

Melville Gates Quarry Extension, Ladybank – 2016 Evaluation Works: Archaeological Mitigation

Data Structure Report



by Claire Williamson & Joss Durnan

issued 15th November 2016

on behalf of Angle Park Sand and Gravel Co. Ltd

RATHMELL 
ARCHAEOLOGY LTD

Quality Assurance

This report covers works which have been undertaken in keeping with the issued brief as modified by the agreed programme of works. The report has been prepared in keeping with the guidance of Rathmell Archaeology Limited on the preparation of reports. All works reported on within this document have been undertaken in keeping with the Chartered Institute for Archaeologists' Standards and Policy Statements and Code of Conduct.

Signed *Claire Williamson*

Date ...15th November 2016...

In keeping with the procedure of Rathmell Archaeology Limited this document and its findings have been reviewed and agreed by an appropriate colleague:

Checked *Thomas Rees*

Date ...15th November 2016...

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Introduction

1. This Data Structure Report has been prepared for Angle Park Sand and Gravel Co. Ltd in respect of the extension to the sand and gravel quarry at Melville Gates, Ladybank, Fife (NGR: NO 30635 11959).
2. The archaeological works were designed to determine the nature, form and extent of any archaeological remains within the development area so as to inform the mitigation of any adverse impact. The archaeological works were structured to meet the requirements of Fife Council Archaeological Unit who, in advising that archaeological issues should be addressed, advised an initial evaluation at a 5% sample level.
3. Rathmell Archaeology Limited was appointed by Angle Park Sand and Gravel Co. Ltd to undertake the development of the archaeological evaluation. The project works were outlined in the Written Scheme of Investigation (Williamson & Gorman 2015), which was agreed with Fife Council Archaeological Unit.
4. This evaluation comprises the second and final phase of a larger programme of evaluation works. The first phase comprised the evaluation of the field immediately to the east in 2015 (see Klemen & Allsop 2015).

Site Location and Proposed Development

5. The area is located more than 1km to the northeast of the town of Ladybank, Fife. Prior to development as a quarry, the development area was in use as arable land. The extension of the existing quarry into the development area would operate on or at similar levels to the existing work and continue to use existing plant and infrastructure. The extraction and restoration would be undertaken in a progressive manner. The progressive restoration of each phase would limit the amount of land being disturbed at any given time.

Archaeological and Historical Background

6. The following historical and archaeological background is based on the information contained within the previous Environmental Statement (Dalgleish Associates Ltd 2011). Rather than repeat the information provided there, this section will summarize the key points and present additional information where appropriate.
7. No known sites had been identified within the development area. However, the Environmental Statement (Dalgleish Associates Ltd 2011) identified known sites in close proximity (see Appendix 3 Archaeological Desktop and Walkover Survey). The route of a Second World War anti-tank defence ditch (S16) was known to run close to the development area with sections of it still visible in the trees to the south. Also within these trees, at their western end, sits a pillbox (S10) which formed part of the anti-tank defence line known as the Command Line.
8. Further military remains survived in the form of Annsmuir POW Camp (S13), used as a work camp for German and Italian prisoners during the Second World War, which sits to the east of the area, and the site of butts and targets (S12) used by the Fife and Forfar Yeomanry, located further to the southeast.
9. Another two sites with the potential to be prehistoric in origin were also identified: Cairnfield Enclosure (S7), an Iron Age settlement located further to the southeast, and Pitlair (S15) which is located 100m to the east. Pitlair is detectable on aerial photographs as a sub-rectangular feature, measuring 18m by 12m in extent and surrounded by a narrow ditch.
10. To the north of the development area, a homestead motte (S11) was also recorded as a rectangular mound measuring 40m by 50m. However, it has been indicated as being nothing more than a modern dump from attempts to reclaim the land during the early 1970s.

11. As stated above, the field immediately to the east had been subjected to an earlier phase of archaeological evaluation in 2015 as part of these works (Klemen & Allsop 2015). The trenches within this field did not reveal any significant archaeological features, with the only features uncovered relating to agricultural activity in the form of field drains, ploughscars and furrows.

Designated Sites

12. No designated sites are known to exist within the development area and this is confirmed by the findings of the Environmental Assessment.

Project Works

13. An archaeological evaluation was undertaken between the 7th and 9th November 2016. This consisted of the excavation of a series of intrusive trenches for the purposes of exposing a 5% sample of the development area (roughly 6.3ha) to be archaeologically examined.
14. The trenches were placed in accordance with the terms of the Written Scheme of Investigation (Williamson & Gorman 2015). An additional trench, 62, was added in the area between Trenches 39 and 40 in order to trace the route of a feature in this location. In total 3316.8m² were excavated, which exceeded the 3150m² required for the purposes of this investigation. The position of the trenches is depicted in the site plan below (Figure 1).
15. All works were conducted in accordance with the Chartered Institute for Archaeologists' Standards and Policy Statements and Code of Conduct and Historic Environment Scotland Policy Statements.

Findings

16. In all, 33 evaluation trenches were excavated using a 16 tonne 360° tracked excavator with a smooth 2m ditching bucket; details of the trenches may be found in Appendix 1 of this document. Included below is a synthesis of the findings and interpretation from these trenches.
17. The trenches were excavated through turf and topsoil (001) which comprised a loose to moderately compact dark brown clayey silt with frequent rootlets and gravel inclusions. Occasional sherds of white glazed white earthenware were also found throughout.
18. Natural subsoil was encountered at depths of between 190 to 400mm below the ground surface level. The only exception to this was in Trenches 1 and 2 which sat in the northwestern corner of the field where the natural subsoil sat at depths of up to 800mm below the ground level (Figure 2a). This area appeared to have been prone to waterlogging in the past, and also seemed to have been used as a dumping area which likely contributed to the build-up of the overlying topsoil.
19. The subsoil consisted predominantly of sand and gravel (002), (003) and (007). These varied in colour across the site: subsoil (002) was light mottled orange/red/yellow in colour, while (003) was a dark red-orange (Figure 2b) and (007), a light grey-brown.
20. In the northwestern corner, where Trenches 1 and 2 sat, the natural subsoil (005) comprised a firmly compacted light grey-brown clayey silt with frequent gravel inclusions and patches of white silty clay. The difference in the subsoil across this area, with its higher clay content, is likely part of the reason for it being more waterlogged than elsewhere on site.
21. The only other variation in the subsoil was the occasional presence of (008), a loose light greyish-yellow sand with occasional small sub-rounded stones, which appeared across some of the central trenches.

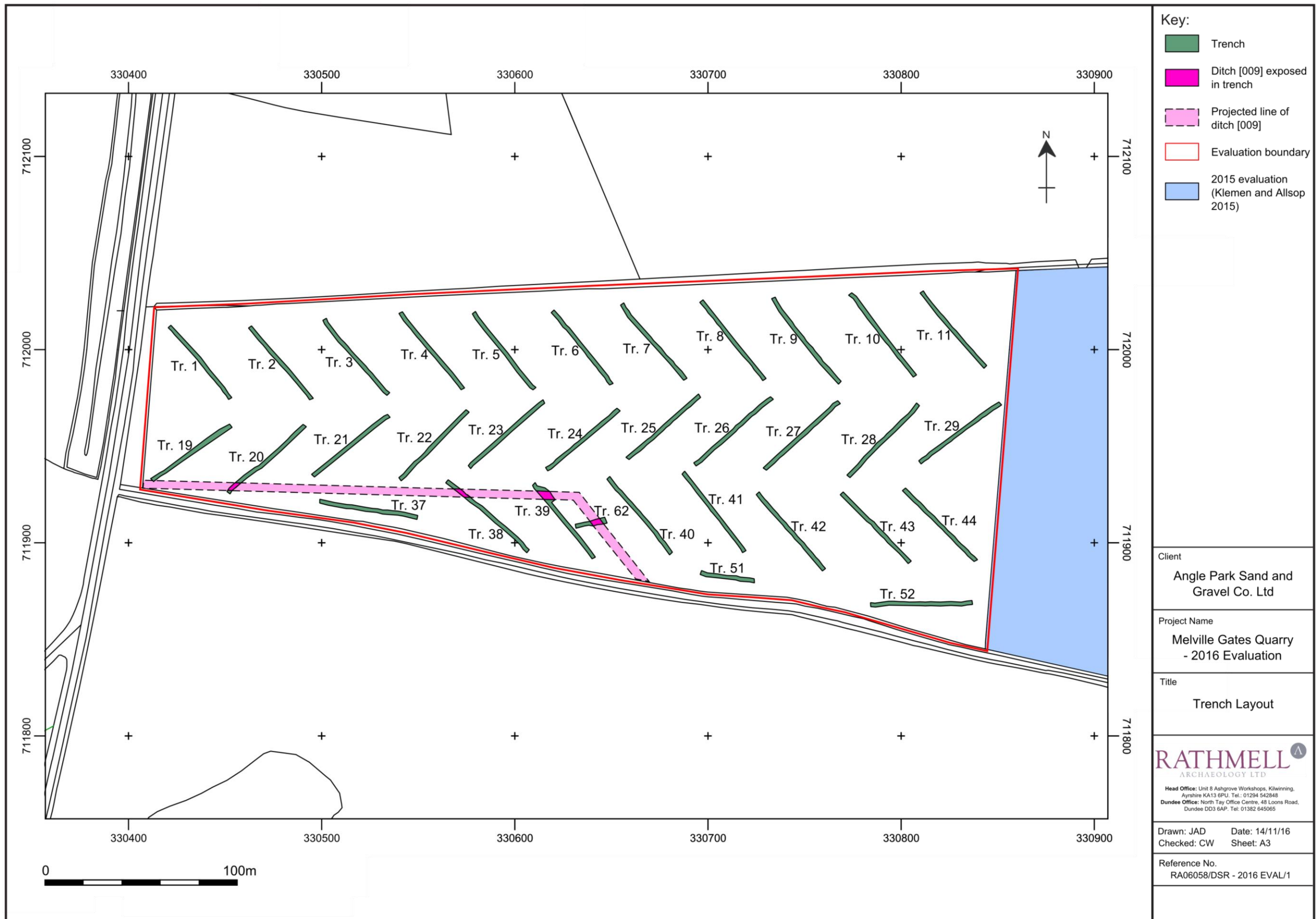


Figure 1: Layout of trenches as machined, also showing the route of ditch [009]

22. The majority of the trenches revealed modern disturbance in the form of ploughscars [004] (Figure 3a). These consisted of a series of shallow linear features containing a topsoil fill, with a U-shaped profile measuring 0.1 to 0.3m wide and on average 30mm deep. They were spread across the entirety of the field, on differing orientations.
23. Three of the trenches, 1, 2 and 5, revealed the presence of rubble field drains [006] (Figure 3b). These were linear in shape measuring 350mm wide, and contained sub-rounded stones measuring $\leq 130\text{mm}$ by 110mm by 20mm in size sitting in a topsoil matrix.
24. Linear features [011] and [014] appeared within Trenches 23 and 5 respectively, running north-northwest to south-southeast. The features both measured 1.2m in width and up to 130mm deep, with steep sides and a flat base (Figure 4a). They were filled by a mix of silts and sands: (012) & (013), and (015) & (016) respectively, with frequent small stone inclusions present in the latter two. It seems very likely that these represent the same feature running across the middle of the site as they sat on the same alignment.
25. The only significant archaeological feature revealed within the trenches was large ditch [009] (Figures 4b and 5). This appeared in Trenches 20, 38 and 39 running west to east, before turning southeast to run through Trench 62 (see Figure 1). It measured approximately 4.3m wide and 1.6m deep from the top surface of the natural subsoil (not the ground level). With an average topsoil depth of 300mm overlying the ditch when it was present, this would give it a depth of approximately 1.9m from the current ground level. The cut of the feature was steeper along its southern edge, with a more gradual slope to its northern edge (see Figure 5). It had a flat base, and was filled by (010), a friable mid reddish-brown silty sand with frequent small to medium sub-angular and rounded stone inclusions.
26. The only artefacts noted were the occasional 20th century finds throughout the topsoil (001), and some small pieces of broken round-section wire visible in one of the sections through the fill of ditch [009].

Discussion

27. The majority of features revealed within the trenches related to the land's use for agriculture throughout the 19th and 20th centuries. These mainly consisted of ploughscars [004] which appeared intensively across the full area, with differing alignments indicating multiple phases of ploughing.
28. Rubble field drains appeared within the trenches located towards the northwestern corner. Compared with the more free draining sand and gravel subsoils which dominated the majority of the field, the subsoil in this corner was of a more clayey composition. This likely caused the ground to be prone to waterlogging, instigating the need for drainage to be inserted.
29. The shallow linear feature, [011] and [014], running north-northwest to south-southeast through the centre of the field did not produce any artefacts to suggest a definitive date or function. However, the very regular and shallow form containing a fill similar to the overlying topsoil suggests that it is likely to be modern in date, also relating to the agricultural use of the land. It is possible that this feature represents an old drainage ditch or perhaps the line of an old boundary.
30. The most significant feature revealed during the evaluation works was large ditch [009]. The route of the ditch, and its substantial size, indicates that it is the remains of the anti-tank ditch believed to have crossed over the area.
31. This anti-tank ditch formed part of an extensive network of defences erected throughout Fife and Perthshire known as the Command Line (Barclay 2011). These defences were erected in the summer and autumn of 1940 in the aftermath of the defeat of the allied armies in France and the Low Countries, when an invasion on British soil was perceived to be highly likely.

32. According to Barclay (2011, 124), the Chief Engineer's office advised that the ditch was to be at least 5ft deep and 18ft wide. The section of the ditch revealed in the development area, [009], matches this depth, but has a narrower width. It is likely that this is merely a reflection of its survival. The uppermost portion of the ditch where it would have originally cut through the topsoil has been obscured by ploughing and cultivation of the field in the decades since the war, and it is now only possible to record the ditch as it can be seen cutting through the surface of the natural subsoil. As this is at a lower depth, and the ditch's edges slope inwards as they become deeper, then the original width of the ditch at ground level will have been wider, and likely closer matched the advised dimensions.
33. The anti-tank ditch was also designed to ensure that the side of the ditch faced by the enemy was steeper, revetted with timber and brushwood held in place with galvanised wire (*ibid.*, 124). The steeper edge in ditch [009] sat along its southern side which fits well with the anticipation of an enemy attack coming from the north.
34. There were no remains of a timber revetment still *in situ* along the southern face of the ditch, and no definite suggestion of rotten timbers within the fill either. It does seem likely however that this side would have been originally revetted, as accounts of heavy rain causing the collapse of sections of un-revetted ditch elsewhere is mentioned by Barclay (2011, 119) and this would have likely acted as a strong incentive. In section, it is apparent that the steeper side of the ditch is more uneven than the opposing gradual side, and it is possible that this could reflect disturbance from either the insertion or removal of any revetments that may have been present.
35. Some small pieces of broken wire were visible in one section of the ditch and these could represent remains of the galvanised wire used to hold the revetments in place, although the fragments were too small to be certain and could also have been deposited from other sources.
36. The fill of the ditch consisted of a single deposit suggesting that it was deliberately filled in one go, rather than being left open to fill up naturally over time. As some sections of the ditch sitting in the wooded area to the south are recorded to have been left open, filling the ditch does not seem to have been a uniform practice. Barclay (2011, 118) mentions that the army negotiated with farmers across whose land the anti-tank ditch was to be dug. As this section of the ditch sits within agricultural land, it makes sense that it would have been quickly filled in one go to allow the farmer to reclaim it for cultivation as soon as possible after the defences were no longer needed.
37. When the ditch was originally excavated, particularly if it was done by machine, the spoil would have been banded up on the southern (defender's) side to enhance the height of the obstacle (Stephen Liscoe, pers. comm., 16th November 2016). In this instance, filling the ditch would simply have been a case of quickly putting the banded spoil back into it. As it would have been the same material going back in as that which came out, this also explains why these large features do not often give rise to a cropmark, making them mostly invisible on aerial photography (*ibid.*).
38. If any timber revetments were removed at the time of infill, this could reflect a desire not to waste a decent source of timber which could be used or sold elsewhere.

Recommendations

39. The evaluation works revealed the presence of a section of anti-tank ditch which was built in 1940 as part of an extensive network of defences known as the Command Line, which has been well-documented with some portions still surviving. The works were able to identify the route of the anti-tank ditch as it crossed the field, and a section was put through the ditch in order to assess its character.
40. Other than this feature, no significant archaeological remains were located within the development area and the only other archaeological material observed related to modern agricultural use of the site.



Figure 2a: Trench 1 from the southeast showing area of deeper topsoil



Figure 2b: Trench 38 from the southeast showing subsoil (003)



Figure 3a: Trench 11 from southeast showing ploughscars [004]



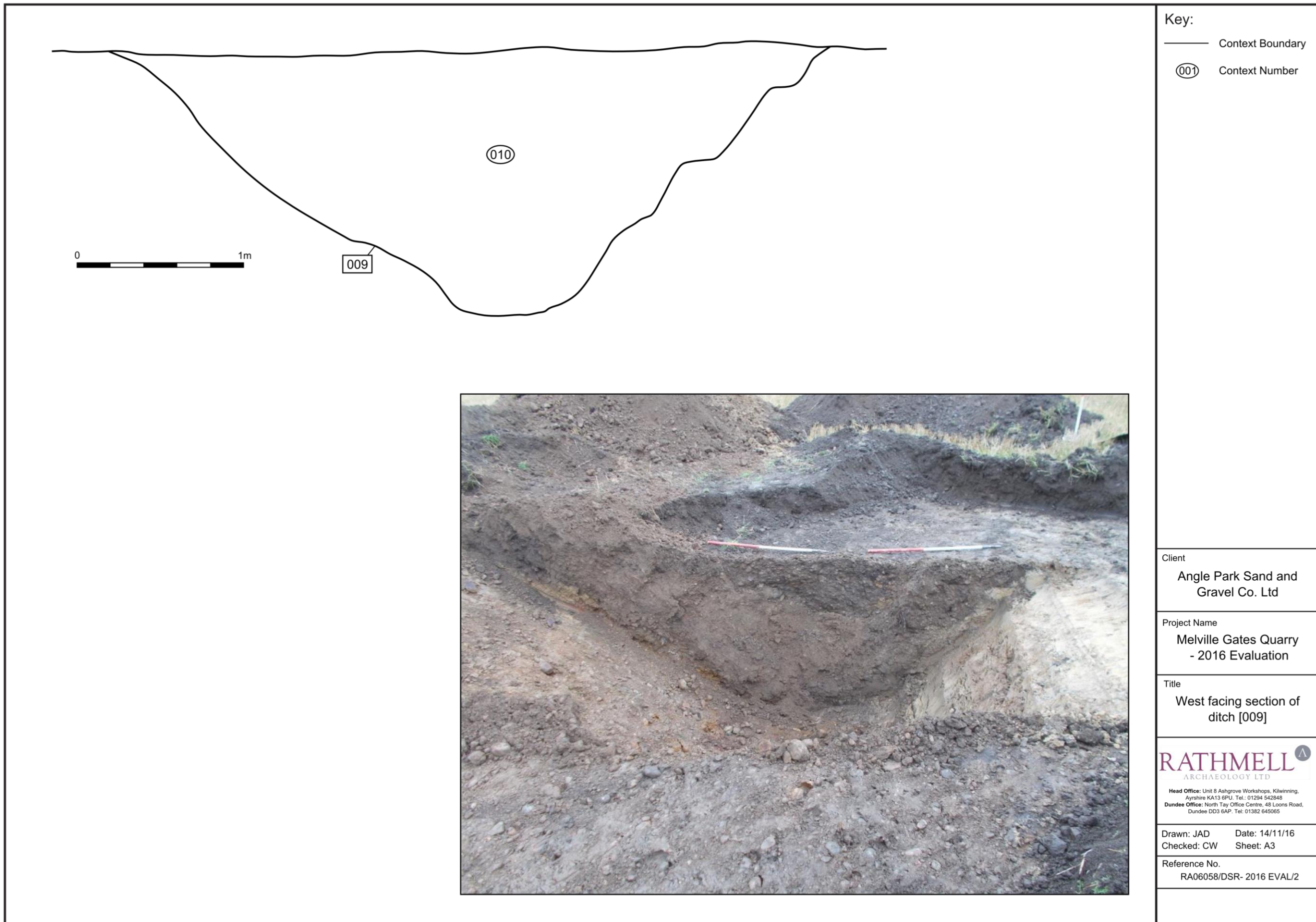
Figure 3b: Rubble drain [006] in Trench 1 from the south



Figure 4a: Linear feature [014] in Trench 5 from the south



Figure 4b: Ditch [009] in Trench 39 from the east



Key:
 — Context Boundary
 (001) Context Number

Client
 Angle Park Sand and Gravel Co. Ltd

Project Name
 Melville Gates Quarry - 2016 Evaluation

Title
 West facing section of ditch [009]

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Drawn: JAD Date: 14/11/16
 Checked: CW Sheet: A3

Reference No.
 RA06058/DSR- 2016 EVAL/2

Figure 5: West facing section of ditch [009]

41. On balance, Rathmell Archaeology Ltd recommends that no further archaeological works be carried out within the development area. As the evaluation works have allowed us to fully record this portion of the anti-tank ditch in both plan and section, no further works are recommended for this feature.
42. The appropriateness and acceptability of our recommendations rest with Fife Council and their advisors, the Fife Council Archaeology Service.

Conclusion

43. A programme of archaeological works was required by Angle Park Sand and Gravel Co. Ltd in respect of the extension to the sand and gravel quarry at Melville Gates, Ladybank, Fife (NGR: NO 30635 11959). The archaeological works were designed to mitigate the impact on the archaeological remains within the development area.
44. While across the majority of the development area, the evaluation trenches only revealed features which related to the land's use for agriculture in modern times, one feature of significance was discovered and recorded.
45. A large ditch uncovered in the southwestern portion of the field was known to form part of the remains of the Command Line built in 1940. This was the name for an extensive network of defences built across Fife and Perthshire in preparation for the possibility of an invasion on British soil. The section revealed within the development area did not have any remaining timber revetments *in situ* but displayed the typical form known for the anti-tank ditch: a steeper edge ran along the southern side of the ditch facing enemy invasion from the north, with a more gradual slope running along its northern side. The infill of the ditch was formed of a single deposit suggesting a deliberate infilling of the ditch in one go, likely in order to swiftly return it back to agricultural land once the defence system was no longer required.

Acknowledgements

46. We are grateful to Peter Cuthbert and everyone at Angle Park Sand and Gravel Co. Ltd for giving us the opportunity to carry out these works and for all of their assistance on site. We are also grateful to Stephen Liscoe and Douglas Speirs at Fife Council Archaeology Service for all of their help and guidance throughout the project. Thanks also goes to Thomas Rees for his final editing of this report.

References

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Appendix 1: Trench Details

Trench Summary

Trench	Orientation	Size	Topsoil Depth	Subsoil Character	Modern/ Agricultural Features	Significant Features	Artefacts
1	Southeast to northwest	2m by 48.4m 96.8m ²	400-750mm	Firmly compacted light grey-brown clayey silt (005) present for the full length of the trench.	Rubble field drains [006] present at +11m and +26m with common orientation N-S.	None	None
2	Northwest to southeast	2m by 50.8m 101.6m ²	350 - 800mm	Moderately compacted very light grey-brown sand and gravel (007) present until +23m before changing to firmly compacted dark red-orange sand and gravel (003) for the remainder of the trench.	Rubble field drain [006] present at +6m orientated N-S.	None	None
3	Northwest to southeast	2m by 51m 102m ²	230 – 330mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present for the full length of the trench.	Plough scars [004] present at +4.5m orientated WSW-ENE, and from +26m to +29.5m and +36.5m to +13.5m orientated E-W.	None	None
4	Northwest to southeast	2m by 51.5m 103m ²	190 – 340mm	Firmly compacted dark red-orange sand and gravel (003) present until +6m before changing to firmly compacted light mottled orange/red/yellow clayey sand and gravel (002). This was present until +28m before changing to firmly compacted light grey-brown clayey silt (005) until +33.5m, when it changed to moderately compacted very light greyish-yellow sand (008) for the remainder of the trench.	Plough scars [004] present until +10.5m orientated WSW-ENE and from +14m for the remainder of the trench orientated WNW-ESE.	None	None
5	Southeast to northwest	2m by 48.8m	200 – 300mm	Firmly compacted dark red-orange sand and gravel (003) present until +14.5m before changing to moderately	Plough scars [004] present along the full length of the trench	None	None

Trench	Orientation	Size	Topsoil Depth	Subsoil Character	Modern/ Agricultural Features	Significant Features	Artefacts
		97.6m ²		compacted very light grey-brown sand and gravel (007) for the remainder of the trench.	orientated WNW-ESE. Shallow linear ditch [014] from +38m to +42.25m orientated NNW-SSE. Rubble drain [006] from +20m to +22m orientated W-E.		
6	Northwest to southeast	2m by 50.5m 101m ²	290 – 340mm	Firmly compacted dark red-orange sand and gravel (003) present until +34m before changing to moderately compacted very light grey-brown sand and gravel (007). This was present until +48.5m before changing back to (003).	Plough scars [004] present from +4m to +8m orientated WSW-ESE, and from +10.5m to +41.5m orientated WNW-ESE.	None	None
7	Southeast to northwest	2m by 51.2m 102.4m ²	350 - 400mm	Loose light greyish-yellow sand (008) present until +9m before changing to firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) for the remainder of the trench.	Plough scars [004] present along the full length of the trench orientated WNW-ESE.	None	None
8	Northwest to southeast	2m by 52.3m 104.6m ²	300 - 400mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present until +34m before changing to firmly compacted dark red-orange sand and gravel (003) for the remainder of the trench.	Plough scars [004] present from +10m which continue along the full length of the trench orientated WNW-ESE.	None	None
9	Southeast to northwest	2m by 52.2m 104.4m ²	300 – 350mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present until +16m before changing to loose light greyish-yellow sand (008). This was present until +24m before changing to firmly compacted dark red-orange sand and gravel (003) for the remainder of the trench.	Plough scars [004] present along the full length of the trench orientated WNW-ESE.	None	None

Trench	Orientation	Size	Topsoil Depth	Subsoil Character	Modern/ Agricultural Features	Significant Features	Artefacts
10	Southeast to northwest	2m by 52.2m 104.4m ²	210 – 270mm	Firmly compacted dark red-orange sand and gravel (003) present for the full length of the trench.	Plough scars [004] present for the full length of the trench orientated N-S.	None	None
11	Northwest to southeast	2m by 52.4m 104.8m ²	220 – 350mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present for the full length of the trench.	Plough scars [004] present from +2m to +7m orientated WSW-ENE, and from +8.5m to +18m and at +27m for the remainder of the trench orientated WNW-ESE.	None	None
19	Southwest to northeast	2m by 49m 98m ²	300 – 400mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present until +7m before changing to firmly compacted dark red-orange sand and gravel (003). This was present until +26.5m before changing to (002).	Plough scars [004] present from +24.5m to +33m orientated WNW-ESE.	None	None
20	Northeast to southwest	2m by 56.4m 112.8m ²	300 – 400mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present until +29m before changing to firmly compacted dark red-orange sand and gravel (003) for the remainder of the trench.	Plough scars [004] present at +2.5m and +4m orientated WNW-ESE.	Ditch [009] present from +45m to +55.5m orientated NW-SE.	None
21	Southwest to northeast	2m by 50.1m 100.2m ²	270 – 280mm	Firmly compacted dark red-range sand and gravel (003) present for the full length of the trench.	Plough scars [004] present from +12m to +30m orientated WNW-ESE.	None	None
22	Northeast to southwest	2m by 51.6m	280 - 310mm	Loose light greyish-yellow sand (008) present until +11.5m before changing to firmly compacted light grey-brown clayey silt (005). This was present until +18.5m before changing to firmly	Plough scars [004] present from +15.5m until +26.5m and at +32m orientated NW-SE.	None	None

Trench	Orientation	Size	Topsoil Depth	Subsoil Character	Modern/ Agricultural Features	Significant Features	Artefacts
		51.6m ²		compacted dark red-orange sand and gravel (003) for the remainder of the trench.			
23	Southwest to northeast	2m by 52.1m 104.2m ²	260 – 270mm	Moderately compacted very light grey-brown sand and gravel (007) present for the full length of the trench.	Plough scars [004] present from +20.5m to +45m orientated WNW-ESE. Shallow linear ditch [011] present from +17.25m to +19m orientated NNW-SSE.	None	None
24	Northeast to southwest	2m by 50.4m 100.8m ²	200 – 280mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present until +5.5m before changing to moderately compacted very light grey-brown sand and gravel (007) for the remainder of the trench.	Plough scars [004] present from +3m to +42m orientated NW-SE.	None	None
25	Southwest to northeast	2m by 51m 102m ²	300 – 350mm	Loose light greyish-yellow sand (008) present until +25.5m before changing to firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) for the remainder of the trench.	Plough scars [004] present for the full length of the trench orientated NW-SE.	None	None
26	Northeast to southwest	2m by 53.6m 107.2m ²	300 - 350mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present for the full length of the trench.	Plough scars [004] present from +1m to +3.5m and +21.5m to +53.6m orientated NNE-SSW.	None	None
27	Southwest to northeast	2m by 51.3m 102.6m ²	300 – 350mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present until +43m before changing to loose light greyish-yellow sand (008) for the remainder of the trench.	Plough scars [004] present from +4m to +51.3m orientated NW-SE.	None	None

Trench	Orientation	Size	Topsoil Depth	Subsoil Character	Modern/ Agricultural Features	Significant Features	Artefacts
28	Northeast to southwest	2m by 51.9m 103.8m ²	240 – 280mm	Moderately compacted very light grey-brown sand and gravel (007) present until +22.5m before changing to firmly compacted dark orange-red sand and gravel (003) for the remainder of the trench.	Plough scars [004] present from +2.5m which continue for the remainder of the trench orientated NNE-SSW.	None	None
29	Northeast to southwest	2m by 51.9m 103.8m ²	280 – 350mm	Moderately compacted very light grey-brown sand and gravel (007) present until +38m before changing to firmly compacted dark red/orange sand and gravel (003) for the remainder of the trench.	Plough scars [004] present from +20.5m which continue for the remainder of the trench.	None	None
37	West-northwest to East-southeast	2m by 51.4m 102.8m ²	300mm	Firmly compacted dark red-orange sand and gravel (003) present for the full length of the trench.	None	None	None
38	Southeast to northwest	2m by 55.3m 110.6m ²	220 – 300mm	Firmly compacted dark red-orange sand and gravel (003) present for the full length of the trench.	Plough scars [004] present at +14m and from +28.5m to +35.5m orientated WNW-ESE.	Ditch [009] from +41m to approximately +48.5m orientated W-E.	None
39	Southeast to northwest	2m by 50.1m with 3m wide extension to the NE between +36m and +46m 130.2m ²	310 – 360mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present for the full length of the trench.	Plough scars [004] present along the full length of the trench orientated WNW-ESE	Ditch [009] from +36m to +45.5m orientated W-E.	None

Trench	Orientation	Size	Topsoil Depth	Subsoil Character	Modern/ Agricultural Features	Significant Features	Artefacts
40	Southeast to northwest	2m by 51.8m 103.6m ²	220 – 350mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present for the full length of the trench.	Plough scars [004] present from +2.5m continuing for the remaining length of the trench orientated WNW-ESE.	None	None
41	Northwest to southeast	2m by 51.5m 103m ²	300 - 350mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present until +41.5m before changing to firmly compacted dark red-orange sand and gravel (003) for the remainder of the trench.	Plough scars [004] present from +1.5m continuing the length of the trench orientated WNW-ESE.	None	None
42	Southeast to northwest	2m by 52.7m 105.4m ²	350mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present until +16.5m before changing to firmly compacted dark red-orange sand and gravel (003) for the remainder of the trench.	Plough scars [004] present along the full length of the trench orientated WNW-ESE.	None	None
43	Northwest to southeast	2m by 50.7m 101.4m ²	230 – 300mm	Moderately compacted very light grey-brown sand and gravel (007) present until +4.5m before changing to firmly compacted dark red-orange sand and gravel (003) for the remainder of the trench.	Plough scars [004] present from +10.5m continuing for the length of the trench orientated WNW-ESE.	None	None
44	Southeast to northwest	2m by 53m 106m ²	270 – 300mm	Firmly compacted dark red-orange sand and gravel (003) present until +37m before changing to moderately compacted very light grey-brown sand and gravel (007).	Plough scars [004] present until +7.5m orientated NNE-SSW and from +9m continuing to the end of the trench orientated WNW-ESE	None	None
51	West to east	2m by 28m	300 - 400mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present for the full length of the trench.	Plough scars [004] present from 0m to +20m orientated W-E.	None	None

Trench	Orientation	Size	Topsoil Depth	Subsoil Character	Modern/ Agricultural Features	Significant Features	Artefacts
		56m ²					
52	East to west	2m by 52.8m 105.6m ²	240 – 260mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present for the full length of the trench.	Plough scars [004] present until +2.5m orientated NNW-SSE and from +4m continuing to the end of the trench orientated NW-SE	None	None
62	East-southeast to West-northwest	2m by 15.5m 31m ²	290 – 320mm	Firmly compacted light mottled orange/red/yellow clayey sand and gravel (002) present for the full length of the trench.	None	Ditch [009] present from +8.5m to +15m orientated NW-SE.	None

Appendix 2: Registers

Context Register

Context No.	Area/ Trench	Type	Description	Interpretation
001	All	Deposit	Loose to moderately compact dark brown clayey silt with frequent rootlet and gravel inclusions and white glazed white earthenware (WGWE).	Topsoil
002	3, 4, 7, 8, 9, 11, 19, 20, 24-28, 38-42	Deposit	Firmly compacted light mottled orange/red/yellow clayey sand and gravel.	Natural subsoil
003	2, 4, 5, 6, 8, 9, 10, 19-22, 28, 29, 37, 41-44	Deposit	Firmly compacted dark red-orange sand and gravel.	Natural subsoil
004	3-11, 19-29, 38-44, 51, 52	Feature	Narrow linear features. U-shaped in profile and filled by topsoil (001). Between 100-300mm in width and up to 30mm deep.	Plough scars
005	1, 4, 22	Deposit	Firmly compacted light grey-brown clayey silt with frequent gravel inclusions and patches of white silty clay which suggests waterlogged area.	Natural subsoil
006	1, 2, 5	Feature	Linear measuring 350mm wide. Contains sub-rounded stones ≤ 130mm x 110mm x 20mm in size in a topsoil (001) matrix.	Rubble field drain
007	2, 5, 6, 23, 24, 28, 29, 43, 44	Deposit	Moderately compact very light grey-brown sand and gravel.	Natural subsoil
008	7, 9, 22, 25	Deposit	Loose light greyish-yellow sand with occasional small (50-150mm) sub-rounded stones.	Natural subsoil
009	20, 38, 39, 62	Cut	Linear cut with a U-shaped profile measuring 4.3m in width and 1.6m deep with a sharp top break of slope, gradual bottom break of slope, and flat base. The southern face is steep and uneven, the northern face is more gradual and even.	Probable WWII anti-tank ditch constructed as part of the Fife Stop Line defences.
010	20, 38, 39, 62	Deposit	Friable mid reddish-brown silty sand with frequent small to medium sub-angular and rounded stones.	Fill of [009]
011	23	Cut	Linear cut with steep sides and flat base. Measured 1.2m in width and	Shallow linear feature, possibly an old

Context No.	Area/ Trench	Type	Description	Interpretation
			110mm deep, with a sharp top break of slope and a gradual bottom break of slope.	boundary line. Very likely a continuation of [014]
012	23	Deposit	Loose dark blackish-brown sandy silt.	Secondary fill of [011]
013	23	Deposit	Loose light yellow mottled black silty sand.	Primary fill of [011]
014	5	Cut	Linear cut with steep sides, flat base, sharp top break of slope, and gradual bottom break of slope. Measured 1.2m in width and 130mm deep.	Shallow linear feature, possibly an old boundary line. Very likely a continuation of [011]
015	5	Deposit	Friable dark blackish-brown slightly clayey silt with frequent medium (150-200mm) sub-rounded stone inclusions.	Secondary fill of [014]
016	5	Deposit	Compact mid greyish-brown clayey silt with frequent small to medium (50-150mm) sub-rounded stone inclusions.	Primary fill of [014]

Photographic Register

Image No.	Digital	Description	From	Date
001	236	Pre-ex of evaluation area	WSW	07/11/16
002	237	Pre-ex of evaluation area	W	07/11/16
003	239	Trench 19 post-ex	SW	07/11/16
004	240	Plough scars [004] – Trench 19	SE	07/11/16
005	241	Trench 19 post-ex	NE	07/11/16
006	242	Trench 1 post-ex	SE	07/11/16
007	243	Trench 2 post-ex	SE	07/11/16
008	244	Rubble drain [006] – Trench 1	S	07/11/16
009	245	Trench 20 post-ex	NE	07/11/16
010	246	Trench 37 post-ex	E	07/11/16

Image No.	Digital	Description	From	Date
011	247	Trench 21 post-ex	NE	07/11/16
012	248	Trench 3 post-ex	SE	07/11/16
013	249	Trench 4 post-ex	SE	07/11/16
014	250	Trench 22 post-ex	SW	07/11/16
015	251	Trench 38 post-ex	SE	07/11/16
016	252	Ditch [009], Trench 38 – mid-ex	W	07/11/16
017	253	Ditch [009], Trench 38 – mid-ex	W	07/11/16
018	254	Ditch [009] – W facing section, Tr. 38	NW	07/11/16
019	255	Ditch [009] – W facing section, Tr. 38 (SE half)	SW	07/11/16
020	256	Ditch [009] – W facing section, Tr. 38 (NW half)	SW	07/11/16
021	258	Ditch [009] Tr. 38 – W facing section	S	07/11/16
023	259	Trench 23 post-ex	NE	08/11/16
024	260	Trench 5 post-ex	SE	08/11/16
025	261	Trench 6 post-ex	SE	08/11/16
026	262	Trench 24 post-ex	SW	08/11/16
027	263	Trench 39, post-ex	NW	08/11/16
028	264	Ditch [009] exposed in Trench 39	W	08/11/16
029	265	Trench 40 post-ex	NW	08/11/16
030	266	Trench 25 post-ex	NE	08/11/16
031	267	Trench 7 post-ex	SE	08/11/16
032	268	Trench 8 post-ex	SE	08/11/16
033	269	Trench 26 post-ex	SW	08/11/16
034	270	[011] S-facing section	S	08/11/16

Image No.	Digital	Description	From	Date
035	271	[014] S-facing section	S	08/11/16
036	272	Ditch [009], Trench 39	E	08/11/16
037	273	Trench 41 post-ex	SE	08/11/16
038	274	Trench 51 post-ex	E	08/11/16
039	275	Trench 42 post-ex	NW	08/11/16
040	276	Trench 27 post-ex	NE	08/11/16
041	277	Trench 9 post-ex	SE	08/11/16
042	278	Trench 10 post-ex	SE	08/11/16
043	279	Trench 28 post-ex	SW	09/11/16
044	280	Trench 43 post-ex	SE	09/11/16
045	281	Trench 52 post-ex	W	09/11/16
046	282	Trench 44 post-ex	NW	09/11/16
047	283	Trench 29 post-ex	SW	09/11/16
048	284	Trench 11 post-ex	SE	09/11/16
049	285	Trench 62 post-ex	E	09/11/16
050	286	Ditch [009] in Tr. 62	SE	09/11/16
051	287	Working shot – [009] Trench 39	SE	09/11/16
052	288	General post-ex of E portion of field	WSW	09/11/16
053	289	General post-ex of W portion of field	SE	09/11/16
054	290	Trench 38, W facing section [009]	W	09/11/16
055	291	Trench 26 extension post-ex	SW	09/11/16

Drawing Register

Drawing No.	Sheet No.	Area/ Trench	Drawing Type	Scale	Description	Drawer	Date
001	1	Trench 19	Plan	1:100	Post-excavation plan of Trench 19	CW	07/11/16
002	1	Trench 1	Plan	1:100	Post-excavation plan of Trench 1	CW	07/11/16
003	1	Trench 2	Plan	1:100	Post-excavation plan of Trench 2	CW	07/11/16
004	1	Trench 20	Plan	1:100	Post-excavation plan of Trench 20	CW	07/11/16
005	1	Trench 37	Plan	1:100	Post-excavation plan of Trench 37	CW	07/11/16
006	1	Trench 21	Plan	1:100	Post-excavation plan of Trench 21	JAD	07/11/16
007	1	Trench 3	Plan	1:100	Post-excavation plan of Trench 3	JAD	07/11/16
008	1	Trench 4	Plan	1:100	Post-excavation plan of Trench 4	JAD	07/11/16
009	1	Trench 22	Plan	1:100	Post-excavation plan of Trench 22	JAD	07/11/16
010	2	Trench 38	Plan	1:100	Post-excavation plan of Trench 38	JAD	07/11/16
011	2	Trench 23	Plan	1:100	Post-excavation plan of Trench 23	JAD	08/11/16
012	2	Trench 5	Plan	1:100	Post-excavation plan of Trench 5	JAD	08/11/16
013	2	Trench 6	Plan	1:100	Post-excavation plan of Trench 6	JAD	08/11/16
014	2	Trench 24	Plan	1:100	Post-excavation plan of Trench 24	JAD	08/11/16
015	2	Trench 39	Plan	1:100	Post-excavation plan of Trench 39	CW	08/11/16
016	2	Trench 40	Plan	1:100	Post-excavation plan of Trench 40	CW	08/11/16
017	2	Trench 25	Plan	1:100	Post-excavation plan of Trench 25	CW	08/11/16
018	2	Trench 23	Section	1:10	[011] S-facing section	JAD	08/11/16
019	2	Trench 5	Section	1:10	[014] S-facing section	JAD	08/11/16
020	3	Trench 7	Plan	1:100	Post-excavation plan of Trench 7	CW	08/11/16
021	3	Trench 8	Plan	1:100	Post-excavation plan of Trench 8	CW	08/11/16
022	3	Trench 26	Plan	1:100	Post-excavation plan of Trench 26	CW	08/11/16
023	3	Trench 41	Plan	1:100	Post-excavation plan of Trench 41	CW	08/11/16

Drawing No.	Sheet No.	Area/Trench	Drawing Type	Scale	Description	Drawer	Date
024	3	Trench 51	Plan	1:100	Post-excavation plan of Trench 51	CW	08/11/16
025	3	Trench 42	Plan	1:100	Post-excavation plan of Trench 42	CW	08/11/16
026	3	Trench 27	Plan	1:100	Post-excavation plan of Trench 27	CW	08/11/16
027	3	Trench 9	Plan	1:100	Post-excavation plan of Trench 9	CW	08/11/16
028	4	Trench 10	Plan	1:100	Post-excavation plan of Trench 10	JAD	09/11/16
029	4	Trench 28	Plan	1:100	Post-excavation plan of Trench 28	JAD	09/11/16
030	4	Trench 43	Plan	1:100	Post-excavation plan of Trench 43	JAD	09/11/16
031	4	Trench 52	Plan	1:100	Post-excavation plan of Trench 52	JAD	09/11/16
032	4	Trench 44	Plan	1:100	Post-excavation plan of Trench 44	JAD	09/11/16
033	4	Trench 29	Plan	1:100	Post-excavation plan of Trench 29	JAD	09/11/16
034	4	Trench 11	Plan	1:100	Post-excavation plan of Trench 11	JAD	09/11/16
035	4	Trench 62	Plan	1:100	Post-excavation plan of Trench 62	JAD	09/11/16
036	4	Trench 20	Plan	1:100	Post-excavation plan of Trench 20 extension	JAD	09/11/16
037	5	Trench 39	Section	1:20	[009] W-facing section	JAD	09/11/16

Appendix 3: Discovery & Excavation in Scotland

LOCAL AUTHORITY:	Fife
PROJECT TITLE/SITE NAME:	Melville Gate Quarry Extension – 2016 Evaluation Works
PROJECT CODE:	RA06058
PARISH:	Collessie
NAME OF CONTRIBUTOR:	Claire Williamson & Joss Durnan
NAME OF ORGANISATION:	Rathmell Archaeology Limited
TYPE(S) OF PROJECT:	Evaluation
NMRS NO(S):	NO31SW 145
SITE/MONUMENT TYPE(S):	Anti-Tank Ditch (20 th century)
SIGNIFICANT FINDS:	None
NGR	NO 30635 11959 (centred on)
START DATE (this season)	7 th November 2016
END DATE (this season)	9 th November 2016
PREVIOUS WORK	Desk-based assessment and walkover in 2007 (no DES entry)
MAIN (NARRATIVE) DESCRIPTION: (may include information from other fields)	A programme of archaeological works was required by Angle Park Sand and Gravel Co. Ltd in respect of the extension to the sand and gravel quarry at Melville Gates, Ladybank, Fife (NGR: NO 30635 11959). The archaeological works were designed to mitigate the impact on the archaeological remains within the development area. While across the majority of the development area, the evaluation trenches only revealed features which related to the land's use for agriculture in modern times, one feature of significance was discovered and recorded. A large ditch uncovered in the southwestern portion of the field was known to form part of the remains of the Command Line built in 1940. This was the name for an extensive network of defences built across Fife and Perthshire in preparation for the possibility of an invasion on British soil. The section revealed within the development area did not have any remaining timber revetments <i>in situ</i> but displayed the typical form known for the anti-tank ditch: a steeper edge ran along the southern side of the ditch facing enemy invasion from the north, with a more gradual slope running along its northern side. The infill of the ditch was formed of a single deposit suggesting a deliberate infilling of the ditch in one go, likely in order to swiftly return it back to agricultural land once the defence system was no longer required.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	None
SPONSOR OR FUNDING BODY:	Angle Park Sand and Gravel Co. Ltd
ADDRESS OF MAIN CONTRIBUTOR:	Unit 8 Ashgrove Workshops, Kilwinning, Ayrshire KA13 6PU
E MAIL:	contact@rathmell-arch.co.uk
ARCHIVE LOCATION (intended/deposited)	Report to Fife Council Archaeology Service and archive to HES Collections.

Contact Details

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