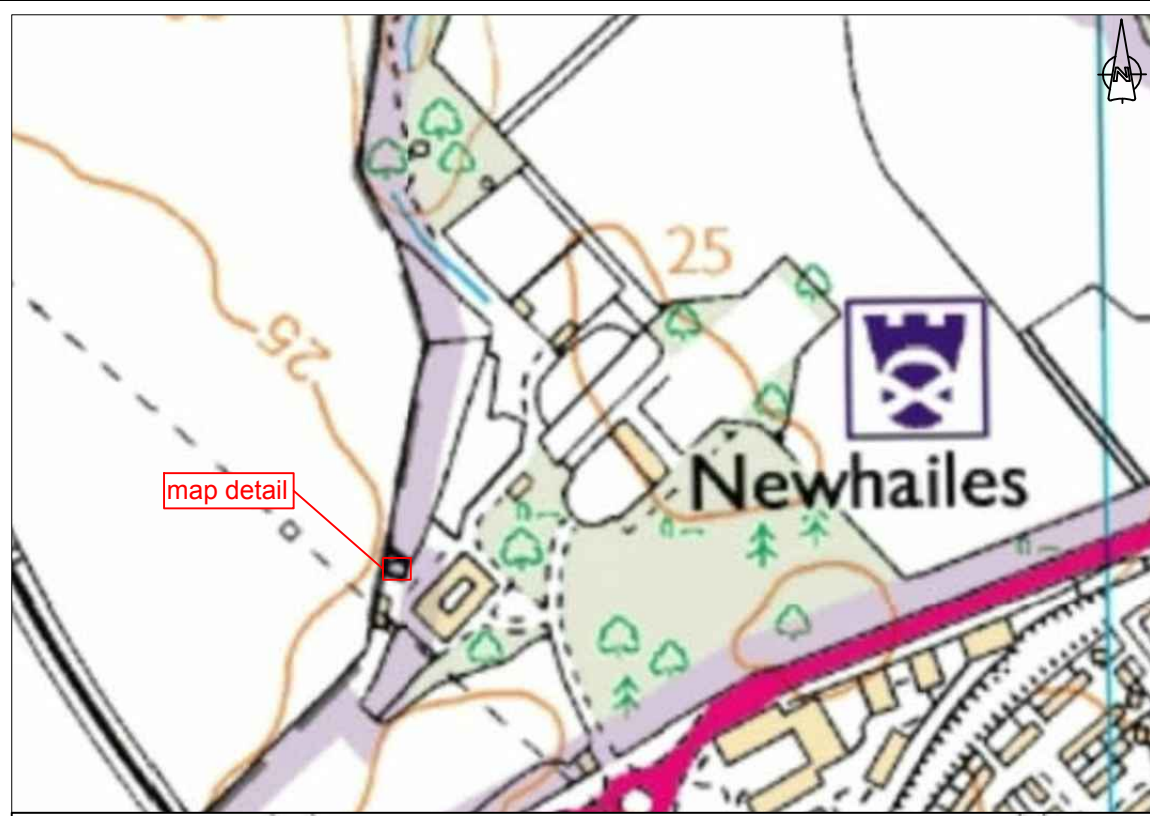


**Civils Layout**  
**Glasshouse 1**  
 Proposed Below Ground Drainage

Job No Drawing No Rev

**A2225** **CL101**

Scale @ A1 1:100 Status Construction  
 Dm JC / JD Date June 2015



**Key:**

- Drainage Trench
- Brick
- Pipe
- Concrete
- Proposed line of drainage

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Fig. No: 2 Report No: 0

Title:  
**Plan of trenches in the vicinity of greenhouse**

Project:  
**Greenhouse 1 Drainage System, Newhailes Estate, Musselburgh**

Client:  
**The National Trust for Scotland**

Scale at A3:  
**1:70**

Drawn by: GC Checked: SW Date: 13/10/2015

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Fig. 3 Photograph of drainage trench on the northern side of greenhouse, from the west



Fig. 4 Photograph of drainage trench on the southern side of greenhouse, from the east



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Title:	Fig. 3 - 4	Report: 3331	Drawn: GC	CKD: SW	Date: 15/10/15
	Client: The National Trust for Scotland				
Project: Greenhouse 1 Drainage System, Newhailes Estate, Musselburgh					