Waterloo Uncovered

July 2016 excavation campaign

Authors:

D. Bosquet, C. Barton, S. Eve, E. Glass, P. Harding, S. Harris, M. Johnson, F. Laino, S. Wilson

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Figure 1 - Hougoumont areas of investigation for 2016 excavation campaign (showing trenches described in this report).

Trench 41

Situation : The Killing Zone (fig. 1)

Dimensions :

- Trench 41 : 28,17 m length, 4,62 m width, 0,21 m depth (130,15 m^2)
- Sondage A in Trench 41 : 1,89 m length, 0,88m wide, 0,76 m deep (1,66 m^2)
- Sondage B in Trench 41 : 2,09 m length, 1,04 m wide, 0,90 m deep (2,17 m^2)

Aim : To investigate of the southern boundary wall separating the Formal Garden and the Killing Zone. More specifically, to look for evidence of previous wall phases, such as construction cuts, subsequent collapse, rebuilding and/or re-use of ‘original’ material.

Results / interpretation (see also Satsuki’s comments and context sheets)**:**

The standing wall is clearly not that which was standing at the time of the Battle of Waterloo. Examination of the deposits below ground level suggest at least one phase of collapse or demolition. It appears that the below-ground stone footings of the wall are original, and that the wall was rebuilt on the old footings. No construction cut was identified.

Figure 2 - Trenches 41, 43, 44, 45, 46, 47, 48, 49, 50, and 51 location (light grey : trenches not described in this report).

Comments

There is no evidence of a construction cut visible in either of the investigative slots from this trench. This is similar to the results in Trench 22 from the 2015 Waterloo Uncovered campaign (Waterloo Uncovered 2015: 18), but possibly in contrast to the results from Trench 43 to the west. The stratigraphic sequence in the trench is similar to that seen across the rest of the Killing Zone, consisting of a thin layer of topsoil overlying a mixed subsoil deposit. The subsoil lies on the top of the Holocene Bt horizon, the eroded upper surface of the *in situ* loess deposit.

Figure 3 - Slot A, facing east.

Figure 4 - Slot B, facing east.

- (4103)

At cleaning level (fig. 3, 4): a band of dark red brick fragments and mortar mixed with grey-brown silty topsoil, approximately 1,5 m wide on an east-to-west alignment adjacent to the garden wall. The southern edge is irregular with a diffuse interface, which would be expected with either a collapse or construction deposit.

In section: deposit is irregular in profile and poorly sorted. It is clearly distinct from the overlying topsoil (4101) and underlying subsoil (4102). The profile is slightly different in the two slots (see fig. 3 and 4) reflecting the haphazard nature of deposition. The composition is a mix of 70% brick fragments in a matrix of churned topsoil and mortar. The brick fragments are worn and degraded.

- Wall 4107

This is the below-ground wall footing (fig. 3 and 4) constructed of roughly-shaped white stone blocks varying between 0,30 m and 0,15 m length, bonded with sparse, sandy mortar. The footing sits inside cut [4108], which is cut to a maximum of 1.06m below ground level into the postglacial loess. The blocks have been packed tight against the cut and no packing material is visible.

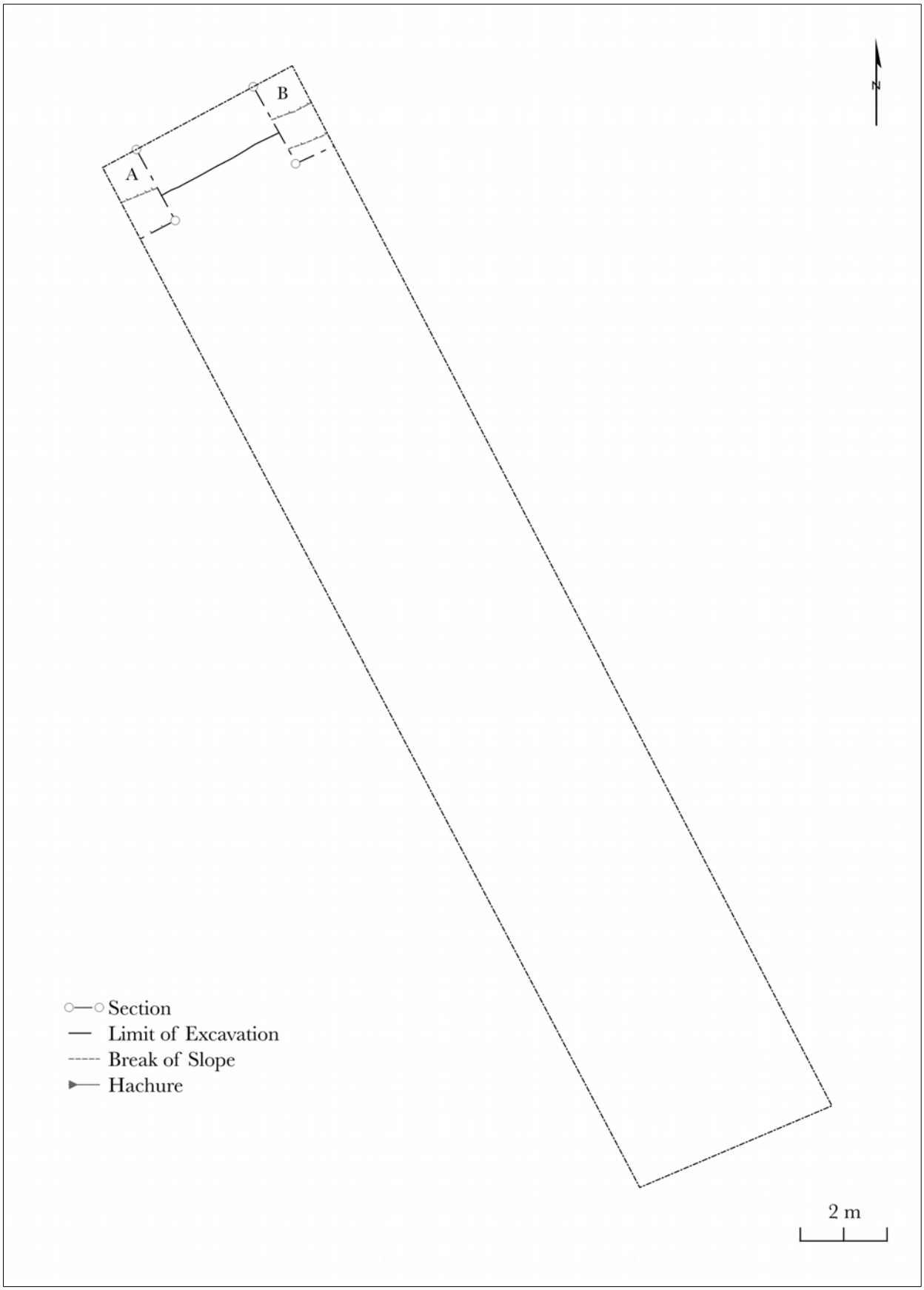

Figure 5 - Trench 41 excavation plan, showing location of Sondage A and Sondage B.

Trench 43

Situation : The Killing Zone (fig. 1)

Dimensions :

- Trench 43 : 25,73 m length x 5,29 m width (136,11 m^2)
- Sondage A : 1,87 m length, 0,90 m width, 0,59 m deep, (1,68 m^2)
- Sondage B in Trench 43 : 1,90 m length, 0,77 m width, 0,67 m depth (1,46 m^2)

Aim : As with Trench 41, to investigate of the southern boundary wall separating the Formal Garden and the Killing Zone. More specifically, to look for evidence of previous wall phases, such as construction cuts, subsequent collapse, rebuilding and/or re-use of 'original' material.

Results / interpretation (see also Sam's comments and context sheets)**:** A possible foundation cut for "original wall" identified. This is in contrast to the results from Trench 41 to the east.

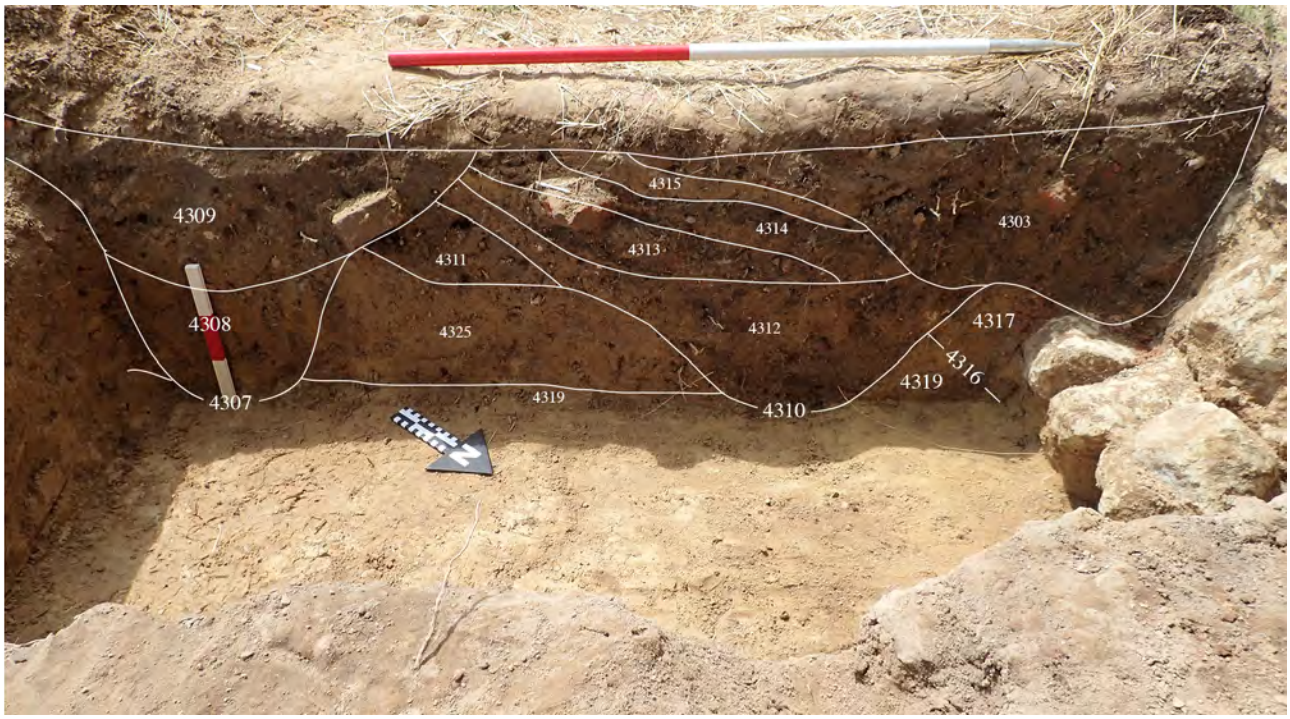

Figure 6 - Sondage A in Trench 43, facing west.

Comments

The basic stratigraphic sequence in the trench is similar to that seen across the rest of the Killing Zone, consisting of a thin layer of topsoil overlying a mixed subsoil deposit. The subsoil lies on the top of the Holocene Bt horizon, the eroded upper surface of the *in situ* postglacial loess deposits.

Figure 7 - Sondage B in Trench 43, facing east.

- [4307]

At cleaning level (fig. 6): a cut approximately 0,75 m wide appearing linear in plan and running roughly parallel to the garden wall, 1,30 m to the south.

In section (fig. 6): [4307] is sloping at 45’ to a depth of 0,41 m, then slopes more sharply at 60’ to maximum depth of 0,62m below ground level. Upper fill (4309) is a mix of yellow-brown sand and brick fragments, lower fill (4308) finely-sorted yellow-brown sandy silt formed by weathering. This feature was interpreted as a possible gully which may have been dug for drainage, however the cut is not visible in slots dug to the east or west. No dating material from fills.

- [4310]

At cleaning level (fig. 6): a broad cut running east-to-west on a course roughly parallel to the garden wall.

In section (fig. 6): filled with a series of of mixed soil and building rubble deposits. No dating material recovered from any of these, but the cut clearly post-dates the wall, and probably related to demolition and rebuilding works.

- [4316]

In section (fig. 6): cut at 45’ into the natural (4319) the position of this cut suggests it may be the foundation cut for the wall, with a yellow-brown silty sand deposit (4317) used as packing material. However a similar cut is not visible in slots cut to the east or west.

- Wall 4318

This is the below-ground wall footing (fig. 6). Constructed of roughly-shaped white stone blocks varying between 0.30m and 0.15m length, bonded with sparse, sandy mortar. The footing sits inside cut [4316], which is cut into the loess.

Following comparison with other slots against the garden wall, it appears more likely that the cuts [4307] [4310] and [4316] are small pits associated with demolition and reconstruction of the wall.

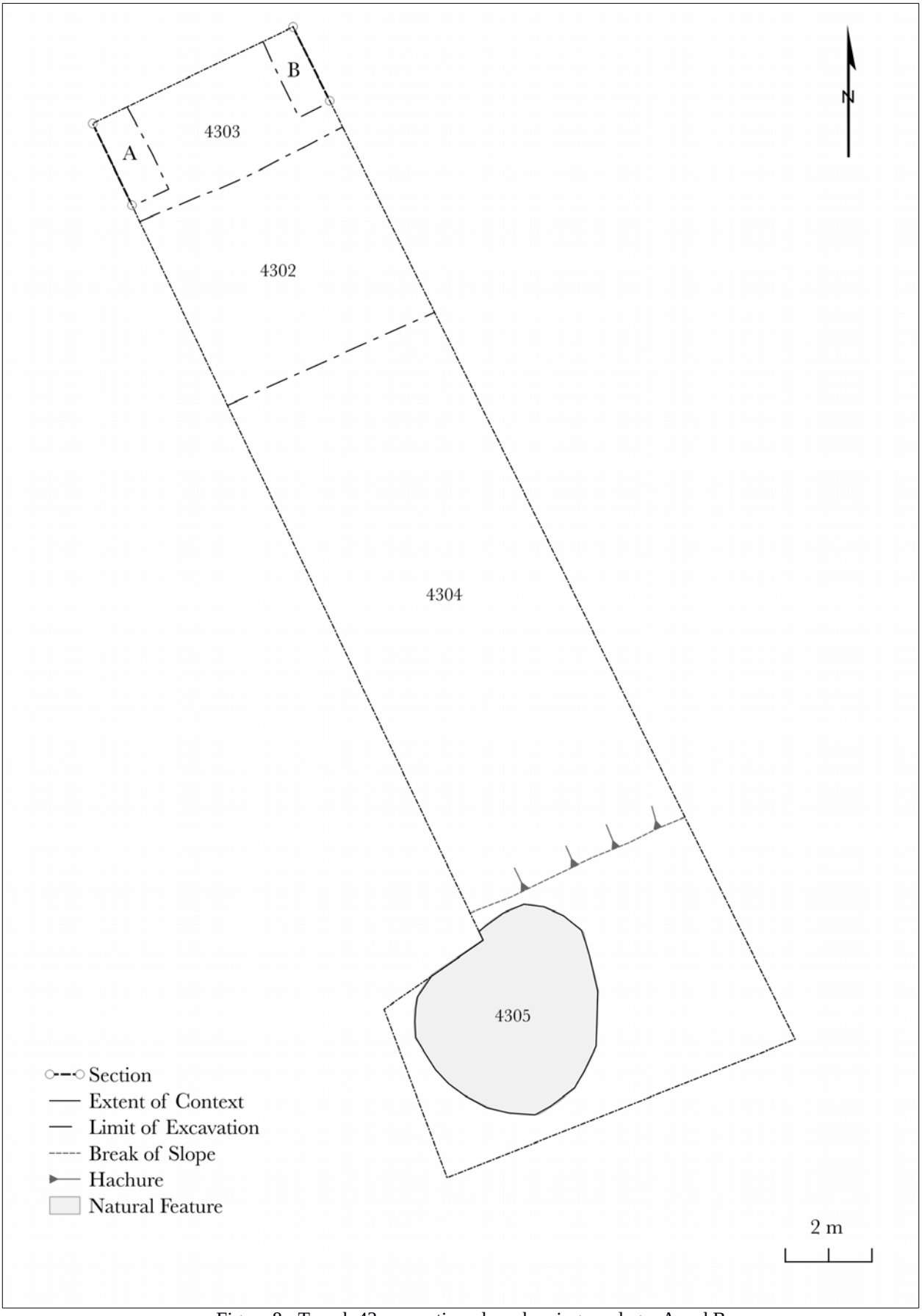

Figure 8 - Trench 43 excavation plan, showing sondages A and B.

Figure 9 - Trench 44 location and relationship to The Sunken Way.

Trench 44

Situation : The Great Orchard (the “sunken way”) (fig. 1)

Dimensions : 10,49 m length x 4,78 m width x 1,80 m deep (50,14 m^2)

Aim : To investigate the “sunken way”, specifically the limit of its survival to the west, its full depth and the relationship to related contemporary ground surfaces, particularly along its southern ‘lip’.

Results / interpretation(see also Emily’s comments and context sheets):

- Three main use phases identified, with three associated phases of disuse. Depth determined at 1,63 m (below ground level). No clear evidence can determine whether the Sunken Way was first ‘cut’ or ‘worn’ in through use. A possible Battlefield level (4414) was identified, containing evidence of surfaces; scatterings of brick fragments, and cart-rut lines.

Further research : analysis of Palynological samples 1 to 7 taken all across the Sunken way sequence (fig. 10). The idea is to try to correlate the formation of the sunken way and the evolution of its filling to the evolution of the surrounding vegetation: do the phases with and without colluvium correspond to alternance between open field and more closed ones, interfered by the

agricultural practices? If that was the case, the colluviums phases should correspond to open fields due to the practice of extensive agricultures, whereas the phases without colluvium could illustrate the maintenance of pastures and/or orchards in border of the pathway. Secondly, a micromorphological analysis could be tried, in particular on the utilisation phases identified by the compacted levels. This kind of analysis would in particular allow to characterize more accurately the modalities of use of the sunken way (Begier *et al.*, 2011).

Figure 10 - East facing section, Trench 44.

Figure 11 - Earliest remaining evidence of Sunken Way, and possible battlefield level.


Figure 12 - Iron panning, caused by compaction at the base of the hollow.

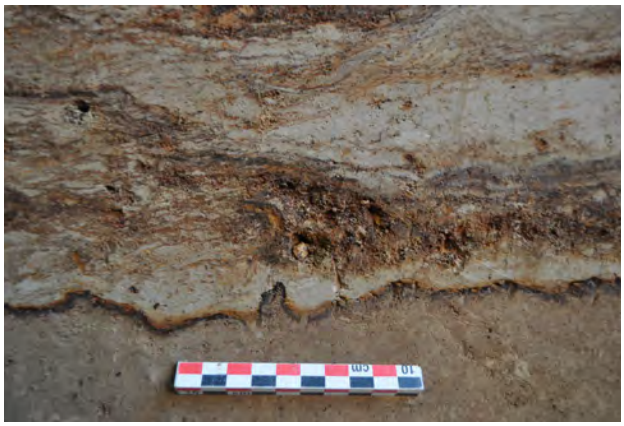
Figure 13 - Iron panning, caused by compaction at the base of the hollow.

Comments

Phase 1.1

- (4415; fig. 10) **:** Earliest remaining evidence of Sunken Way use as represented by bands of horizontal iron panning lines resulting from repeated compaction within hollow (fig. 13). Possible cart-ruts seen on southern side at lowest extent of deposit with evidence of standing water in base of

cart-ruts (fig. 10), indicated by a very hard light whitish-grey sandy deposit. These contained small fragments of tile.

- (4414; fig. 10) : Possible Battle of Waterloo level. These contained moderate stone/brick fragments, although not creating a solid metaled surface. Cart-rut on northern edge wedged into natural deposit which may represent the use of carts during the battle to refortify the garrison stationed at Hougoumont Farm. Carts may have been required to pass soldiers sheltering in the Sunken Way and therefore needed a wider space than the Sunken Way afforded at that time. Contained burnt brick fragments.

Phase 1.2

- (4413; fig. 10), (4416; fig. 10) : Disuse phase after the Battle of Waterloo where little or no use was made of the Sunken Way causing both edges to slump and colluvial material to wash into the hollow. Note that all finds in these deposits (SF698 Fe object and glass bottle fragment) came from the northernmost slumping, including an impacted musket ball SF700.

Phase 2.1

- (4412; fig. 10) : Mid-phase of significant use of Sunken Way containing less heavy compacted bands of iron panning which may indicate that the hollow was utilised less frequently than in first and third phases of use. Contained 19th century abraded pottery fragment and SF696 Fe wire and SF699 Fe nail.

Phase 2.2

- (4410; fig. 10), (4409; fig. 10) : Disuse phase where little or no use was made of the Sunken Way causing both edges to slump and colluvial material to wash into the hollow. Note that SF309 was retrieved from the northernmost edge slumping.

Phase 3.1

- (4411; fig. 10) : Third and final phase of significant use of the Sunken Way contained compacted bands of iron panning, including a particularly well-worn possible cart-rut curve at the northern base to edge break of slope. Contained SF307, thought to be an animal horn fragment, but later noted as possibly being a wet and degraded animal bone.

Phase 3.2

- (4407; fig. 10), (4406; fig.10), (4404; fig.10) : Final disuse phase represented by initial silting up of central hollow of Sunken Way (4407) which contained a glazed tile fragment and SF313, a bundle of barbed wire and nails – possibly dumped after replacement of fence line to north. Next, (4406) an in-wash of root and burrow disturbed natural slumped into hollow due to erosion of the northern Hollow Way edge. This contained SF308, a fired French musket ball, close to the present ground surface, but it was situated within the line of an animal burrow. Finally, (4404) represents the final silting up of the Sunken Way from which SF310, an Fe nail was retrieved and dense patches of charcoal were observed, possibly deriving from more recent use of the Sunken Way by Battle of Waterloo re-enactors.

Trench 45

Situation : Hougoumont Farm Courtyard (fig. 1)

Dimensions : 8,0 m length (E-W), 1,0 m width (N-S), with two box extensions 1 x 1 m and 2 x 1 m on the south side (11 m²).

Aim : To locate and identify the west wall of the stable block, evident from cartographic maps of Hougoumont Farm (fig. 14).

Results / interpretation (see also Phil's comments and context sheets):

- West wall of stable block identified, with limestone foundations filling the trench.
- From fragments within the deposits, it seems likely that the superstructure of building was brick, with cobbled floors, possible slate roof.
- A culvert and drain were identified, bonded into the wall suggesting that both were built at the same time.
- 4 features identified - limestone foundations, a culvert, drain, and silt trap **: (4505), (4507), (4509), (4511).**

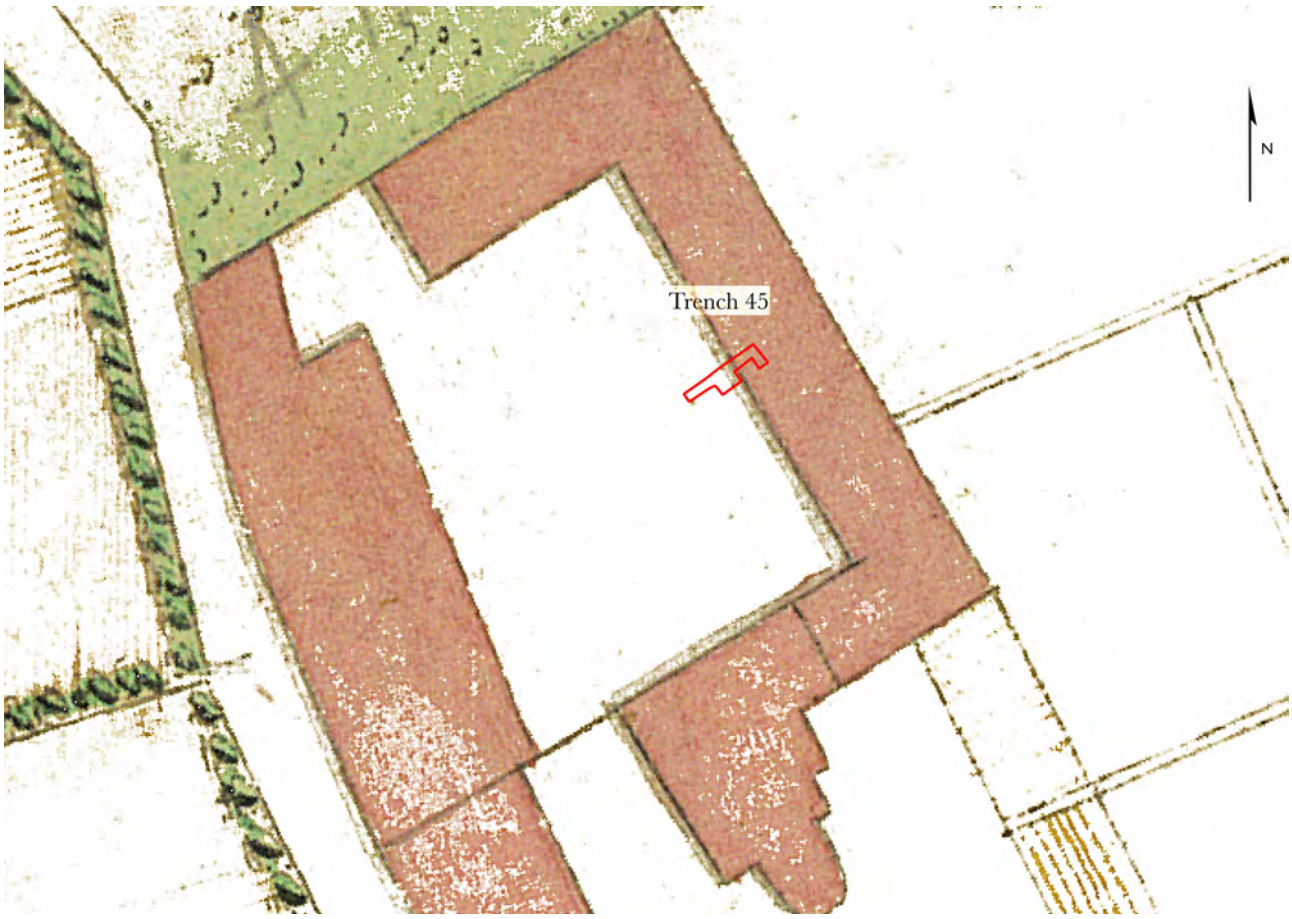

Figure 14 - Detailed location of Trench 45, overlain on 1816 map of Hougoumont Farm.

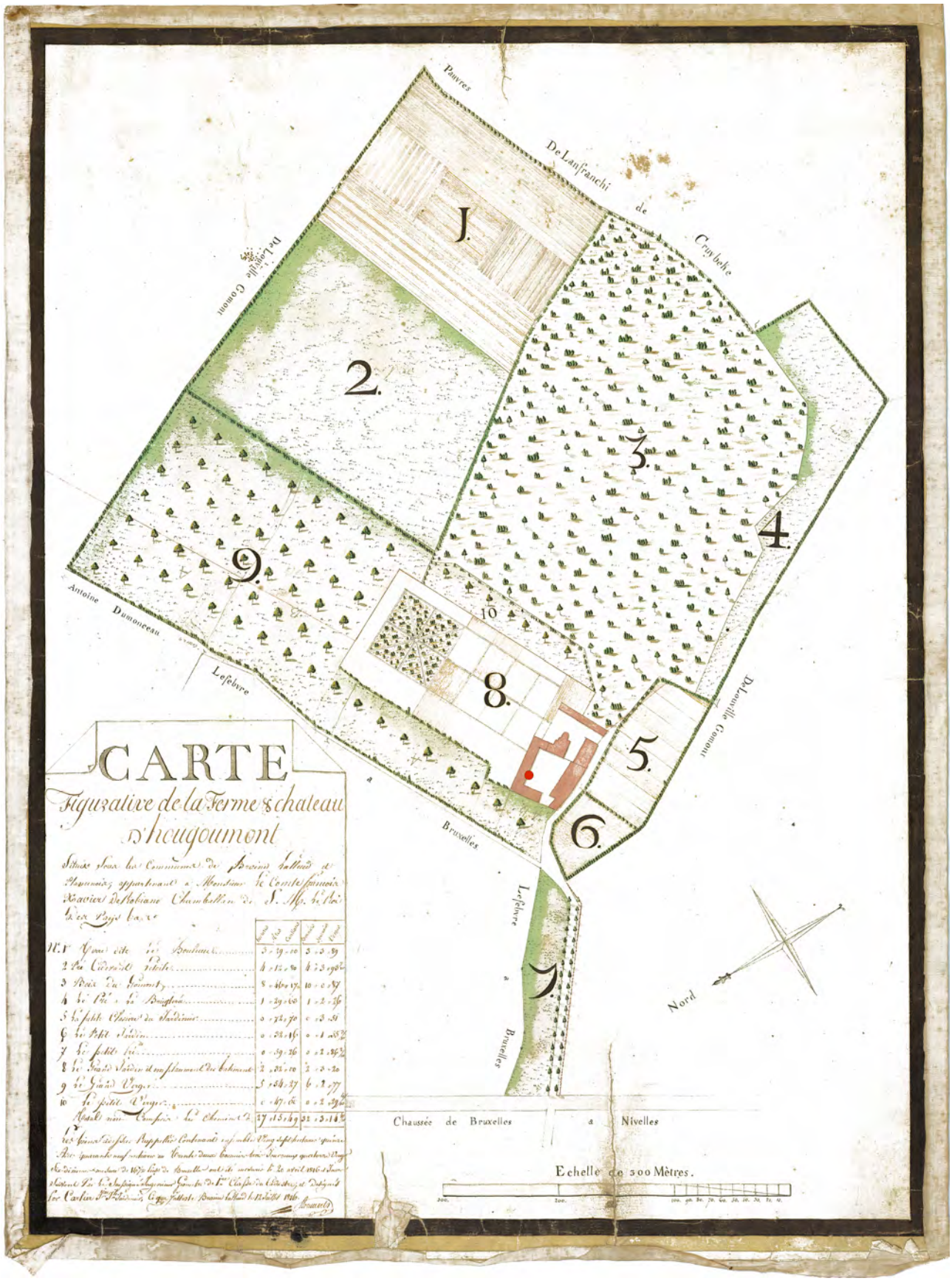

Figure 15 - General location of Trench 45, shown on 1816 map 'Carte Figurative de la ferme & Chateau d'Hougoumont'.

Figure 16 - Post-excavation photograph of Trench 45, facing West.

Comments

- (4507) (fig. 17)

West wall of stable block 0.5 m wide, foundations filling the trench 0.50 m deep, which was cut into the tertiary sand (4514). The foundation comprised three courses of large limestone blocks (4507) with voids filled with broken brick fragments (fig. 19). The foundation completely filled the construction cut (4506) (fig. 19). The upper surface of the foundation showed that the foundation was bonded with yellow sandy mortar. The structure of the foundation core remains unknown as the foundation was not dismantled. It seems likely that the superstructure of the building was of brick.

No floor levels survive indicating some degree of surface truncation after the building was dismantled and floors lifted. It seems probable that the stables were constructed with a cobbled floor as the surface of the sand is not sufficiently compact to withstand repeated trampling by horses. The only indication of cobbling comprised those of limestone found in the drain (4511) beyond the culvert (4505). Slate fragments from the base of the silt trap suggest that the stable block was probably roofed with slate; no ceramic tiles were found.

- (4505) (fig. 17)

The stable building included a well constructed stone culvert (4505), with minor use of bricks, which ran E-W through the building. The culvert floor was made of bricks, with side walls of two courses of roughly faced limestone blocks, which were capped by limestone lintels with limestone rubble and broken brick fragments packed along the edges of the lintels.

The estimated gradient of the culvert is 1:16. The culvert was bonded into the structure of the stable walls suggesting that they were constructed at the same time.

- (4509) (fig. 17, 18)

At a point where the culvert exits from the west wall of the stable block there was a silt trap (4509), c.0.30m square, which was constructed of two courses of ashlar blocks with an ashlar floor. The construction was of fine quality. The water exited the silt trap on the west side via a limestone block with a carved channel at the base, which fed into a cobbled stone drain (fig. 18).

A large stone upright, possibly of greensand, was positioned on the south side of the drain, where it exited the silt trap, to deflect the flow of water in the general direction of the North gate. It seems likely that the drain represents all that remains of a cobbled stone walkway which ran around the edges of the central farm yard, which may have been built to service the collection of dirty waters associated with animal housing.

To the south of this cobbled walkway the land drops away steeply to a terrace feature which was cut into the side of the farm yard. This feature reduced the appearance of the farm yard from an amphitheatre type bowl, as it appears at the present day, into one that, although still sloping, was of reduced gradient.

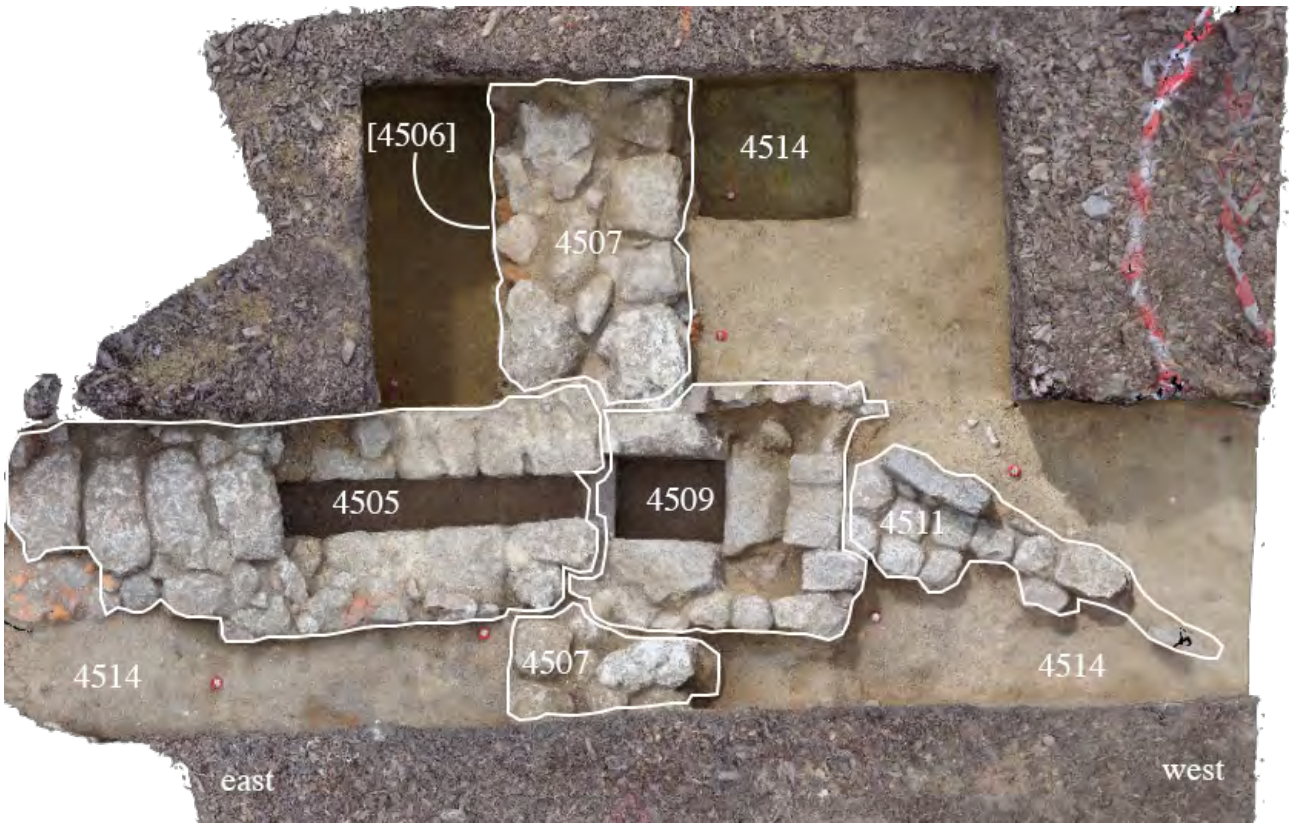

Figure 17 - Trench 45, illustrating contexts 4505, 4506, 4507, 4509, 4511, 4514.


Figure 19 - oblique view of culvert, facing south with 1m scale.


Figure 18 - section of context 4507, demonstrating brick, mortar, limestone foundations.

Trench 46

Situation : The Great Orchard (fig. 1)

Through a bank situated about 5 m east to eastern border of the Great Orchard as it appears on 1816 (fig. 20) and 1820 maps. It has to be noted that, to be ideally placed, the square would have been opened 5 m further West, but unfortunately, as can be seen on figure 21, the spot we choose was the only possible, due to the presence, on each part of the bank, of sugar beets crops that cannot be damaged. Let us also notice that we are here beside the buried water pipe running South-North through the all site (fig. 22, A) and right at the place of a car or horse racetrack appearing on SPW aerial pictures taken in 1994-2000 (fig. 22, B). The track has been rapidly erased, but its trace remained visible on aerial pictures till recently.

Figure 20 - The bank and Trench 46 (North-South view).

Dimensions : 4,8 m x 2,6 m (12,5 m²).

Aim : verify that the bank has been already present at the time of the battle and could have been used as shelter for soldiers firing into the orchard, or check if there was another physical limit

marking the eastern border of the great orchard (hedge, ditch, pathway). Finally, in case of a ditch, the idea was also to check the presence of bodies that could have been buried in it.

Results / interpretation : features identified in Trench 46 (see below) are undoubtedly remnants of the racetrack and possibly also of the track used during the construction of the water pipe. As far as the bank is concerned, it is very improbable that it was present at the time of the battle, at least as high as it is now. It's actual high is very probably due to erosion phenomenon, highly active since 200 years in this agricultural context.

Figure 21 - The bank and Trench 46 (North-South view).

Figure 22 - SPW 1994-2000 aerial picture showing the water pipe (A), the race or horse track (B) and Trench 46.

Comments

- [4601]

At cleaning level :

Slightly wavy cut running south-north, forming the west border of a dark band of which the eastern limit has not been reached by the limit of the trench. The extension of this trench is limited in that direction (see “situation” chapter). The filling (4602) is brown-grey and similar in color and texture to a ploughed horizon, with blocks of B_t and colluviums in it. It is well contrasted from the B_t horizon (4604, 4605 see below). At cleaning level, [4601] may be the cut mark of a ditch.

In section:

C-B section (fig. 23 a) : the bottom limit, slightly wavy, is situated between 68 cm and 12 cm in depth. As previously mentioned, eastern limit has not been reached. The fill comprises two main units, (4602) and (4603) (see below).

A-D section (fig. 23 d) : [4601] goes down rather regularly from West to East, cutting through (4604) and (4605) (see below).

- (4602)

At cleaning level: see above.

In section (fig. 23 a, c, d) :

C-B section (fig. 23 a) : the thickness of the layer is then comprise between 12 cm and 68 cm. The fill is a mix between ploughed horizon and B_t blocks and fragments. At the eastern end, one can observe feature looking like a muddy water puddle (fig. 23 c), which seems *in situ* and may correspond to a rut associated to the racetrack.

- (4603)

At cleaning level : only visible on the squares A and D corresponding to the western limit of the racetrack, and appearing as a brown-grey band, similar in color and texture to a ploughed horizon with B_t blocks in it.

In section:

C-B section (fig. 23 a) : (4603) layer fills the lower half of the [4601] cut. Colour is darker than (4602), evoking colluviums mixed with blocks and fragments of ploughed horizon and stratified units corresponding to water deposits no longer *in situ* (fig. 23 b).

A-D section (fig. 23 d) : here (4603) appears like a dark, regular and relatively homogenous layer going up towards the cleaning level.

(4604)

C-B and A-D sections: *In situ* B_t horizon.

- (4605)

Only visible on A-D sections: B_t horizon dirtied by bioturbations going through the upper ploughed horizon.

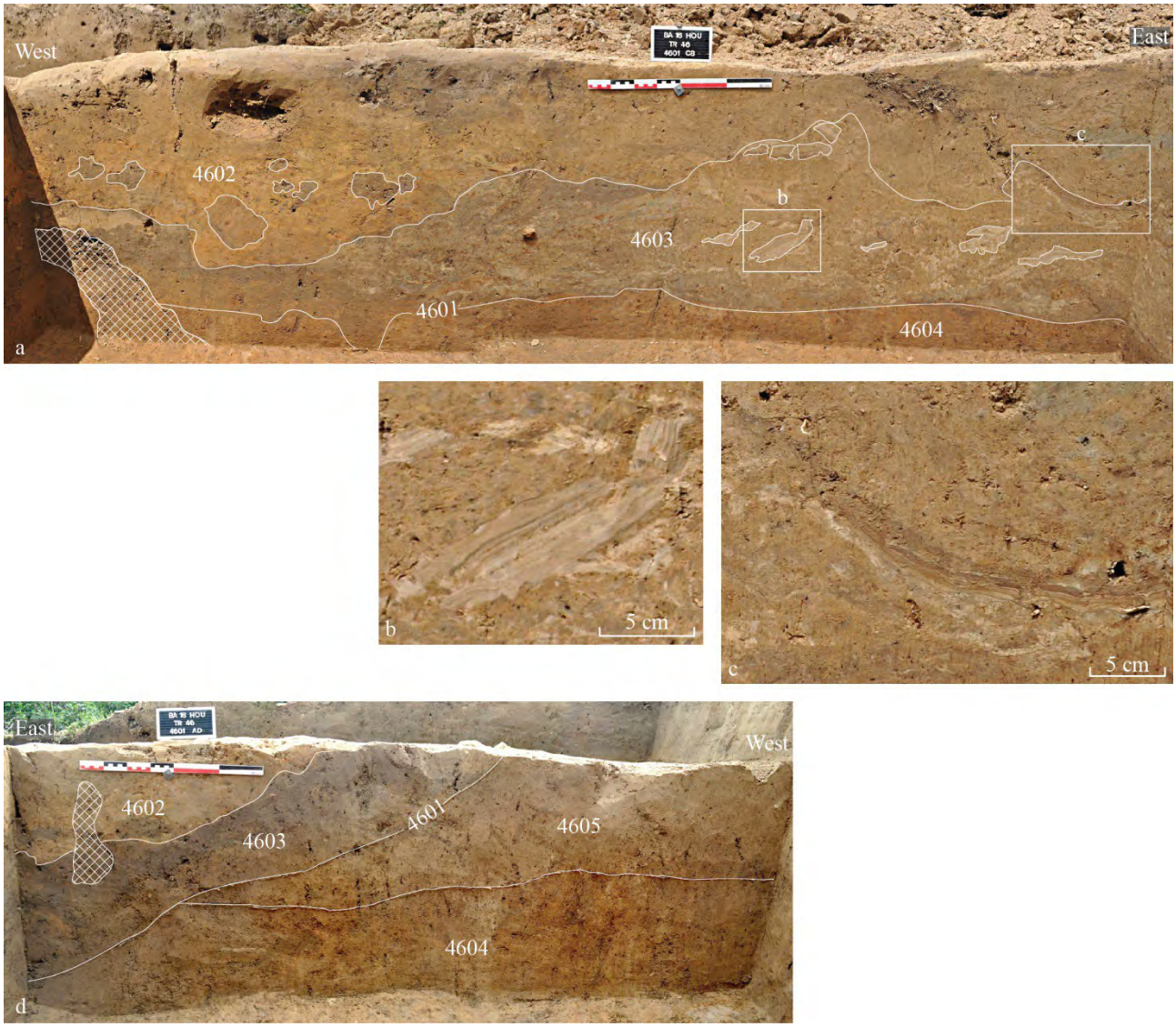

Figure 23 - Trench 46 section C-B (a) and A-D (d), showing fragments of water deposits features (b) and *in situ* muddy water puddle (c).

Trenches 47 A-B-C-D-E-F-G

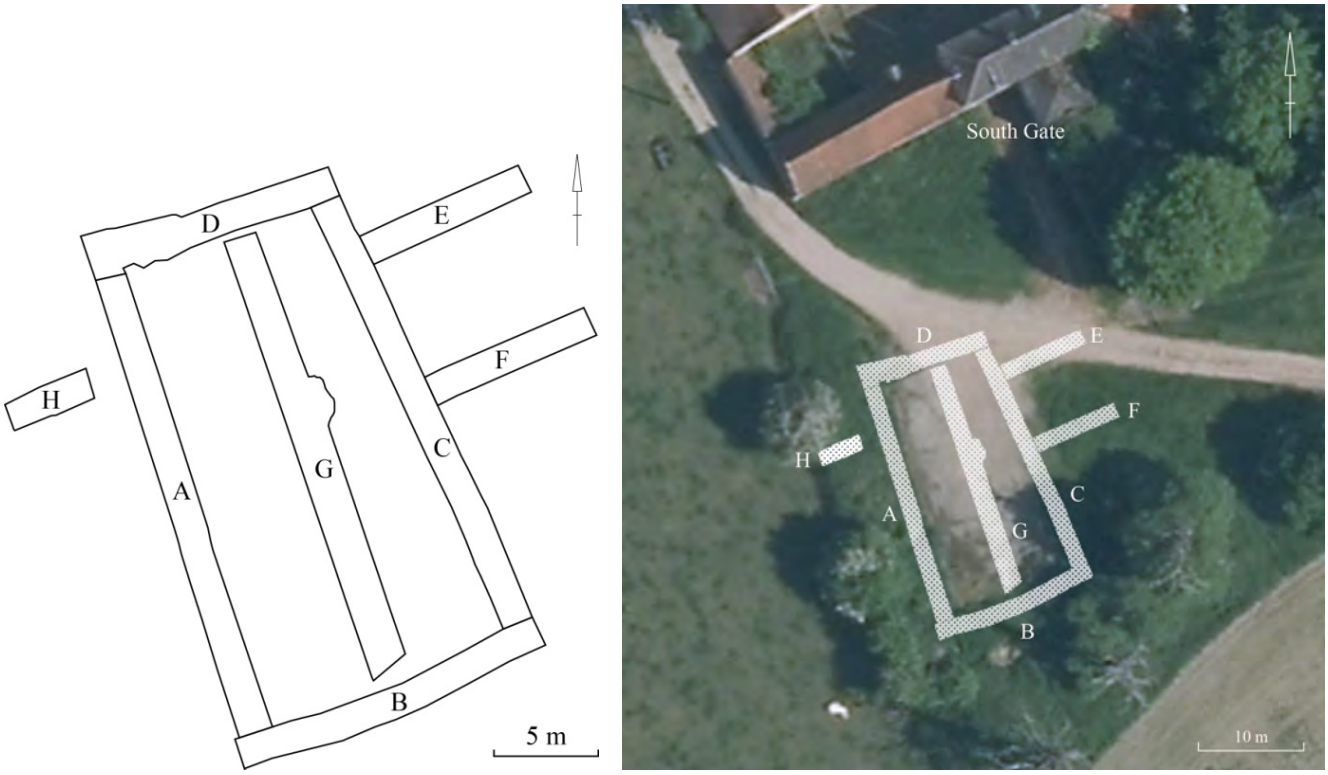

Figure 24 - Plan and situation of trenches 47A-B-C-D-E-F-G-H.

Situation : Kitchen Gardens (fig. 2, 24). 47A-B-C-D have been opened around the concrete slab forming the South Gate car park, 47 E-F were opened perpendicularly to 47C towards the east (fig. 25), 47 G was opened in the middle of the car park (fig. 26, left) and 47H perpendicularly to 47A towards the west (fig. 26, right).

Dimensions : 47A : 23,38 m x 1,7 m (39,7 m²).
47B: 14,55 m x 1,7 m (24,7 m²).
47C: 24,17 m x 1,7 m (41,9 m²).
47D: 12,7 m x 1,7 m (21,6 m²).
47E: 8,3 m x 1,7 m (14,1 m²).
47F: 8,4 m x 1,7 m (14,3 m²).
47G: 22,7 m x 1,7 m (38,6 m²).
47H: 4,4 m x 1,7 m (7,5 m²).

Cumulated surface: 202,4 m².


Figure 25 - Opening of Trench 47C (left, South-East to North-West view) and 47 F (right, West-East view).


Figure 26 - Cutting the concrete before opening of Trench 47 G (left, North-East to South-West view), opening of Trench 47H (right, South-North view).

Aim and methodology:

Trenches 47A to G were opened to check the presence of a mass grave and/or pyres in front of the South Gate, as shown on two pictures from the 19th Century (fig. 27). The area is currently occupied by a car park covered with a 300 m² concrete slab built in the early 20th Century.


Figure 27 - Pictures showing the burying of bodies (left) and the preparation of a pyres (right) in front of the South Gate at the place of the current car park.

Results / interpretation (see also Gaille's and James's comments and context sheets):

The first step was to open four trenches (47A-B-C-D) around the slab, to check for the presence of mass grave/pyres without needlessly destroying the slab as it is still in use as a car park for tourists visiting Hougoumont. Then, as no traces of body treatment were found in trenches 47A-B-C-D, a decision was made to open trenches to the east towards the Killing Zone, trenches 47E and F. Finally, as trenches 47E and F were also negative, Trench 47G was opened in the middle of the slab, right at the place where body treatment scenes were illustrated (fig. 27). Trench 47H was opened to verify the presence of the western wall of a silage pit discovered in Trench 47A (see below). All trenches were opened mechanically with a digger, centimeter by centimeter, in a very careful way. Each time 15cm was excavated, a metal detector survey was performed to collect all the objects present in the layers exposed (fig. 28). The more representative sections of each trench were then carefully cleaned (fig. 28) and recorded in order to understand the succession of events from the time of the battle to present day, and to collect datable material for each layer.

Figure 28 - Metal detector survey in course of excavation in Trench 47E (left), careful cleaning of a section in trench 47F (right).

All the trenches were recorded using photogrammetry as there was not time to hand draw all the sections and plans. Layers were identified by plastic numbers put in the sections and each layer has been described on context sheets and in field books. The method allowed us to get a very accurate 3D recording of all the data in eight days only.

Results / interpretation :

Whatever the trench, not a single trace of body treatment was discovered, showing the rather fanciful character of the pictures showed in fig. 27. What is probable is that the artists wanted to illustrate the activity of body treatment after the battle, and that they wanted the spectator to recognize Hougoumont.

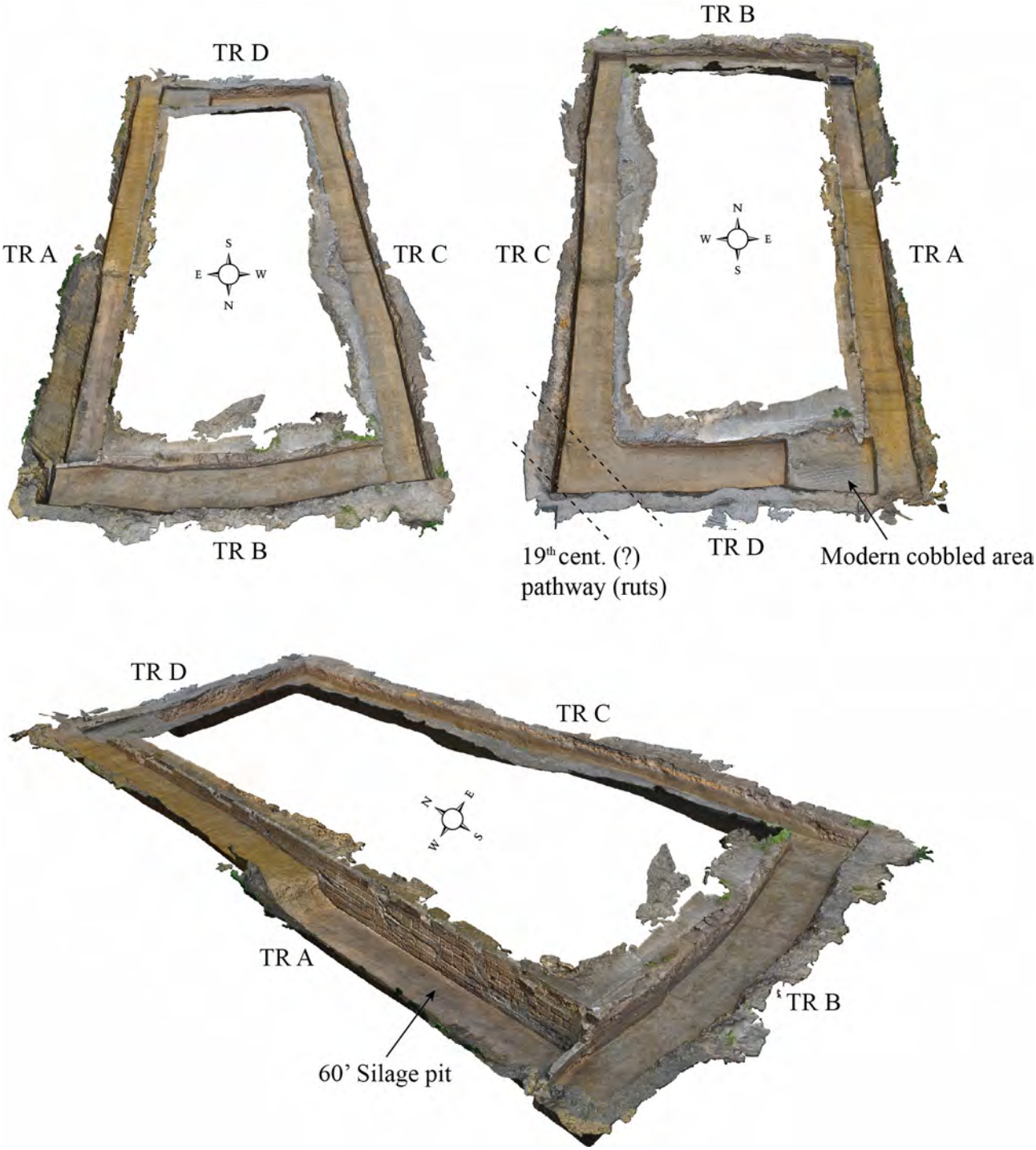

Figure 29 - Photogrammetric recording of trenches A-B-C-D, showing the silage pit in Trench 47A, a modern cobbled area in Trench 47D and a pathway in the corner formed by the intersection of trenches 47C and D (see below for more details).

To achieve this, the artist put the well known South Gate in the background of the picture to obtain what we can consider as an artistic composition, though one probably far from reality, as our excavation shows. Indeed, even if 100 % of the area was not excavated, it is highly improbable that

a mass grave worthy of the name escaped our trenches. As far as pyres are concerned, the answer is not so simple as that kind of feature may have been settled on or suspended above the ground, as opposed to cut into the ground. From the battle until now the car park zone has been remodeled several times by successive farmers, by plough and other means in a way that, if ever existing, pyre features may have been definitively destroyed. It is probable that, rather than at the northern edge of the wood as shown on the 19th Century images, body treatment took place well within the woodland, as attested by a document from Comte d'Outremont archives (fig. 30). It is a letter written by Robiano, dated June 12th 1816 (a year after the battle) and addressed to brothers and sisters Vanden Plas, farmers at Hougoumont, to tell how he wants them to welcome visitors and strangers visiting the battle field for the first anniversary of the battle.

At the end of the letter one can read "*j'espère que vous avez ~~déjà~~ commençé à labourer le bois : il y a 2 places rondes où on a brûlé beaucoup de corps d'hommes et de chevaux, il ne faut pas labourer ces deux places là.*" This can be translated as follows: "I hope that you've ~~already~~ begun to plough the wood: there are 2 round places where one burned many bodies and horses, you should not plough these two places". It seems that to find evidence of mass graves, investigation would have to focus on the area of woodland described above (a cultivated field today), taking into account the problem of destruction by plough mentioned above. But if these places were pyres, as mentioned in Robiano's letter, they may have been preserved from plough destruction, and therefore EMI surveys may allow us to discover them easily as burned places have a high magnetic susceptibility (Bosquet *et al*., 2015a, 2015b, 2016).

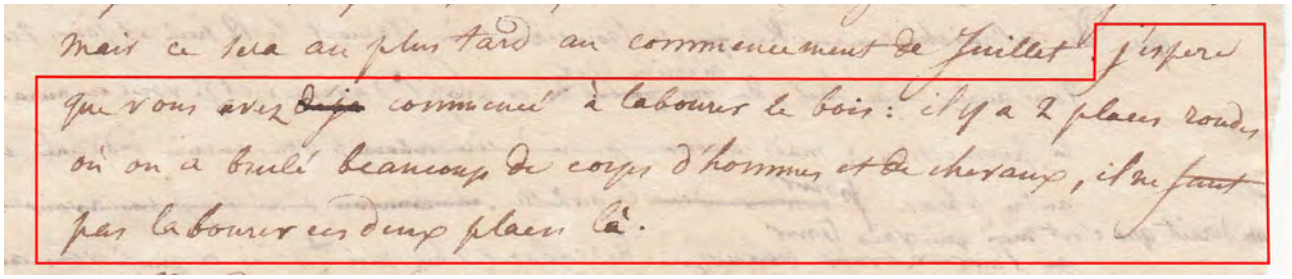
mais ce sera au plus tard au commencement de Juillet. j'espere
que vous avez ~~déjà~~ commencé à labourer le bois : il y a 2 places rondes
où on a brulé beaucoup de corps d'hommes et de chevaux, il ne faut
pas labourer ces deux places là.

Figure 30 - Letter from Robiano to Vanden Plas family, farmers at Hougoumont (within the red outline, the extract referring to bodies and horses pyres in the wood)

Finally, the only recovered feature that is possibly contemporaneous with the battle as it lies on the top of the *in situ* sand (4716, fig. 31), is a pathway identified at east end of Trench 47D and in Trench 47E by ruts (4705, fig. 31, 32) and refills made of construction waste (4729, fig. 32). It is oriented south-west/north-east and corresponds to the actual pathway running around the south-west

corner of the farm and along the Killing Zone towards the Great Orchard. It should be noted that this appears on none of the historic maps, which is why one can not be completely affirmative about its contemporaneity with the battle.

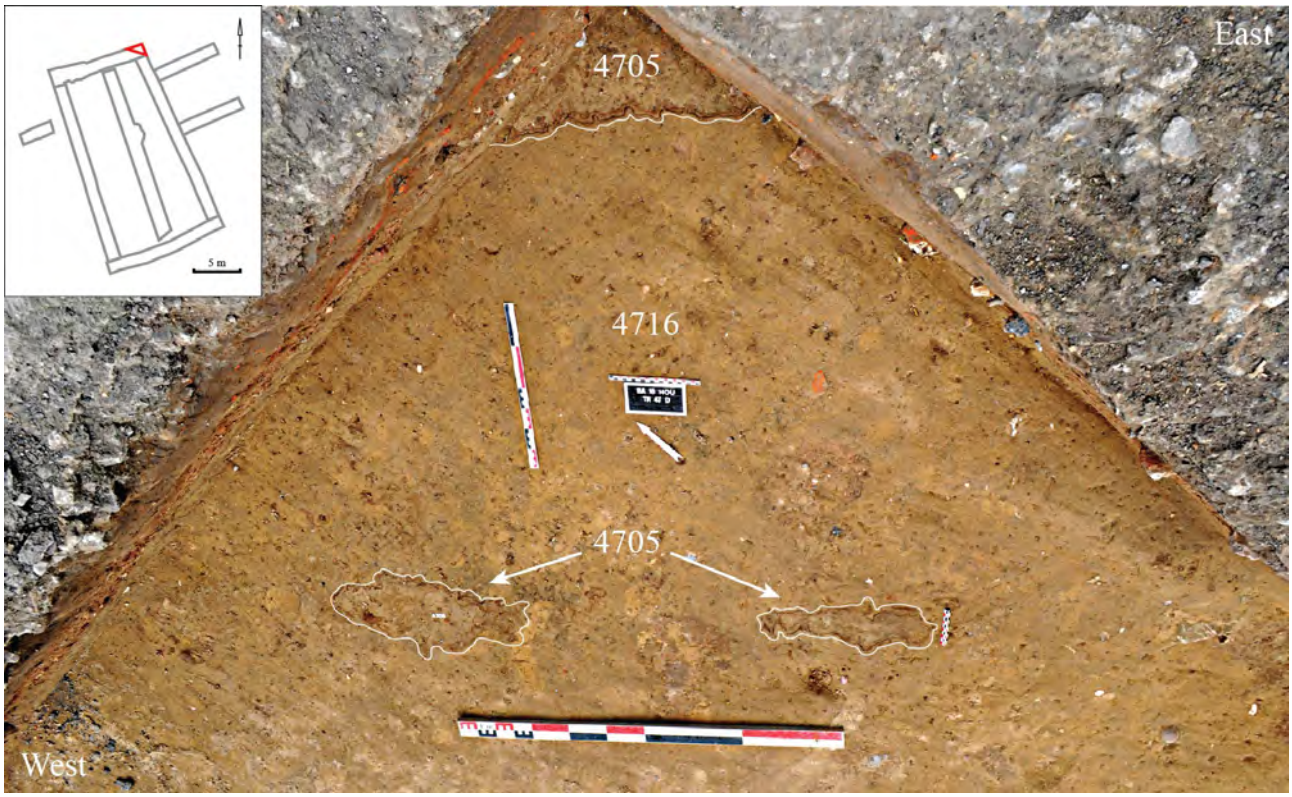

Figure 31 - Ruts leaved by wheels (4705) on top of *in situ* sand (4716), attesting the presence of a pathway at the east end of Trench 47D.

Figure 32 - Ruts (4705) and refill made of construction waste (4727) on top of *in situ* sand (4716) attesting the presence in Trench 47E of the pathway seen in Trench 47D.

Comments

Several layers and units were observed all along the sections in Trenches 47B, C, D, E, F and G, all related in one way or another to plough episodes, waste dumps, refills and to the levelling of the zone, with the final episode consisting of the laying of the concrete slab to serve as parking for farm machines, and later as a car park for visitors of Hougoumont. These layers are described and illustrated in the next “comments” chapter.

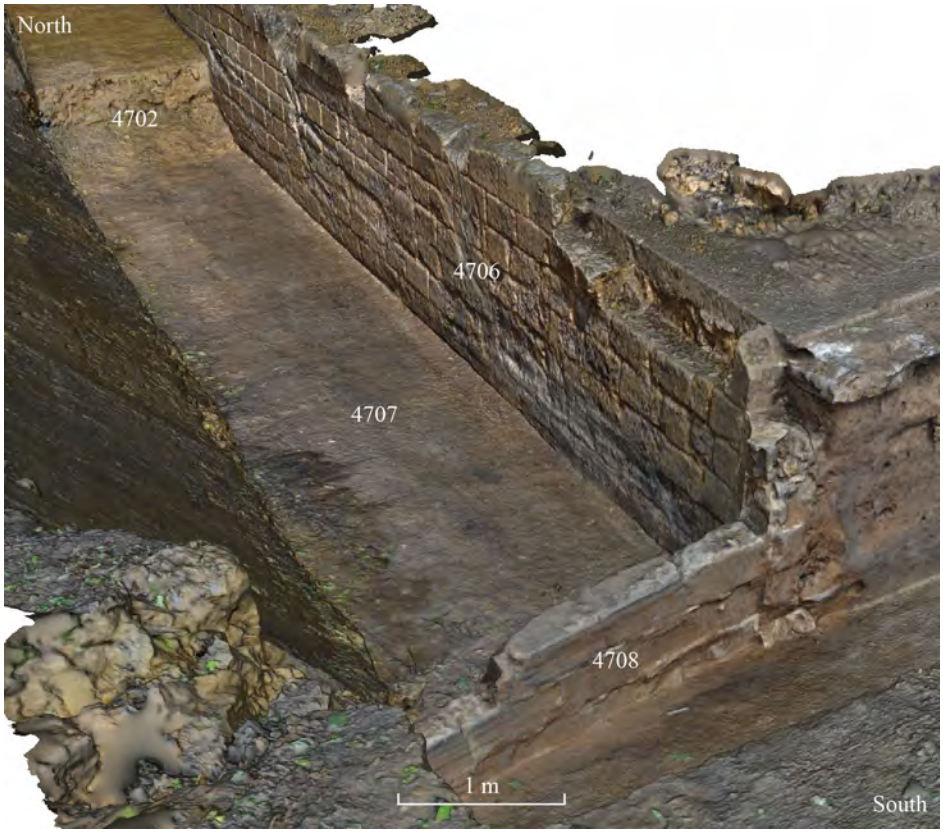

Figure 33 - Photogrammetric record of South end of Trench 47A showing 4702, 4706, 4707 and 4708 units.

Trench 47A (fig. 33)

- (4701)

Present day surface humus zone seen in Trench 47A, 47H and 47F.

- (4702)

Tertiary sand used to backfill the silage pit occupying Trench 47A. That sand comes very probably from the pit excavated after the battle at the west end of the Killing Zone It was observed in July 2015 Trench 18 (see 2015 campaign report).

- Wall 4706

East wall of the silage pit made of breeze blocks (seven courses).

- Floor 4707

Concrete floor of the silage pit, covered with roofing.

- Wall 4708

South wall of the silage pit, partially destroyed by the digger (three courses left).

Trench 47B (fig. 34 a, b)

- (4704)

Charcoal spot containing millimetric fragments of burned bone.

- [4709]

Diffuse and sinuous cut of a pit observed on trench floor and on north section of the trench.

- (4710)

Filling of [4709] made of grey sand with rusty spots.

- [4711]

Cut of foundation trench of east and south walls of the silage pit. It recuts (4710) to the West.

- (4712)

Present day car park concrete slab.

- (4713)

Layer of modern heterogeneous backfill full of plastic pieces, bricks and tiles fragments and little limestone cobbles. Mixed color dominated by grey to grey-brown.

- (4714)

Second plough horizon, covering 4709-4710 pit. Grey color with vertical rusty lines, very rare bricks fragments, flint pebbles and yellow sand pockets at the bottom of the layer. The upper limit with (4713) is rather sharp. The grey color indicates the presence of organic matter. Layer (4714) have been observed in trenches 47C, 47F and 47G (see fig. 35, 39 and 40).

- (4715)

First plough horizon made of rather homogeneous sandy material with almost no anthropogenic inclusions, grayish color indicates the presence of organic matter.

- (4716)

In situ Tertiary sand similar to the one observed in July 2015's Trench 18: green yellow coloured with grey to light green spots and diffuse orange iron oxide zones. The *in situ* sand has been reached in all the trenches around the car park.

- (4717)

Dark grey lens between (4713) and (4714), better developed in Trench 47F and G (see fig. 39, 40), corresponds to another plough episode.

- [4718]

Cut of a little pit situated on the South wall of the trench at its east end. The cut is rather regular and reaches up to 30 cm under the present day plough layer.

- (4719)

Fill of pit [4718], made of bricks and tiles, mortar and slates.

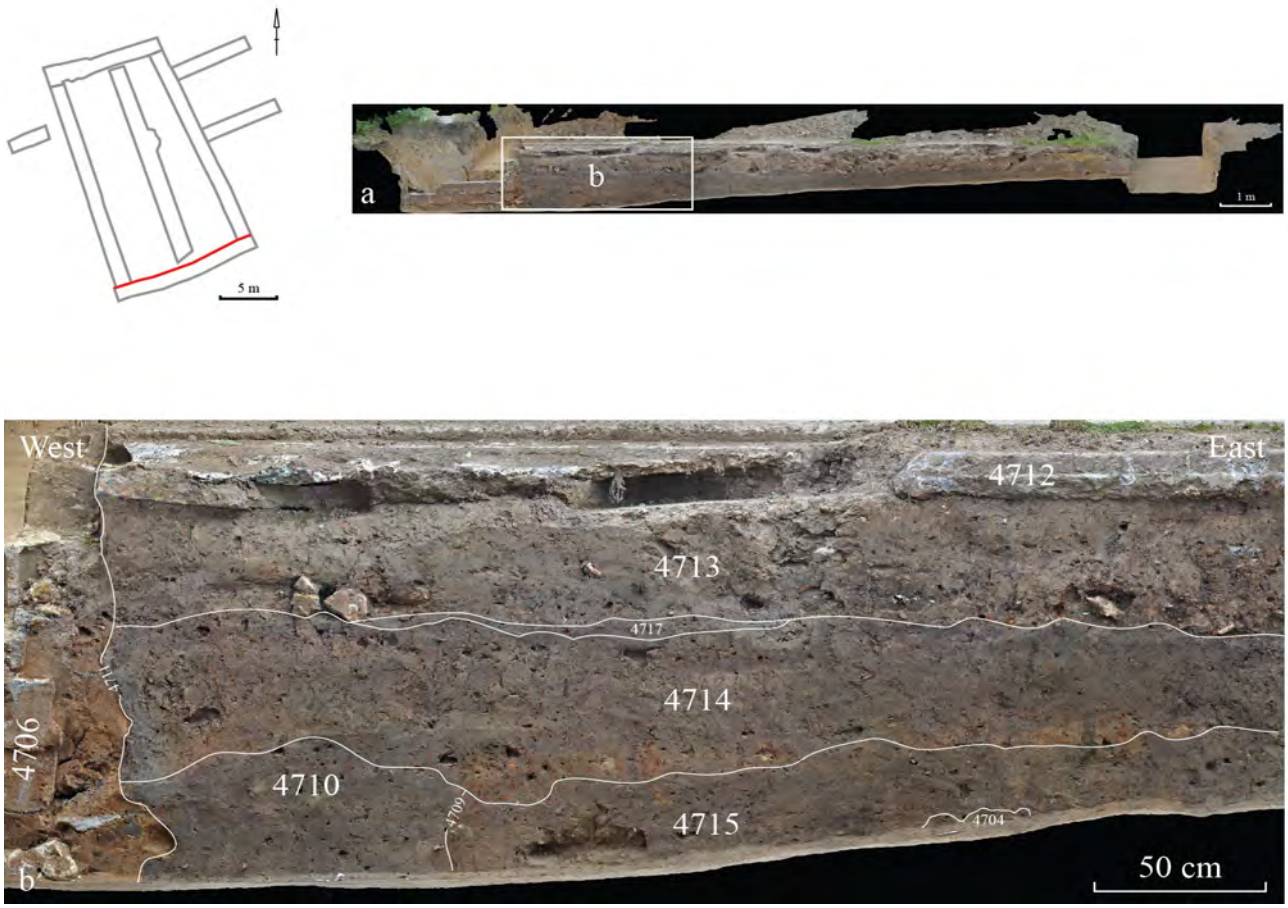

Figure 34 - Trench 47B North section: overall view (a) and zoom on units 4704 to 4715 (b).

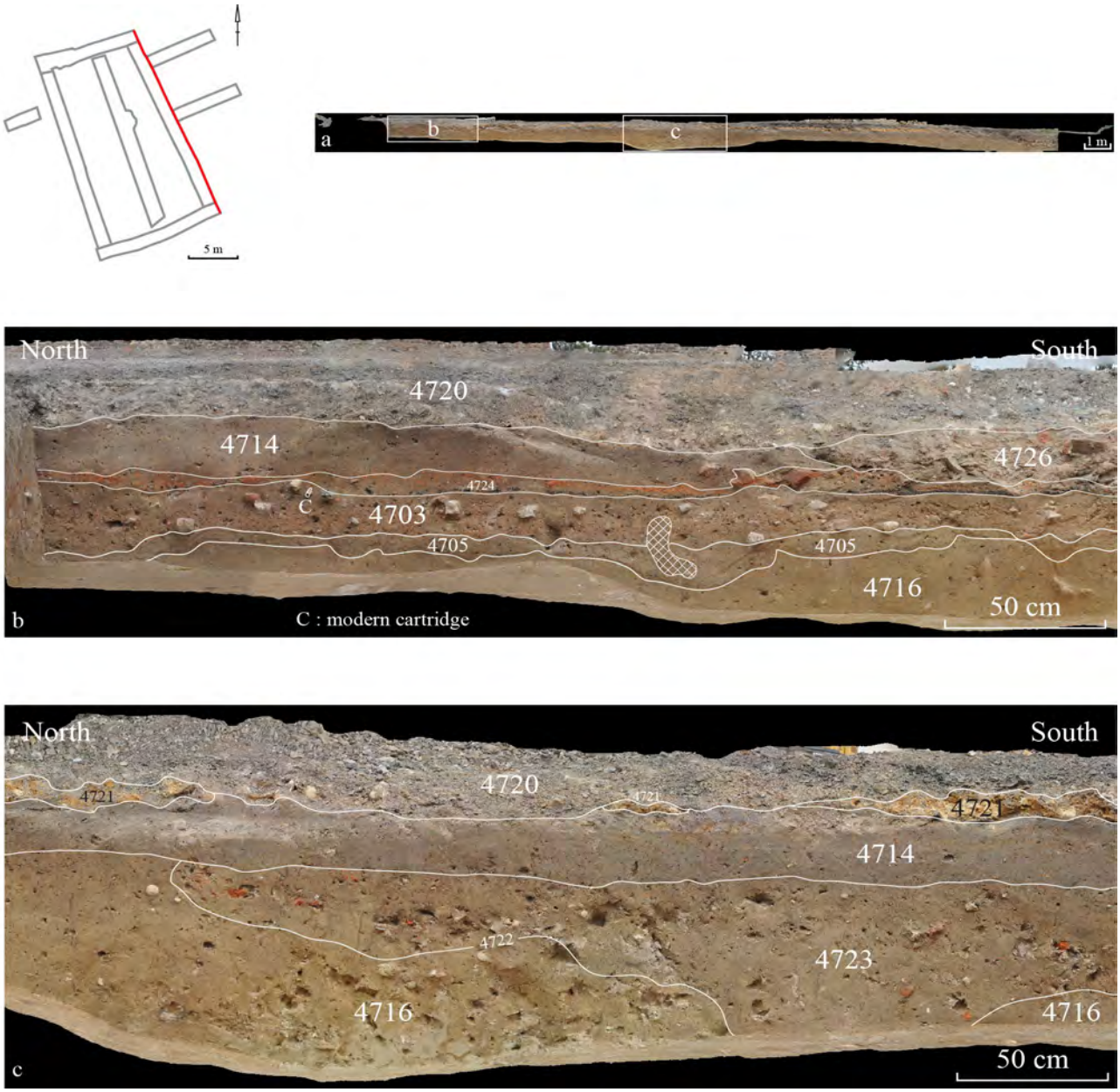

Figure 35 - Trench 47C East section: overall view (a) and zoom on units described in the text (b, c).

Trench 47C (fig. 35 a, b, c)

- (4703)

Pinky sandy layer riddled with bricks crumbs and whitish mortar. Also observed in most of 47D north wall (see fig. 37b).

- (4705)

Ruts on top of in situ Tertiary sand. Compression due to wheels well visible in the form of rusty and manganese parallel lines (fig. 31, 32). These traces, also visible in Trench 47E, indicate the presence of a pathway (*cf. supra*).

- (4720)

Present day gravel layer laid to stabilize the car park for the Bicentenary.

- (4721)

Yellow sand with little sandstones and rare anthropogenic inclusions. It corresponds probably to a leveling episode occurred after 4714-4717 plough phases. Most of this unit is visible on the West wall of the trench, not illustrated, and in Trench 47G (see fig. 40).

- [4722]

Sinuous cut of a rubbish pit in the form of a large basin running through the trench from east to west. It cuts the in situ (4716) sand and the bottom has not been reached by the excavation.

- (4723)

Heterogeneous fill of [4722], made of bricks and tiles fragments, sandstone gravels, slates fragments and charcoal spots in a beige-grey sandy matrix.

- (4724)

Thin layer of coal and brick fragments observed below (4714) on both walls of the trench. It has also been reached in Trench 47E and appeared as a large spot of coal spread on the bottom of the trench (fig. 36). It may correspond to a zone where coal has been stocked before handling into the farm.

Figure 36 - 4724 unit on bottom of Trench 47E.

- (4725)

Backfill layer observed on both walls of the trench, sandy beige-grey matrix containing rare brick/tile fragments and flint pebbles (not illustrated on fig. 35).

- (4726)

Backfill layer made of brick fragment and cobbles in a grey sandy matrix (stabilized sand), corresponding to the last episode of levelling, probably just before the construction of the concrete slab.

Trench 47D (fig. 37)

Most units recorded in Trench 47D are present in 47C (4703, 4705, 4715, 4720), except two additional units described here.

- (4727)

Modern backfill layer made of mixed construction waste (brick/tile, cobbles, mortar, sand), laid there to level the zone.

- (4728)

Modern cobbled area (fig. 38) corresponding to the edge of the pathway running around the south-west corner of the farm. It is recut by the silage pit on the west, meaning an age prior to 1960.

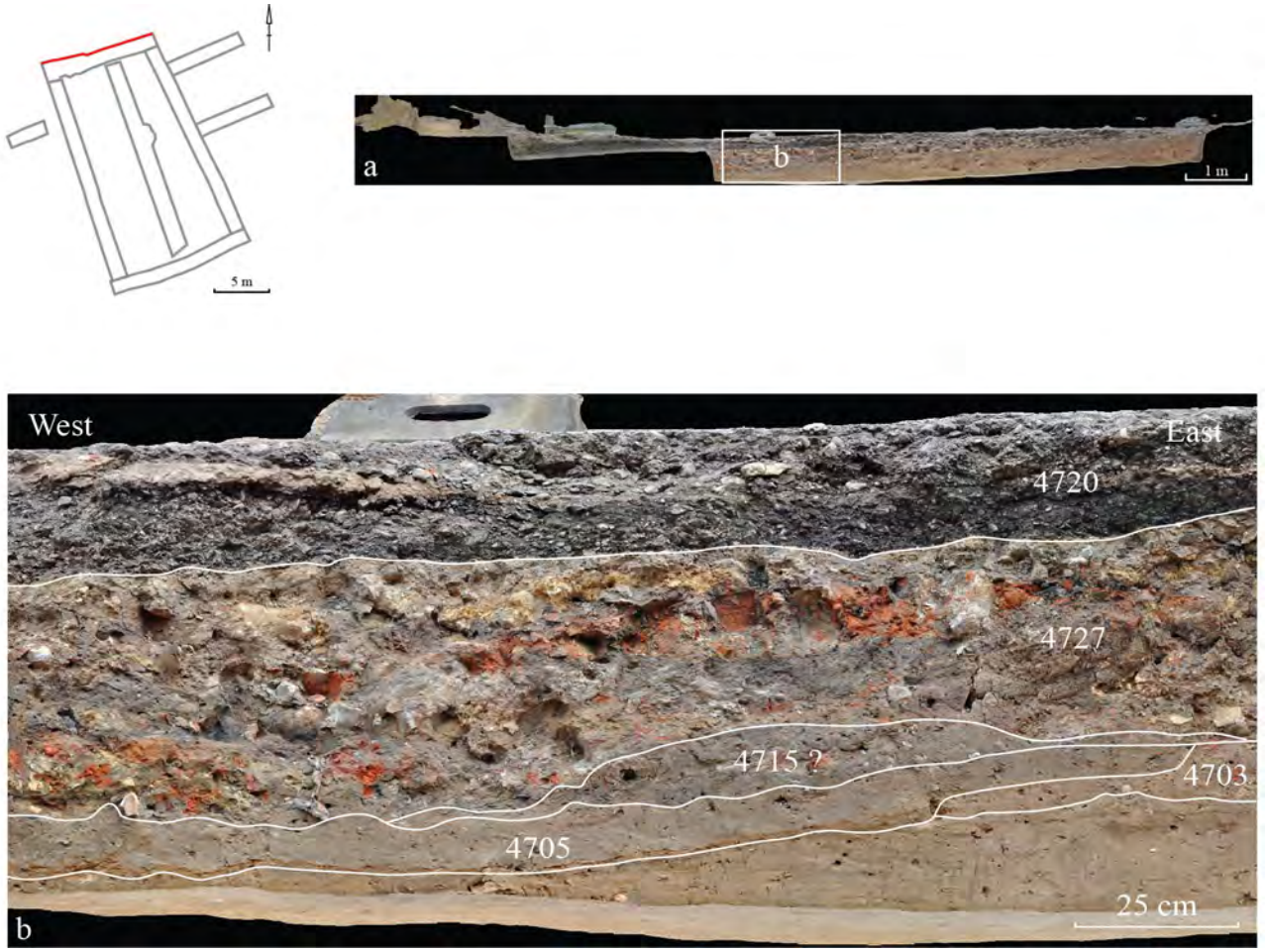

Figure 37 - Trench 47D North section: overall view (a) and zoom on units 4703 to 4727 (b).

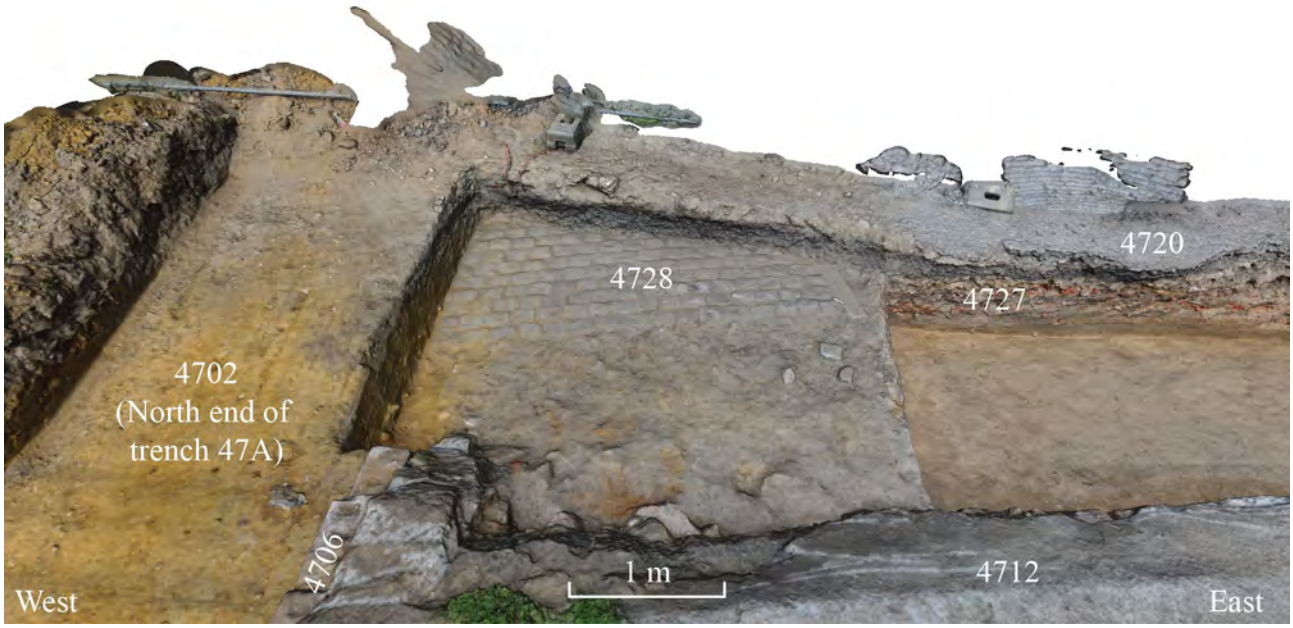

Figure 38 - Photogrammetric record of west end of Trench 47D and north end of 47A, showing (4728) and its relation with other units.

Trench 47E

- (4729)

Localised refill of the pathway running across trenches 47D and E (*cf. supra*, fig. 32), probably laid there to stabilize muddy parts of the track and/or to level potholes.

Trench 47F (fig. 39)

Some of units recorded on trench 47F North wall have been observed in Trench 47C mainly. Two new units are described below.

- (4730) and (4731)

These two rather difficult to distinguish units are situated on the top of (4714) and one can consider that as a whole they form a unique plough layer possibly made of several episodes (4730 is a bit more heterogeneous than 4714 and 4731).

Trench 47G (fig. 40)

Most of the layers observed on Trench 47G west wall are present in others trenches, but what is clear here is that (4721), (4726) and (4727) are overlapped to form one episode of modern levelling of the car park zone.

- (4732)

Possibly distinct layer of backfill made of construction rubbish, but maybe also (4727) unit. In that case, the fact that the same layer is present on two different levels on the same section maybe explained by the fact that the section cut perpendicularly an accumulation of overlapped layers.

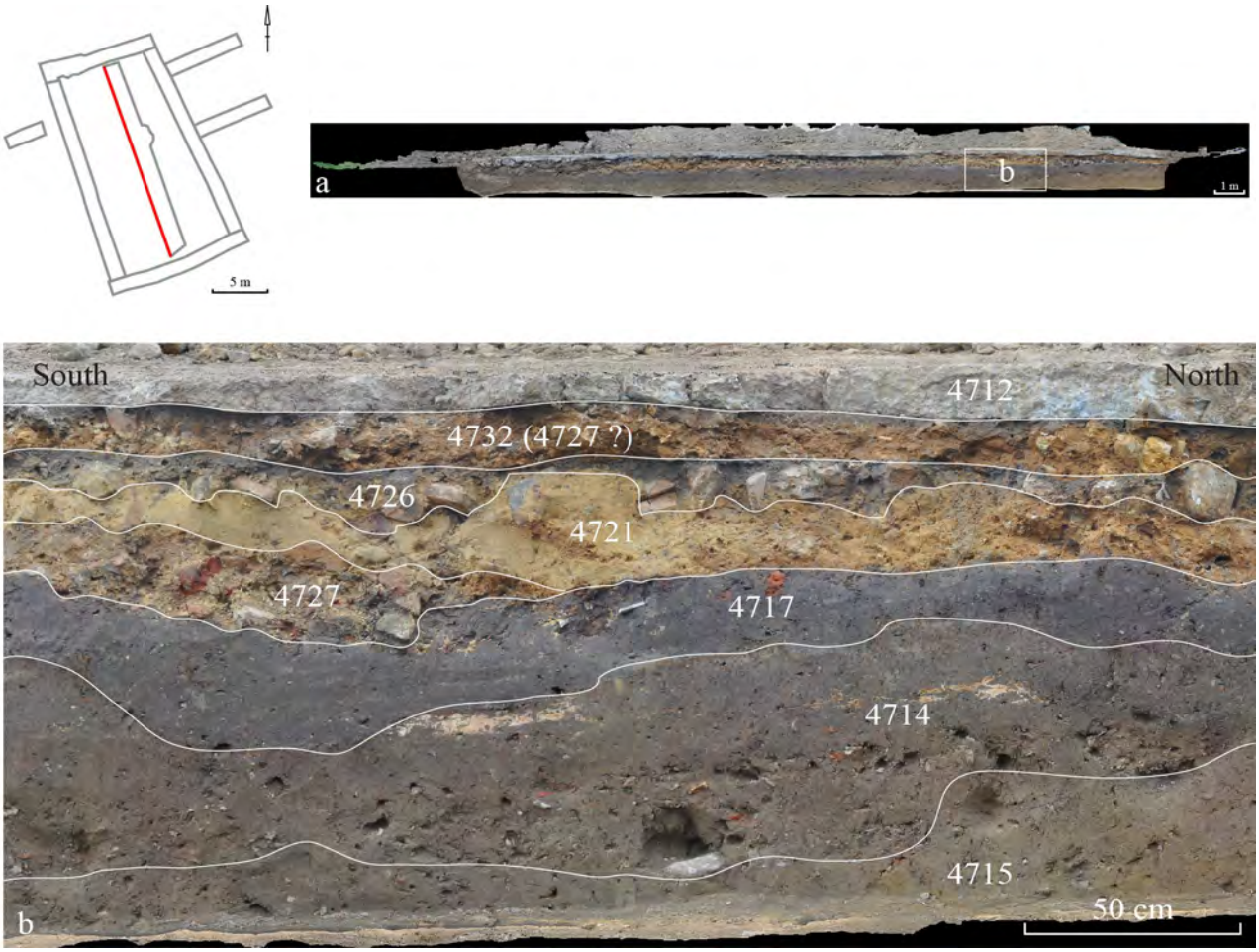

Figure 39 - Trench 47G west section: overall view (a) and zoom on units described in the text (b).

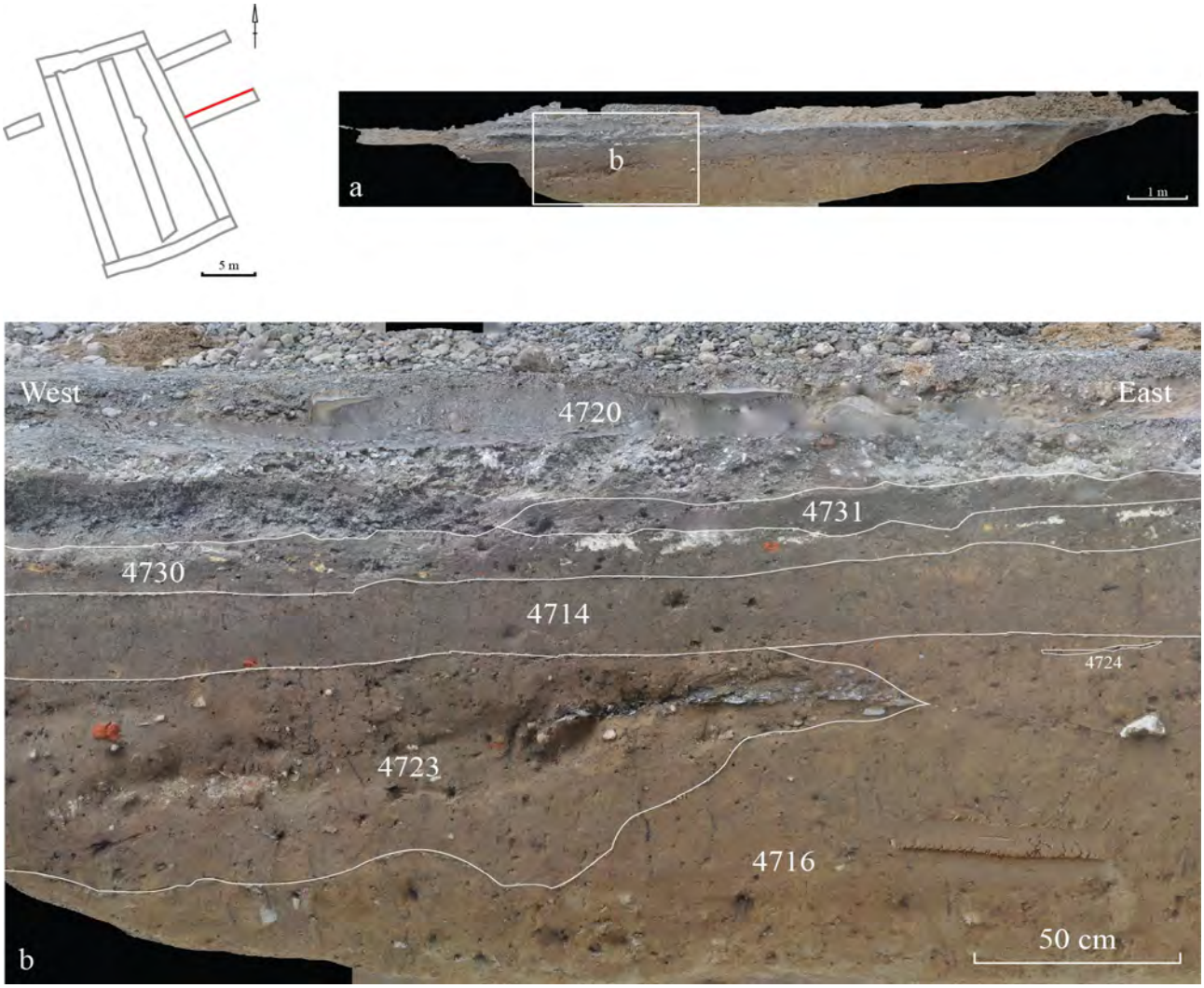

Figure 40 - Trench 47F north section: overall view (a) and zoom on units described in the text (b).

Trench 48

Situation : Against the north east wall of the Walled Garden (fig.1).

Dimensions : 15,5 m length (NE-SW), 5,0 m width (NW-SE), 5,10 m depth (77,5 m^2)

Aim : To investigate deposits at the base of the north eastern wall of the Formal Garden and enable further metal detecting and recovery of artefacts from subsoil.

Results / interpretation (see also Sam's comments and context sheets):

Figure 41 - Post-excavation photograph of garden wall, buttress, and foundation, facing north east.

Comments

A 1,5 m slot was excavated at the base of the garden wall, located in an area of concentrated CBM rubble. Excavation revealed a buttress of mixed irregular stone and brick, constructed in two phases (fig. 20). The lower, more substantial buttress was constructed of mortared irregular boulders and brick and measured 0,65 m x 0,61 m and 0,32 m in depth. A near vertical foundation cut [4805] and mid yellowish brown clayey silt fill (4806) were associated with this earlier phase of construction and are likely to represent the original construction of the wall. A later and upper phase of construction was represented by up to six courses of bricks, individually measuring 0,23 m x 0,12 m x 0,05 m (depth), with the later brick buttress measuring up to 0,58 m x 0,55 m and 0,38m in depth (fig. 20). A rubble deposit (4803) up to 0,38 m in depth and visible in section, was associated with the later phase of buttress construction. The buttress was tied in to recent reconstructions of the lower wall by three courses of modern 'historic style' bricks (fig. 20).

Overlying (4803) was rubble deposit (4802), of up to 0,26 m thick. This is likely to be associated with collapse and reconstruction of the wall post 1815, and to post date construction of both buttress phases (fig. 20). Foundation cut (4805) was dug through a mid yellowish brown clayey silt subsoil to a maximum depth of 0,55 m, at which natural bright brownish yellow clayey silt geology was encountered (fig. 20).

Upon examination of the length of the north eastern garden wall, it was clear that while no buttresses exist internally along the present wall, there is evidence for further below ground remains of buttresses similar to those encountered in Trench 48. The nearest of these were 9 m to the south east and 9,4 m to the north west. The evidence recorded in Trench 48 is likely to provide the clearest information to date that the present garden wall has been reconstructed numerous times and the present construction almost entirely post dates the battle.

Trench 49

Situation : The Walled Garden (fig.1).

Dimensions : 14,91 m long x 4,87 m wide x (0,15 m deep) (72,61 m^2).

Aim : to investigate the presence and potential nature of fighting within the Walled Garden.

Results / interpretation (see also Sam's comments and context sheets):

- 4 features identified under turf which cut through the subsoil : (4902), (4906), (4907), (4908). All features identified as modern. The trench has revealed no evidence of fighting within the Walled Garden.

Comments

- (4902)

- *At cleaning level* : a small semi-circular 'rubbish' pit, truncated by machining (65 cm x 25 cm). The filling (**4903**) is a homogeneous yellow-brown sandy silt, containing glass bottles SF 631. These wine bottles have been identified as modern glass-blown bottles, their deposition casual or chance.
- *In section* : slightly sloping base to pit (max. depth : 15 cm).

- (4906), (4907), (4908)

- *At cleaning level* : 3 'fire-pits' identified within the subsoil (**4904**), at a depth of 0,125 m depth. The shallow stratigraphic depth of these deposits suggests that these are the result of modern re-enactment activity as opposed to historic. No relationship can be inferred between these re-enactment fire-pits and the 'rubbish pit' (**4902**) discussed above.

Trench 51

Situation : The Walled Garden, close to the west gate in the courtyard wall (fig. 1).

Dimensions : 5,36 m length, 2.03 m width, 9,20 m depth (10,88 m^2)

Aim : To investigate the area where sources report a small group of French soldiers gained access to the garden, and used the ornamental balustrade as cover from which to fire at the English forces inside the garden. Also to look for evidence of terracing or landscaping activity in the garden.

Results / interpretation (see also Satsuki's comments and context sheets):

- Buried garden wall feature found (5102), constructed either as part of the landscaping of the garden or prior to it.
- Stratigraphic sequence indicates that the area to the east of the wall was originally lower, and was built up using redeposited sand dug from somewhere nearby.
- The area did not contain a particularly high concentration of musket balls, and the veracity of the accounts of French soldiers remains undetermined.

Figure 42 - Garden wall (5102), retaining wall for garden parterre.

Comments

The garden wall (5102) was constructed using similar method and materials to the rest of the chateau's external walls. The footing was of roughly-shaped white limestone blocks supporting a wall of two courses of red brick bonded with rough mortar. The foundation cut for the footing [5113] was dug into *in situ* sand (5110). Above (5110) was the redeposited sand (5104) which contained fragments of ceramic building material and a number of iron objects including a nail. No construction cut was visible above ground, indicating that the redeposited material was dumped up against the face of the wall in order to level the slope and create a flat, even surface for the ornamental garden.

No remnant ground surface existed between (5104) and (5110), indicating the landscapers removed the topsoil before dumping (5104).

Figure 43 - south facing section of Trench 51, demonstrating redeposited sand (5104).

Figure 44 - Sondage in Trench 51, showing natural (5110) below redeposited sand (5104) with 2 metre scale.

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