



A21 Tonbridge-to-Pembury Dualling Scheme, Kent

Post-Excavation Final Report

Volume 2: WC2 Brickworks, Castle Hill Wood, Burgess Rough and Burgess Hill Farm

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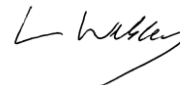


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A21 Tonbridge-to-Pembury Dualling Scheme, Kent

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Contents

Summary.....	xxi
Acknowledgements.....	xxiv
1 INTRODUCTION.....	1
1.1 Background.....	1
1.2 Geology and topography	1
1.3 Archaeological background.....	1
1.4 Scope and methodology	1
2 WC2 BRICKWORKS: INTRODUCTION	3
3 WC2 BRICKWORKS: THE KILNS	5
3.1 Introduction.....	5
3.2 Kiln 3.....	6
3.3 Kiln 1.....	10
3.4 Kiln 2.....	22
3.5 A brick surface to the north-west of the kilns.....	29
3.6 WC2 Brickworks—kilns context inventory	29
4 WC2 BRICKWORKS: DRYING SHEDS AND WORKSHOP	36
4.1 Introduction.....	36
4.2 General stratigraphic and chronological summary	36
4.3 Detailed description of Drying Shed 3 (Fig. 82).....	40
4.4 Detailed description of Drying Shed 0 (Fig. 83).....	41
4.5 Detailed description of Drying Shed 2 (Fig. 84).....	43
4.6 Detailed description of Drying Shed 1 (Fig. 85).....	44
4.7 Detailed description of Drying Shed 4 (Fig. 86).....	48
4.8 Detailed description of Drying Shed 5 (Fig. 87).....	50
4.9 Workshop building (Figs 93, 94 and 97).....	51
4.10 Other structures associated with the drying sheds (Figs 95 and 96)	54
4.11 Office building (Fig. 96).....	55
4.12 Drying sheds tables.....	56
4.13 WC2 Brickworks—drying sheds context inventory	58

5	WC2 BRICKWORKS: PUGMILLS.....	67
5.1	Introduction.....	67
5.2	Pugmill 2 (Fig. 97)	67
5.3	Pugmill 1 (Fig. 98)	69
5.4	Summary of pugmills	71
5.5	Castle Hill Wood pond	72
5.6	WC2 Brickworks—Pugmills context inventory	73
6	WC2–T1: BRICKWORKS COTTAGE	75
6.1	Introduction.....	75
6.2	Historical maps	75
6.3	Structural remains of the cottage and garden	75
6.4	WC2–T1 Brickworks Cottage context inventory	77
7	WC2: CLAY PITS.....	78
7.1	Introduction.....	78
7.2	Scope of the work.....	78
7.3	Results	79
7.4	Finds summary.....	85
7.5	Discussion	85
7.6	WC2 Clay pits context inventory.....	87
8	CASTLE HILL WOOD.....	90
8.1	Introduction.....	90
8.2	Location, topography and geology	91
8.3	Previous Archaeological Investigation	91
8.4	Project aims and scope of works	93
8.5	Methodology	93
8.6	Results	94
8.7	Interpretation and summary	99
8.8	Castle Hill Wood context and finds inventory.....	100
9	BURGESS ROUGH PLATFORM	108
9.1	Introduction.....	108
9.2	Location, topography and geology	109
9.3	Project aims and scope of works	109
9.4	Methodology	110
9.5	Results	111
9.6	Interpretation	119
9.7	Burgess Rough Platform context inventory	122
10	BURGESS ROUGH: CATTLE LODGE	131

10.1	Introduction	131
10.2	Location, topography and geology	131
10.3	Archaeological and Historical Background	131
10.4	Project aims and scope of works	132
10.5	Methodology	133
10.6	Results	133
10.7	Interpretation	135
10.8	Burgess Rough cattle lodge context inventory	136
11	BURGESS HILL FARM	139
11.1	Introduction	139
11.2	Location, geology and topography	139
11.3	Archaeological and historical background	140
11.4	Understanding of the farm buildings from above-ground evidence and initial trenching	141
11.5	Project Aims and Objectives	143
11.6	Scope	144
11.7	Methodology	146
11.8	Results	146
11.9	Discussion	156
11.10	Burgess Hill Farm context inventory	159
12	BIBLIOGRAPHY	167

List of Figures (see volume 3)

WC2 Brickworks kilns

- Figure 58 Location of WC2 Brickworks, Burgess Hill Farm, Burgess Rough and Castle Hill Wood with inset of layout of brickworks
- Figure 59 Excavated brickworks structures in relation to historic map evidence
- Figure 60 3D model of kiln 3, fully excavated (*digital version only*)
- Figure 61 3D model of kilns 1 and 2, fully excavated (*digital version only*)
- Figure 62 3D model of kiln 1, front end removed (*digital version only*)
- Figure 63 Plan of Kilns 1, 2 and 3
- Figure 64 Detailed plan of Kiln 3
- Figure 65 SW–NE profile of Kiln 2 and 3 flue systems
- Figure 66 Kiln 3, sections 2201, 2203 and 2204
- Figure 67 Kiln 2 stoke room, section 2200
- Figure 68 Detailed plan of Kiln 1
- Figure 69 Front elevation of Kiln 1
- Figure 70 NW–SE detailed profile of Kiln 1
- Figure 71 Kiln 1, slot 2 sections
- Figure 72 Kiln 1, slot 3 sections
- Figure 73 Kiln 1, slot 1 sections 143 and 144
- Figure 74 Section through Kiln 1 stoke room
- Figure 75 Detailed plan of Kiln 2
- Figure 76 Kiln 2, sections 139, 141, 142A and 142B
- Figure 77 Elevation of rear south-east wall of kiln 2

WC2 Brickworks sheds

- Figure 78 The major structures of the drying sheds complex and archaeological interventions
- Figure 79 Drying sheds showing locations of drawn sections
- Figure 80 Drying sheds, making shed and pugmills labelling archaeological structures
- Figure 81 Drying sheds showing Shed 0 and other archaeological features and ceramic drains
- Figure 82 Detailed plan of Shed 3
- Figure 83 Detailed plan of Shed 0
- Figure 84 Detailed plan of Shed 2
- Figure 85 Detailed plan of Shed 1
- Figure 86 Detailed plan of Shed 4
- Figure 87 Detailed plan of Shed 5
- Figure 88 Slot 2950 section drawings of pads in Drying sheds 1 and 2 (s1416, s1417, s1418)
- Figure 89 Slot 2952 section drawings of pads in Drying sheds 2 and 3 (s1409, s1410, s1411)
- Figure 90 Slot 2949 across Shed 1 and sections of other post-pads (S1413–1415, S108, S118, and S1428–1430)

- Figure 91 Sections of post-pads in Shed 4 (S130, 131, 132, 133) and Shed 5 (S129, 136 and 138)
- Figure 92 Slot 2966 sections across Sheds 4 and 5 (s1431, s1435)
- Figure 93 Sections across the workshop, its extension and the pugmills (S1444, S1442, S1448)
- Figure 94 Plan and section of structure 2947 in the workshop (S1443)
- Figure 95 Structures 243 and 296 plans and sections (P116, S121; P113, S117)
- Figure 96 Plan and sections of the office building and other structures (S110, S113; S124)

WC2 Brickworks pugmills

- Figure 97 Plan of Pugmill 2 and making shed or workshop
- Figure 98 Plan of Pugmill 1 and workshop extension
- Figure 99 Plan of the cottage and garden

WC2 Brickworks Clay pits

- Figure 100 Plan showing test pits, exposed soilmarks and extents of clay pits, and archaeological features
- Figure 101 Detailed plan of trench around vertical pipe

Castle Hill Wood

- Figure 102 Site location, Castle Hill Wood
- Figure 103 Plan of areas investigated, archaeological features and other deposits
- Figure 104 Plan of lower Castle Hill Wood archaeological features
- Figure 105 Plan of upper Castle Hill Wood archaeological features

Burgess Rough (Platform and Cattle Lodge)

- Figure 106 Location of Burgess Rough platform and cattle lodge
- Figure 107 Plan of platform OA12 showing early ditch, wheel ruts and stony spread
- Figure 108 Sections through Burgess Rough platform (S709/711, 716, 717 and 718)
- Figure 109 Detailed plan of Cattle Lodge

Burgess Hill Farm

- Figure 110 Location of Burgess Hill Farm
- Figure 111 Detailed plan of farmhouse showing revealed walls and surfaces in characterisation slots
- Figure 112 Detailed plan of barn showing revealed walls and floors in characterisation slots
- Figure 113 Detailed plan of stables showing revealed walls and floor in characterisation slots

- Figure 114 Burgess Hill Farm sections 1302, 1308 and 1304
Figure 115 Burgess Hill Farm sections 1303 and 1309

List of Plates (see volume 4)

WC2 Brickworks kilns

- Plate 117 The remains of Kiln 3 beneath the Kiln 2 flues, viewed from the north-west
- Plate 118 The flues of Kiln 3, viewed from the west
- Plate 119 The back wall of Kiln 3 revealed behind the foundations of Kiln 2, viewed from the north-west
- Plate 120 The arches and imposts of the Kiln 3 flues, including the shadows of the no longer extant arches, viewed from the north-west
- Plate 121 The Kiln 3 stoke room, viewed from the north-west, including the Kiln 2 stoke room walls on either side, and Kiln 2 on top of Kiln 3 in the background. The stoke room in the foreground contains the two posts (3206 and 3094, once to the centre, on the left-hand side, and the two drains (3089 and 3095, both on the left.
- Plate 122 The layer exposed to the south of Kilns 2 and 3, beneath the level of the Kiln 2 stoke room floor, viewed from the north-east
- Plate 123 General view of Kiln 1 from the west Kiln 1
- Plate 124 Internal rounded corner of the kiln chamber
- Plate 125 General view of the Kiln 1 chamber and its vented floor from the west
- Plate 126 The loading entrance step (1743) of Kiln 1 viewed from the south-east
- Plate 127 The north buttress or stanchion (1718) of Kiln 1 viewed from the north-east
- Plate 128 The west buttress or stanchion (1723) of Kiln 1 viewed from the north-west
- Plate 129 The rear south-east kiln wall of Kiln 1 including east and south buttresses and stanchions (1720 and 1721) and the loading entrance
- Plate 130 The east buttress or stanchion (1720) of Kiln 1 viewed from the south-east in Slot 2
- Plate 131 The north-west external wall of Kiln 1 (1714) showing fill of ceramic building material behind it, drain (X), the north buttress (1718), its repairs (1742 and 1744) and a small section of curved wall behind it (1732), viewed from the north-west
- Plate 132 Concrete repair (1751) on south-west Kiln 1 chamber wall (1716) viewed from the northeast
- Plate 133 North-east facing section of Slot 3 in Kiln 1 showing various concrete deposits (1793–6), brick floor (3004), ceramic building material backfill (3011) and clay levelling deposits (3016–7). Two drains (3001, lower down and 1791 higher up and closer) are visible in the foreground
- Plate 134 Slot 5 in Kiln 1 viewed from the south-west showing elements of south-east external wall (1728) and drains cross-cutting it
- Plate 135 Exterior of foundation of south-west external wall (1726) of Kiln 1 in Slot 6 viewed from the south-west
- Plate 136 Exterior surface and foundation of north-east external wall (1729) of Kiln 1 viewed from the north-east
- Plate 137 North-west facing of Slot 1 in Kiln 1 showing the clay levelling deposits and backfill of ceramic building material

- Plate 138 North-east facing section of Slot 2 in Kiln 1 showing the clay levelling deposits, ceramic building material backfill and two drains
- Plate 139 The façade of Kiln 1 showing the three flue entrances
- Plate 140 The entrances with the front wall of Kiln 1 removed
- Plate 141 The stoke room floor of Kiln 1 viewed from the south-east and above from the kiln chamber
- Plate 142 Manhole ? (3053), found to the north-west of the Kiln 1 stoke room
- Plate 143 South corner of the Kiln 1 stoke room floor, showing wall stub of wall (3060) with limestone lower course
- Plate 144 Working shot of the removal of clay levelling layers to the north-west of Kiln 1 stoke room
- Plate 145 Rear south-east wall of Kiln 2 (1765) viewed from the north-west with ceramic drain pipe
- Plate 146 Backfill to rear of Kiln 2's south-east wall comprising a grey natural, yellow clay levelling deposits and an upper layer of crushed ceramic building material
- Plate 147 View over the 'double' north-west wall of Kiln 2 including the bent iron facings of the flue openings, viewed from the north-east
- Plate 148 Upper reaches of Kiln 2 buttress or stanchion 1748 viewed from the south-west
- Plate 149 West stanchion or buttress of Kiln 2 (1746), viewed from the north-east
- Plate 150 North stanchion or buttress of Kiln 2 (1747), viewed from the south-west
- Plate 151 East stanchion or buttress of Kiln 2 (1749), viewed from the north-west
- Plate 152 Damage to the Kiln 2 stoke room floor (1788) viewed from the north-west
- Plate 153 The relationship between Kiln 2 stoke room wall (1787) and the double north-west wall (1785) of the kiln, viewed from the north-east
- Plate 154 The foundations of the south-west stoke room wall (1787) of Kiln 2, viewed from the north-east
- Plate 155 Brick surface 797 to the north-west of the kilns with a view to the north-east

WC2 Brickworks sheds

- Plate 156 Shed 3 brick pad 252 (background) and Shed 2 brick pad 253 (foreground) with a view to the south-west
- Plate 157 Shed 3 brick pad 251 with a view to the north-west
- Plate 158 Shed 3 brick pad 256 with a view to the south-east
- Plate 159 Shed 3 brick pad 255 with a view to the south-west
- Plate 160 Shed 3 brick pad 1937 with a view to the north-east
- Plate 161 Shed 3 brick pad 1945 with a view to the north-east
- Plate 162 Shed 3 brick pad 1948 with a view to the south-west
- Plate 163 Shed 3 brick pad 1951 with a view to the north-east
- Plate 164 Shed 3 brick pad 1952 with a view to the north-east
- Plate 165 Shed 3 brick pad 1953 with a view to the south-west
- Plate 166 Shed 3 brick pad 1954 with a view to the south-west
- Plate 167 Shed 3 brick pad 1959 with a view to the south-west
- Plate 168 Shed 3 brick pad 1960 with a view to the north-east
- Plate 169 Shed 3 brick pad 1961 with a view to the north-east

- Plate 170 Shed 3 brick pads 1945, 1948, and 1961 (right) and Shed 2 brick pads 1957 and 1955 (left) and Slot 1952 S1425, with a view to the south-east
- Plate 171 Shed 3 brick pad 1945 (left) and Shed 2 brick pad 1957 (right), Slot 1952 S1410, with a view to the north-west
- Plate 172 Shed 3 brick pad 4053 in Slot 2972 with a view to the north-west
- Plate 173 Shed 3 brick pad 2921 with a view to the south-west
- Plate 174 Shed 3 brick pad 2919 with a view to the south-west
- Plate 175 Shed 3 brick pad 2928 with a view to the south-west
- Plate 176 Shed 3 brick pad 2927 with a view to the south-west
- Plate 177 Shed 3 brick pad 2926 with a view to the south-west
- Plate 178 Shed 3 brick pad 2925 with a view to the south-west
- Plate 179 Shed 3 brick pad 2924 with a view to the south-west
- Plate 180 Shed 3 brick pad 2922 with a view to the north-east
- Plate 181 Shed 3 brick pad 2923 with a view to the north-east
- Plate 182 Shed 3 brick pad 2920 with a view to the north-east
- Plate 183 Shed 0 foundation cut 2819 in Slot 2951, S1408 with a view to the south-west, with Shed 2 brick pad 1955 in the background
- Plate 184 Shed 0 brick pad foundation cut 4174, with a view to the north-east
- Plate 185 Shed 0 brick pad foundation cut 4207 containing brick pad 4211 and posthole 4212 (S1446) with a view to the south-west
- Plate 186 Shed 0 brick pad foundation cut 4206 containing unnumbered brick pad with a view to the south-west
- Plate 187 Shed 0 brick pad foundation cut 4209 containing brick pad 4218 with a view to the south-west
- Plate 188 Shed 0 brick pad foundation cut 4208 containing brick pad 4217 with a view to the south-west
- Plate 189 Shed 0 brick pad foundation cut 4222 containing brick pad 4221 with a view to the north-east
- Plate 190 Shed 0 brick pad foundation cut 4215 with a view to the south-west
- Plate 191 Shed 0 posthole 4225
- Plate 192 Shed 0 posthole 4226
- Plate 193 Shed 0 posthole 4172 with a Shed 2 brick pad in the background, with a view to the north-west
- Plate 194 Shed 0 posthole 4176 with a view to the north-east
- Plate 195 Shed 0 posthole 4177 with a view to the south-west
- Plate 196 Shed 2 brick pad 273 with a view to the north-west
- Plate 197 Shed 2 brick pad 285 with Shed 3 brick pad 284 and rubble spread in the foreground, with a view to the north-east
- Plate 198 Shed 2 brick pad 793 with a view to the south-east
- Plate 199 Shed 2 brick pad 271 with a view to the north-west
- Plate 200 Shed 2 brick pad 272 with a view to the south-east
- Plate 201 Shed 2 brick pad 1931 with a view to the south-west
- Plate 202 Shed 2 brick pad 1932 with a view to the north-east
- Plate 203 Shed 2 brick pad 1933 with a view to the north-east
- Plate 204 Shed 2 brick pad 1934 with a view to the north-east
- Plate 205 Shed 2 brick pad 1935 with a view to the north-east

Plate 206	Shed 2 brick pad 1946 with a view to the north-east
Plate 207	Shed 2 brick pad 1947 with a view to the north-east
Plate 208	Shed 2 brick pad 1938 with a view to the south-west
Plate 209	Shed 2 brick pad 1949 with a view to the north-east
Plate 210	Shed 2 brick pad 1950 with a view to the north-east
Plate 211	Shed 2 brick pad 1955 with a view to the south-west
Plate 212	Shed 2 brick pad 1956 with a view to the north-east
Plate 213	Shed 2 brick pad 1957 with a view to the north-east
Plate 214	Shed 2 brick pad 1958 with a view to the north-east
Plate 215	Shed 2 brick pad 2824 with a view to the south-west
Plate 216	Shed 2 brick pad 1936 with a view to the north-east
Plate 217	Shed 2 brick pad 2908 with a view to the south-west
Plate 218	Shed 2 brick pad 2909 with a view to the east
Plate 219	Shed 2 brick pads or wall 2907 with joining wall 2906 on the left-hand side, with a view to the south-west
Plate 220	Shed 2 brick pad 2914 with a view to the south-west
Plate 221	Shed 2 brick pad 2910 with a view to the south-east
Plate 222	Shed 2 brick pad 2911 with a view to the south-east
Plate 223	Shed 2 brick pads 2913, structure 2912, 2911 and 2912 and brick surface 2915 with a view to the south east
Plate 224	Section of surviving brick surface from Shed 2 with a view to the south-east
Plate 225	S1405 across the width of Shed 2, with a view to the south-east
Plate 226	Shed 1 brick pad 279 with a view to the south-west
Plate 227	Shed 1 brick pad 274 and drain 747 with a view to the north-east
Plate 228	Shed 1 brick pad 276 with drain 747 with a view to the south-west
Plate 229	Shed 1 brick pad 792 with a view to the north-west
Plate 230	Shed 1 brick pad 1913 with a view to the north-west
Plate 231	Shed 1 brick pad 1914 with a view to the south-east in Slot 2953
Plate 232	Shed 1 brick pad 1918 with a view to the north-east
Plate 233	Shed 1 brick pad 1917 with a view to the north-east
Plate 234	Shed 1 brick pad 1919 with a view to the north-east in Slot 2953
Plate 235	Shed 1 brick pad 1920 with a view to the north-east in Slot 2949
Plate 236	Shed 1 brick pad 1921 and drain 747 with a view to the north-east
Plate 237	Shed 1 brick pad 1922 and drain 747 with a view to the north-east
Plate 238	Shed 1 brick pad 1923 with a view to the south-east
Plate 239	Shed 1 brick pad 1924 with a view to the south-west
Plate 240	Shed 1 brick pad 1925 with a view to the south-west
Plate 241	Shed 1 brick pad 1926 with a view to the south-west in Slot 2949
Plate 242	Shed 1 brick pad 1929 with a view to the north-east
Plate 243	Shed 1 brick pad 1930 with a view to the north-east
Plate 244	Shed 1 brick pad 2899 with a view to the north-east
Plate 245	Shed 1 brick pad 2898 with a view to the north-east
Plate 246	Shed 1 brick pad 2901 with a view to the north-east
Plate 247	Shed 1 brick pad 2900 with a view to the north-east
Plate 248	Shed 1 brick pad 2902 with a view to the north-east

- Plate 249 Shed 1 brick pad 2903, wall 2905 and workshop extension (4088) in the background, with a view to the south-east
- Plate 250 Machine stripping of Shed 1, with a view to the south-east
- Plate 251 Drain 4127 revealed during stripping of Shed with, with a view to the south-east
- Plate 252 Posthole 4123 at the southern end of Shed 1 with a view to the south
- Plate 253 Postholes 4122 and 4132 excavated with a view to the east
- Plate 254 Feature 4146, perhaps caused by the weight of stacking bricks on the floor of Shed 1, with a view to the south
- Plate 255 Feature 4121 containing postholes 4118, 4133 and 4136
- Plate 256 Pit 4126 at the end of Shed 1 with a view to the north-west
- Plate 257 Shed 4 brick pad 265 and 267 with a view to the south-east
- Plate 258 Shed 4 brick pad 231 with a view to the south-west
- Plate 259 Shed 4 brick pad 241 with a view to the north-east
- Plate 260 Shed 4 brick pad 262 with a view to the south-east
- Plate 261 Shed 4 brick pad 258 with a view to the south-west
- Plate 262 Shed 4 brick pad 257 with a view to the south-east
- Plate 263 Shed 4 brick pad 264 with a view to the south-east
- Plate 264 Shed 4 brick pad 259 with a view to the north-east
- Plate 265 Shed 4 brick pad 263 with a view to the south-east
- Plate 266 Shed 4 brick pad 261 with a view to the south-east
- Plate 267 Shed 4 brick pad 266 with a view to the south-east
- Plate 268 Shed 4 brick pad 260 with a view to the north-west
- Plate 269 Shed 4 brick pad 794 with a view to the south-east
- Plate 270 Shed 4 brick pad 1706 with a view to the south-east
- Plate 271 Shed 4 brick pad 2930 with a view to the north-west
- Plate 272 Shed 4 brick pad 2937 with a view to the south-east
- Plate 273 Shed 4 brick pad 2931 and barrow run 2939 with a view to the south-west
- Plate 274 Shed 4 brick pad 2936 (right) and Shed 5 brick pad 2942 in Slot 2966 with a view to the south-east
- Plate 275 Shed 4 brick pad 2934 with a view to the south-east
- Plate 276 Shed 4 brick pad 2933 with a view to the south-west
- Plate 277 Shed 4 brick pad 2935 with a view to the south-east
- Plate 278 Shed 4 brick pad 2932 with a view to the north-east
- Plate 279 Shed 4 barrow run 2938 with a view to the south-east
- Plate 280 Shed 5 brick pad 240 with a view to the south-west
- Plate 281 Shed 5 brick pad 795 with a view to the south-east
- Plate 282 Shed 5 brick pad 1705 with a view to the south-west
- Plate 283 Shed 5 brick pad 1707 with a view to the south-east
- Plate 284 Shed 5 brick pad 798 with a view to the south-east
- Plate 285 Shed 5 brick pad 800 with a view to the north-east
- Plate 286 Shed 5 brick pad 799 with a view to the north-west
- Plate 287 Shed 5 brick pad 1701 with a view to the south-east
- Plate 288 Shed 5 brick pad 1702 with a view to the north-east
- Plate 289 Shed 5 brick pad 1703 with a view to the south-west
- Plate 290 Shed 5 brick pad 1704 with a view to the south-west

- Plate 291 Shed 5 brick pad 2941 with a view to the south-west
- Plate 292 Shed 5 brick pad 2944 with a view to the south-east
- Plate 293 Shed 5 brick pad 2943 with a view to the south-east
- Plate 294 Shed 5 brick pad 2942 in Slot 2966 with a view to the south-east
- Plate 295 The length of the workshop building with a view to the south-west, with area of charcoal staining 4089 visible on the right
- Plate 296 The workshop extension with a view to the south-east
- Plate 297 Lower level of pit 4191 after the removal of upper levels and the workshop building, with a view to the south-west
- Plate 298 The north-east wall of the workshop building, with a view to the south-east
- Plate 299 NE-SW section through the workshop extension (S1448)
- Plate 300 The floor of the workshop building 4084 with a view to the south-west
- Plate 301 Repair 4085 to floor of workshop with a view to the south-east
- Plate 302 Linear scars 4086 to floor of the workshop, with a view to the south-west
- Plate 303 Floor of the workshop extension with partition 4057 centre frame, with a view to the south-east
- Plate 304 The doorway (4083) between the workshop and the workshop extension
- Plate 305 The unexcavated hearth 2947 inside the workshop with iron bars *in situ* with a view to the south-west
- Plate 306 The excavated hearth 2947 inside the workshop with a view to the south-west
- Plate 307 The bay window of the main office building (282, entire background), with extension double-skinned wall (286, centre frame), and partition wall (289, foreground), with a view to the north-west
- Plate 308 The southern corner of the office extension (286), with a view to the south-east
- Plate 309 Structure 243 with a view towards the north
- Plate 310 Structure 296 with iron bars *in situ* and large drainage pipe

WC2 Brickworks pugmills

- Plate 311 General view of Pugmill 2 with a view to the south-east
- Plate 312 Paved surface 4100 joining Pugmill 2 to the workshop with a view to the south-west
- Plate 313 Pugmill 2 outer ring cobbled surface 4101 with a view to the south
- Plate 314 Pugmill 2 outer ring cobbled surface 4104 with a view to the south-west
- Plate 315 Pugmill 2 outer ring cobbled surface 4105 with a view to the south-west
- Plate 316 Pugmill 2 outer ring cobbled surface 4109 with a view to the south
- Plate 317 Pugmill 2 outer ring cobbled surface 4110 with a view to the south-east
- Plate 318 Pugmill 2 outer ring mixed brick and cobble surface repair 4103 with a view to the south-east
- Plate 319 Pugmill 2 outer ring brick surface repair 4102 with a view to the south-east
- Plate 320 Pugmill 2 outer ring brick surface repair 4106 with a view to the south
- Plate 321 Pugmill 2 inner ring surface wear 4114 with a view to the north-east
- Plate 322 Pugmill 2 inner ring surface wear 4111 with a view to the north-west
- Plate 323 Pugmill 2 steps (4094) down into mill mechanism with a view to the north-west

- Plate 324 Pugmill 2 wall 4092 in central recess with a view to the south-west
- Plate 325 Pugmill 2 drain (4097) in central recess with a view to the south-west
- Plate 326 Metal pipe (2946) on brick plinth (4096) with a view to the south-east
- Plate 327 Pugmill 1 general view with a view to the south-east
- Plate 328 Section S1448 through Pugmill 1 with a view to the south-east Pugmill 1
- Plate 329 The outer ring of Pugmill 1 (4064) with a view to the south-east
- Plate 330 The inner ring of Pugmill 1 (4065) with a view to the south-west, also showing groove worn down the centre of ring
- Plate 331 The inner ring of Pugmill 1 (4065) with a view to the north-east
- Plate 332 Edging of the Pugmill 1 recess side (4066) with a view to the south-east
- Plate 333 The south-east wall of the Pugmill 1 recess (4067) with a view to the south-east
- Plate 334 The north-west wall of the Pugmill 1 recess (4067) with a view to the north-west
- Plate 335 The brick-lined floor of the Pugmill 1 recess (4068) with a view to the north-east
- Plate 336 The steps leading down to the central mechanism in Pugmill 1 (4069) with a view to the south-west
- Plate 337 The drain (4070) at the bottom of the stairs in Pugmill 1 with a view to the south-west
- Plate 338 The sectioned central mill of Pugmill 1 with a view to the north-east (S1441) showing the mill mechanism *in situ*
- Plate 339 The partially excavated central mechanism of Pugmill 1 with a view to the north-east showing the remains of the wooden barrel
- Plate 340 The fully excavated central mechanism of Pugmill 1 with a view to the north-east showing the remains of timber post (4153) on the right-hand side

WC2 Brickworks cottage

- Plate 341 Brick pathway 2872 with a view to the south-east
- Plate 342 Various features in the south-west corner of the cottage excavations with a view to the southwest. In the foreground on the right is the concrete spread 2874, with brick edging 2884 in the centre of the frame enclosing surface 2883. In the background is curved pathway 2882 with manhole 2881 to its right
- Plate 343 Dump of broken brick and tile 2873 next to brick pathway 2872 with a view to the east
- Plate 344 The NE-SW wall of the cottage with a view to the south-west. Wall 2876 extends from the foreground abutting wall repair 4116, with wall 2878 in the background. Surface 2879 is visible to the right-hand side of the scale with sink fittings
- Plate 345 Chimney breast 2875 with a view to the south-west
- Plate 346 Concrete surface 2874 with a view to the north, with manhole 2881 to the left

Brickworks clay pits

- Plate 347 Vertical drain pipe within pit 2388, looking west
- Plate 348 Section showing stone spread 2340, looking south-east
- Plate 349 Pit 2326 half excavated showing the burnt base, looking east
- Plate 350 Ditch 2328 excavated, looking east
- Plate 351 Drain 2391 and postholes as stripped, looking north-west
- Plate 352 Drain cut 2338 with ceramic pipe and structure 2336, looking east
- Plate 353 Drain 2391 stripped further east, unexcavated, looking north-east
- Plate 354 Drain dog-leg 2334 with ceramic pipe and structures 2330–2334, looking north
- Plate 355 Wooden structure 2333 showing lattice and ceramic pipe beneath, looking west
- Plate 356 Wooden structure 2333 at west end, showing rods beneath and 2332 behind, looking north
- Plate 357 Wooden structures 2331 and 2332, looking south
- Plate 358 Wooden structures 2331 and 2330, looking south
- Plate 359 Detail of upright rods 2330 as first exposed, looking south
- Plate 360 Postholes surrounded by drain, looking north-west
- Plate 361 Postholes 2344 and 2342 (half-excavated) in relation to drain, looking north-east
- Plate 362 Posthole 2340 half-excavated, looking east
- Plate 363 Detail of posthole 2344 half-excavated, looking east
- Plate 364 Drain 2391 running north-west, looking north-west
- Plate 365 Drain 2391 continuing north-west towards unexcavated clay pit

Castle Hill Wood

- Plate 366 Castle Hill, soil strip working shot – looking north
- Plate 367 Section across bank 3202 – looking north west
- Plate 368 Work shot, excavation of structure 3318 - looking north west
- Plate 369 Section of 3335 – looking south east
- Plate 370 Section of ditch 3347 – looking south west
- Plate 371 Lower Castle Hill – fills of modern rubbish pits, view – looking north east
- Plate 372 Section across structure 3311 – looking north west
- Plate 373 Section across ditch 3354 – looking south west
- Plate 374 Section across bank 3363
- Plate 375 Pit 3365 with SF 241 *in situ* – looking west
- Plate 376 Section across ditch 3370 – looking north east
- Plate 377 Slope of the upper Castle Hill – looking north east

Burgess Rough Platform

- Plate 378 General view of platform during machining of Slot 1, looking north-west
- Plate 379 General view of platform under final excavation, looking north-west
- Plate 380 Machine slot 1 showing layer of stones, early ditch and other ditches and ruts in section, looking south
- Plate 381 Slot 1 early ditch, trackway ditches and ruts in section, looking south

Plate 382	Slot 1 showing curve of early ditch, looking south-east
Plate 383	Slot 1 ruts excavated, looking south-east
Plate 384	Horseshoe found at base of ditch in Slot 1, looking south-east
Plate 385	Lines of stones at west and east edges of trackway, looking north-west
Plate 386	Slot 2 early ditch overlain by metalling and trackway ditch, looking east
Plate 387	Slot 2 showing ruts excavated, looking west
Plate 388	Slot 2 trackside ditch 1241 cutting early ditch and metalling 1242, looking south-east
Plate 389	Slot 3 early ditch showing overlying layer 1202 with manganese banding, looking south-east
Plate 390	Trench 5 looking east
Plate 391	Slot 5 section showing colluvial sequence, looking north
Plate 392	Slot 6 looking downslope to the north-west

Burgess Rough Cattle Lodge

Plate 393	Posthole 2601 half-sectioned, looking north east
Plate 394	Posthole 2608 half-sectioned, looking north-east
Plate 395	Posthole 2607 half-sectioned, looking south west
Plate 396	Posthole 2606 half-sectioned, looking south west
Plate 397	Posthole 2603 half-sectioned, looking north-west
Plate 398	Posthole 2604 half-sectioned, looking north-west
Plate 399	Post Pad 2609, looking north west
Plate 400	Posthole 2602 half sectioned, looking south west
Plate 401	Post Pad 2605, looking north east
Plate 402	Pit 2616 half sectioned, looking north west

Burgess Hill Farm

Plate 403	Farmhouse chimney showing mixed stone and brick deep footings, looking north-west
Plate 404	Stone and brick foundation of farmhouse west wall showing straight joint with basement wall, looking south-west
Plate 405	Truncated stone foundation of farmhouse north wall, looking north-west
Plate 406	Stone foundations of fireplace at north end of farmhouse, looking east
Plate 407	Stone foundations of the east jamb of the fireplace, with the line of bricks of the east wall plate and the brick return in the foreground, looking west
Plate 408	Stone wall on west side of threshing bay in barn, looking west
Plate 409	Natural below threshing floor, showing brick supports and possible post-bases, looking north-west
Plate 410	Cobbled floor of original lean-to against barn, looking north-east
Plate 411	Trench 6 south of stable showing early floor with impression of beam-slot, cut by stable and extension south walls, looking south-west
Plate 412	Lean-to south of stable showing early floor 90061 with impression of beam-slot extending further to the east

- Plate 413 North-south trench across stable interior, showing possible post-impression 91219, looking south-west
- Plate 414 Stone surface 90189 west of the southern lean-to, with post 90190 surviving below the construction trench of its west wall, looking north-east
- Plate 415 Posthole 90046 in section sealed by clinker layer 90179, looking north
- Plate 416 Northern extension of stable showing stone footing and posthole at one end, looking south-east
- Plate 417 Brick drain running east from the stable, as exposed west of the northern lean-to, looking south
- Plate 418 Trench 8 brick extension and floor east of the stable, looking SSW

Summary

This volume of the Post-Excavation Final Report focusses on excavations at WC2 Brickworks, Burgess Hill Farm, Burgess Rough and Castle Hill Wood.

The WC2 or Castle Hill brickworks site consisted of kilns and a complex of drying sheds, a making shed or workshop, and pugmills, together with a cottage, office, clay pits and ponds. The site later covered by the brickworks was a field on the OS draft of 1799, but was well-established on the Tithe map of 1842. Horseshoe drain tiles found in the stoking area of Kiln 3 and under the making shed inscribed with the word DRAIN suggest that these were manufactured between 1826 and 1832, when drain tiles so stamped were exempt from the brick and tile tax. The brickworks was thus probably constructed early in the second quarter of the 19th century.

The buildings all lay along the south-west side of the A21 on the slope leading down north-westwards from Castle Hill. Although 19th-century brickworks were once very common, most of these have now been destroyed, and survive only as photographs. Elements of some others do survive, but very few are substantially complete, and even fewer have been recorded in detail, so when it was realised that this brickworks was well-preserved, the decision was taken to record this example before destruction.

Clay was quarried both from deep pits west and north-west of the buildings, and from shallower quarries cut into the hillside to the south-east. There was also a pond to the south-east. Two pugmills were found north-west of the pond. These open-air machines were used to mill the raw clay into a smooth and even 'pug' that was taken to the workshop or 'making shed' to be moulded into bricks. The excavated clay was mixed using wooden paddles powered by ponies or donkeys, and at Castle Hill the pugmill bases were surfaced with stone or with brick, and were exceptionally well preserved.

North-west of the pugmills were the making shed and drying sheds or 'hacks'. A total of six drying sheds, all oriented south-east to north-west (roughly parallel to the A21) were excavated, with an L-shaped workshop to their south-east. The drying shed area was built up over time with a succession of rammed clay floors, providing a stratigraphic sequence for the construction of the drying sheds. Most of the sheds were constructed on paired rows of brick pads, but one early shed consisted of one row of brick pads and a row of smaller postholes. The later sheds had larger and deeper post-pads, possibly indicating that there was an upper floor. Four sheds were in evidence on the 1836 Tithe map, and five on the OS map of 1871, but matching the excavated sheds to those on the maps was not straightforward, possibly because some of the sheds were repaired or rebuilt.

North-west of the drying sheds was a track surfaced with crushed tile and brick leading onto the A21, beyond which were the kilns. The kilns were built within an existing quarry, the earliest being Kiln 3, a double-flued kiln dated to around

1825. Kiln 1 was added south-west of this, and was a wider, triple-flued kiln dating between 1840 and 1870. This kiln survived to a height of nearly 4m, and was surrounded by a wall, the space between acting first as a working and storage area for tending the kiln during firings, and later filled in to increase insulation and reduce heat loss.

During the last quarter of the 19th-century Kiln 3 was demolished to a height of less than 1m, the flues were infilled with bricks, and another triple-flued kiln, Kiln 2, was built over the top to replace it. The date of this latest kiln is established by the stamped bricks from Durham and the Midlands incorporated into the construction of the flues. This sequence indicates a continuing expansion of capacity over time.

The brickworks was still visible on OS maps as late as 1938, although local historians believe that it went out of use by 1922. When this occurred Kiln 2 was heavily robbed, but Kiln 1 was left undamaged. Further documentary research is planned at analysis stage to clarify the date of abandonment.

At Castle Hill Wood, the land had been quarried for clay for use in the former brickworks immediately to the north-west. Areas of modern rubble and contaminated soils had infilled clay extraction pits, platforms were probably terraces created during extraction, and drainage ditches had been dug to channel water from the slope of Castle Hill into the pond used in brick-making. Very few features were identified in the upper part of Castle Hill Wood, south-west of the trackway, although the scars of further quarries were evident alongside the A21 and at the very south-east end. One fire-pit, a shallow pit with reddened natural indicating *in situ* burning. This feature may have been prehistoric or medieval as has been found elsewhere along the scheme.

Burgess Rough was part of a gap in the LiDAR coverage of the scheme, but an earthwork platform (OA 12) was identified during the walkover survey. After an initial, small-scale investigation Further Archaeological Mitigation was approved. The earliest feature on the platform was a curving ditch just inside the eastern edge. Although undated, this ditch was sealed by a thick layer of slowly accumulating colluvium. West of this ditch (and truncating it) was a metalled trackway of two phases. Horse shoes recovered from the earlier phase of use of the track and slag from the earlier metalling indicate a 17th/18th-century date, while a second stony surface contained two clay pipe stems. Woodland colonised the platform after the track fell into disuse.

To the south of Burgess Rough was a cattle lodge associated with Burgess Hill Farm, a post-medieval, Grade II Listed complex consisting of a farmhouse, threshing barn, stables and oasthouse. The lodge was visible on the 1830s Tithe map, and proved to be a timber, post-built structure. Following the dismantling of the listed barn and stables for re-erection at the Weald and Downland Open Air Museum, and the recording and demolition of the farmhouse in April 2015, trenches and small areas were excavated to

characterise the below-ground remains as part of Archaeological SMS area IA3.

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The project was managed for Oxford Archaeology by Tim Allen and the fieldwork was directed by Mariusz Gorniak. Survey and digitizing was carried out by David Jamieson. The text for the WC2 Brickworks was initially written by Toby Martin.

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1 INTRODUCTION

1.1 Background

1.1.1 Oxford Archaeology (OA) was commissioned by Balfour Beatty PLC on behalf of Highways England to undertake the archaeological mitigation connected with the construction of the A21 Tonbridge-to-Pembury Dualling Scheme in Kent (Fig. 1). The archaeological work has consisted of several sites that have been excavated at various stages between 2014 and 2017 to enable construction work to commence. This volume focusses on the excavations at WC2 Brickworks, Burgess Hill Farm, Burgess Rough and Castle Hill Wood (Fig. 58). The following chapters detail the excavations at these sites. Each is presented, with minor amendments and edits, largely as they did in their original characterisation reports and each includes a specific introduction to the work. The figures referred to in this volume are contained in volume 3, and the plates in volume 4. Context inventories are presented at the end of each chapter, while the finds and environmental reports can be found in volume 6.

1.2 Geology and topography

1.2.1 The geology and topography of the A21 Dualling Scheme is detailed in volume 1. Both the WC2 Brickworks and Burgess Hill Farm are situated on mudstone of the Wadhurst Clay Formation (Volume 3 Fig. 58; BGS nd). There are no overlying superficial deposits and the soils consist of slowly permeable, seasonally wet, slightly acidic, base-rich loamy and clayey soils (CSAI nd).

1.2.2 The area is dominated by a ridge of high land that extends SW–NE and is characterised by Castle Hill Hillfort just to the west of the scheme. Burgess Hill Farm was located on this ridge to the east of the hillfort (c 112m aOD), while the brickworks were situated on lower ground to the north (c 75m aOD).

1.3 Archaeological background

1.3.1 The archaeological potential of the development area was assessed by Atkins for the public enquiry and was set out in the Environmental Statement, Chapter 13 (HA 2013). The archaeological background is set out in detail in volume 1 and need not be repeated here. Specific details with regards to the individual sites are presented below.

1.4 Scope and methodology

1.4.1 A detailed Archaeological Mitigation Design (DAMD) was prepared at the commencement of the fieldwork (WSP and OA 2015), and a Written Scheme of Investigation (WSI) for Archaeological Mitigation was prepared by OA setting out how the DAMD would be implemented (OA 2015a). Modifications to the WSI were necessitated by the constraints of woodland translocation and were set out in an addendum (OA 2015b).

1.4.2 All fieldwork took place in accordance with the National Planning Policy Framework Section 12 (DCMS 2015) and the MoRPHE Project Manager's guide (HE 2015), following the Code of Conduct of the Chartered Institute for Archaeologists (CIfA), of which OA is a Registered Organisation. The archaeological works were carried out in accordance with the standards and guidance for archaeological excavation and archiving (CIfA 2014a; 2014b).

1.4.3 All the archaeological work undertaken the A21 Tonbridge-to-Pembury Dualling Scheme has been monitored by Tony Hanna of WSP, Principal Archaeologist for the A21 scheme, Wendy Rogers, Senior Archaeological Officer for Kent County Council and Jenny Wylie of HHJV, henceforth referred to as the Monitoring Archaeologists. Julia Baker, Environmental Manager for Balfour Beatty, has also been included in all consultations and communications.

2 WC2 BRICKWORKS: INTRODUCTION

2.1.1 The WC2 or Castle Hill brickworks site consisted of kilns and a complex of drying sheds, workshops, and pugmills, together with a cottage, office, clay pits and ponds (Figs 58 and 59). The site was situated on the Wadhurst Clay, with outcrops of the Tunbridge Wells Sand Formation within a couple of hundred metres. The area later covered by the brickworks was a field on the OS draft of 1799, but is shown on the tithe map of 1842 and on the 1st edition OS 1:2500 map of 1871, the 2nd edition OS map of 1899, the 3rd edition OS map of 1910 and the 4th edition OS map of 1938, so the brickworks was constructed early in the 19th century and continued in use into the 20th century. The Tithe Apportionment, which provides details of the use of each land parcel, indicates that there was plenty of woodland immediately east of the site, and that certain woodlands were specifically set aside for fuel for the brickworks, so that all of the necessary raw materials were close by. The land was owned by the Somerhill Estate in the first half of the 19th century, who must therefore have been responsible for its initiation.

2.1.2 The historic maps illustrate the general layout and overall development of the brickworks, and indicate an expansion of the structures associated with it over time, some of which lay south-west of the main road corridor (Fig. 59). Test-pits showed that this area had also been partly quarried for clay and infilled, so the decision was taken to raise the ground and bury any surviving structures here, which were therefore not archaeologically investigated. Although the historic maps contain much information, the excavations demonstrated that they do not include all of the principal structures, nor do they indicate the replacement of one structure by another, or provide details for any of the structures.

2.1.3 The excavated buildings comprised three kilns, six drying sheds, a making shed, two pugmills and part of the cottage (Figs 58 and 59). These all lay along the south-west side of the A21 on the slope leading down north-westwards from Castle Hill. According to the Tithe Apportionment and the historic maps, clay was originally quarried down a track over 400m from the A21, but the excavations showed that clay was later quarried both from deep pits west and north-west of the buildings, and from shallower quarries cut into the hillside to the south-east. There was also a pond to the south-east, which was extended over time, and was perhaps used for water to keep the clay plastic in summer and to dampen the brick moulds.

2.1.4 Two pugmills were found north-west of the pond, one (Pugmill 2) south-east of the making shed, the other (Pugmill 1) between the making shed and the A21. These open-air machines were used to mill the raw clay into a smooth and even 'pug' that was taken to the workshop or 'making shed' to be moulded into bricks. The excavated clay was placed in a wooden barrel around a central rotating vertical post with wooden paddles attached, and a horizontal attached to the top of the post had a harness at its other end. This was attached to a pony or donkey that walked around the outside, powering the paddles. At Castle Hill the pugmill bases were surfaced with brick and stone, and these surfaces were exceptionally well preserved; one of the pugmills still contained its final load of clay, wood from the central barrel, and the iron spindle to which the paddles that mixed the clay were attached. Pugmill 2 is not shown on the historic maps, but was cut by the second phase of the making shed, and so is clearly earlier than Pugmill 1, which appears on the OS map of 1938. Both Pugmill 2 and the first phase of the making shed were constructed from the same level, suggesting that they were constructed at much the same time.

2.1.5 North-west of the pugmills were the making shed, where the clay was formed into bricks using wooden moulds, and drying sheds or ‘hacks’ where the bricks were stored to dry before firing. A total of six drying sheds, all oriented south-east to north-west (roughly parallel to the A21) were excavated, with an L-shaped workshop to their south-east. During excavation the sheds were numbered 1–5 from north-east to south-west, with a sixth shed (Shed 0) underlying Shed 2. The drying shed area was built up over time with a succession of rammed clay floors, providing a partial stratigraphic sequence for the drying sheds cut into one or another of the floors, but there was very little in the way of dating evidence. The earliest drying sheds appear to have been Shed 3, constructed of two paired rows of brick pads, and Shed 0, consisting of one row of brick pads and a row of smaller postholes. Shed 0 was replaced by Shed 2, with Sheds 1, 4 and 5 after this. The later sheds had larger and deeper post-pads, but the depth of the piers was very varied, particularly in Sheds 4 and 5, and it is likely that the pads in these, as well as Sheds 1 and 3, were replaced, or the whole structures rebuilt, at some point. The larger brick pads may, however, indicate that these sheds were higher, or had an upper floor. Four sheds were in evidence on the 1836 Tithe map, and five on the OS map of 1871, but matching the excavated sheds to those on the maps is not straightforward.

2.1.6 North-west of the drying sheds was a track surfaced with crushed tile and brick leading onto the A21. This track was evident on the third edition OS map, but was not marked earlier. The kilns lay just north-west of this track, and were built within an existing quarry. The earliest kiln was Kiln 3, a double-flued kiln dated to around 1830, although the Tithe Map places the earliest kiln farther south-west, where Kiln 1 was added. This was a wider, triple-flued kiln dating between 1860 and 1870. This kiln was the best-preserved, surviving to a height of over 3m, and was surrounded by a wall, the space between acting first as a working and storage area for tending the kiln during firings, and later filled in to increase insulation and reduce heat loss.

2.1.7 During the last quarter of the 19th century Kiln 3 was demolished to a height of less than 1m, the flues were infilled with bricks, and another triple-flued kiln, Kiln 2, was built over the top to replace it. The date of this latest kiln is established by the stamped bricks from Durham and the Midlands incorporated into the construction of the flues, giving a date between 1880 and 1892. This sequence indicates a continuing expansion of capacity over time. The reason that Kiln 3 was not entirely removed was probably because the stoking areas in front of Kilns 3 and 1 were very low-lying, and the stoking area for Kiln 2 was nearly 1m higher, and so presumably drier.

2.1.8 The brickworks is still marked on OS maps as late as 1938, where it is clearly identified as the Castle Hill brickworks, although local historians believe that it may have gone out of use by 1922, after which the site may have been used as a piggery. When or soon after this occurred Kiln 2 was heavily robbed, but Kiln 1 was left relatively undamaged.

3 WC2 BRICKWORKS: THE KILNS

By Toby Martin

3.1 Introduction

3.1.1 The Castle Hill brickworks uncovered in area WC2 (IA2) of the A21 Dualling Scheme excavations consisted of the greater part of an entire industrial complex including pugmills for the milling of raw clay, the moulding shed where the bricks were formed, the sheds in which the bricks were dried and the remains of three kilns in which they were fired, as well as a residential cottage building that presumably belonged to the owners of the brickworks. The brickworks included three kilns—Kilns 1, 2 and 3—and 3D models of each are shown in Figures 60–62.

3.1.2 The kilns were permanent structures built largely of brick, and consisted of a rectangular kiln chamber surrounded by substantial walls. The chambers had floors perforated with vents, suspended over two or three longitudinal arched flues heated by fires set at their one open end, capable of firing somewhere in the region of 30,000–40,000 bricks per load. Such kilns were usually set into hillsides or banks, and so were fired and stoked from only one end. In front of the open ends of the flues was the stoke room floor, which was often walled at the sides and floored with brick. This area was for the loading and tending of the fires which were continuously fed with fuel for the four or five days it would take to fire the bricks. In this type of kiln, the walls, which would have originally risen up to about 4m above the kiln floor, also acted as the chimney for the kiln. Such kilns were generally loaded with bricks for firing from the uphill side, opposite the stokehole area. The wall of the kiln would have a wide entrance at ground level for this, which was blocked once loading had been completed, and a temporary cover would probably have been placed over the top of the kiln to shield it from inclement weather during the firing.

3.1.3 The kilns of the Castle Hill brickworks lay on ground sloping down from south-east to north-west, and were situated immediately to the north-west of the moulding and drying sheds and the pugmills. All three kilns were built partly below ground, with their stoking floors to the north-west and their kiln chambers to the uphill, south-east side (Fig. 63), from which they were probably loaded from the adjacent drying sheds. Kiln 3 was the earliest, and had two flues; Kiln 1 was larger, with three flues, and was built at the same level as Kiln 3 on its south-west side. It also had a secondary wall enclosing three of its sides. Kiln 3 was subsequently demolished and infilled to below the stoking floor, and another three-flued kiln, Kiln 2, was built over it, with its stoking floor nearly 1m above that of Kiln 1.

3.1.4 The kilns were constructed at the edge of an existing quarry. The cut for this, 3230, was found during excavation of the stokehole areas of Kilns 1 and 3, and bottomed at a height of 71.38m aOD, some 4.6m below the contemporary ground level in the early 19th century. Overall the edge of the quarry ran NNE across the middle of what would later be the stokehole areas of these kilns, then turned to run north-west parallel to the A21. On the south-west, it extended across the haul route stripped down the side of WC2, and continued beyond it. In its final form, it measured approximately 18m from south-east to north-west, and at least 28m north-east to south-west. Where observed in section its south-east side appeared to slope gradually at the base, steepening towards the top.

3.1.5 Where exposed below the stoking area of Kiln 1, the base of the quarry was covered by a black layer of brushwood and ash (3229) some 0.12m thick (Fig. 74). There followed a thicker layer of blue clay and twigs (3227) incorporating large logs 3228 and 3232. Timber 3228 was a tree trunk sawn at the top where it began to branch, and 3232 also showed evidence of sawing. The logs were probably thrown in to help consolidate the clay. Layer 3227 was covered by a thinner layer of mixed clay, twigs and occasional ceramic building material (CBM) (3225), and this in turn by a layer of dark blue clay and rotted organic material (3224), which was covered by a layer of crushed CBM 3223, interpreted as a construction layer for Kiln 1, as it lay just below the level of the Kiln 1 stokehole floor. Above this was a thick layer of decayed brushwood 3222.

3.1.6 The stratigraphic sequence below Kiln 3 was not bottomed, and was slightly different (Fig. 66). The lowest deposit exposed was brushwood 3212, which may have been equivalent either to 3229 or 3224. This was followed by a layer of crushed brick, sandstone and tile fragments in black silt numbered 3091 and 3092, and then by a layer of dark greyish-blue clay and occasional twigs 3090. This layer is very similar to layer 3227, but is higher than it, perhaps indicating that the quarry was deepening south-westwards. If not, then the relative levels would suggest that 3212 is more likely to correspond to 3224, in which case, layer 3091/3092 might correspond to layer 3223, although the correspondence in levels is not exact.

3.1.7 Layer 3090 was then covered by a layer of decayed brushwood 3086, which is equivalent to layer 3222 in the Kiln 1 sequence farther south-west. The brushwood layer was thinner here, and was overlain by a blueish-grey silty clay with occasional crushed brick and stone, layer 3085.

3.1.8 This sequence of deposits was not recorded east of later drain 3088, beyond which only the natural clay was recorded, suggesting that the edge of the quarry had stepped out before continuing in a north-easterly direction.

3.2 Kiln 3

3.2.1 The remains of Kiln 3 (group number 3200) were found beneath Kiln 2. Kiln 3 had been substantially demolished prior to the construction of Kiln 2 (Plate 117) so that less than 0.9m survived of its kiln walls at the front and sides. The rear wall of Kiln 3 lay beyond the south-east limit of Kiln 2, so had survived to a greater height (about 1.3m). Despite its truncation, the form and original dimensions of the kiln were established. Kiln 3 was a Sussex-type Scotch kiln with two flues and was 7.6m long and 4.35m wide (Fig. 64). The stoking area was not floored, though the clay was covered by a thin layer of trample (and it appears that the north-east side consisted simply of the natural clay slope, though there may have been a brick wall on the south-west side. If there was a shelter for the stokers, the only other surviving evidence for this was two (or possibly three) timber posts at the north-west end. The surviving elements will be described below.

3.2.2 Kiln 3 was built into an extension to the south-east side of the existing quarry, close to the A21. The extension was dug to a depth of about 3.5m (from c 75.9m aOD at the top of the surviving drying sheds below modern topsoil to 72.39m on Kiln 3's stoke room floor). It was dug specifically for the construction of the kiln, as the undisturbed natural clay was seen just outside the limits of the kiln structure on the north-east, south-east and south-west sides, and

the kiln was constructed directly on the natural clay at the base of the cut. The cut was numbered 3202 on the north-east side and 3214 on the south-west side.

3.2.3 On the north-west side the face of the kiln had a vertical edge up to the surviving height (Plate 117), the narrow gap between the kiln wall and the construction cut being filled in with rough courses of brick fragments (3201), but behind this the brick coursing of the wall had widened out as the wall was built up, so that the wall was constructed on the slope of the hole dug for the kiln (Plate 118). On the south-west side the cut appears to have been near-vertical, and in consequence the wall was built with a vertical outer face. Only a small part of the back of the rear wall was exposed (Image 6663), and this appears to have been uneven, suggesting that the wall was built up to the face of the natural clay. The advantages of this location are clear, founding the kiln on solid undisturbed natural, and obtaining fresh clay for its construction in the process, but also having adjacent an existing lower-lying area into which water could drain.

Kiln 3 construction

3.2.4 The side walls of the kilns were numbered 3235=3247 on the north-east external side and 3239 on the south-west external side (Fig. 64), while the rear wall was numbered 3249. The central wall dividing the two flues was numbered 3236=3244.

3.2.5 Inside the walls the floor of the kiln (3243), which consisted of a single layer of bricks, was laid out before the central wall dividing the flues was built. Although the walls were not removed, the rows of bricks on the floor of the flues extended beneath the central wall (see Plate 118). The position with relation to the west outer wall was uncertain, but the floor stopped short of the north-east side walls of the kiln. The side walls were constructed from the level of the top of the floor, and it is therefore possible that the first element to be constructed was the floor. The bricks were unfrogged and red, though blackened by charcoal soot. They had been laid down in rows of headers with no apparent bonding agent, set directly into the natural clay (3245) that had subsequently been baked hard by the heat of the fires.

3.2.6 All the walls were constructed in a similar manner. Their visible faces were in English bond, though the core of the wider walls often consisted of end on end headers across the width of the wall, and sometimes more than one line of adjacent stretchers. The north-east wall (3247) survived to a height of 11 courses of orange-red bonded with clay, though much of the wall had been robbed out (Fig. 65). The opposite wall on the south-west side (3239) was constructed in the same manner. It survived 1.0m high and 0.9m thick, and was made of red unfrogged bricks (24 x 11 x 6cm) bonded with a sandy clay. Just behind the face of the kiln on this side was a projecting buttress (3238) roughly 1m square, which was constructed together with the wall. This was the only buttress seen on Kiln 3, presumably because this was the only corner of the structure not surrounded by the natural clay to a substantial height, due to the previous quarry excavation. This buttress therefore supported a wall that stood proud of the quarried bank.

3.2.7 The entire width of the rear wall (3249) was only revealed over a short length, as it lay very close to a haul route being used for construction, but it appeared to be approaching 1.1m wide, and as exposed consisted of a core of three rows of headers end to end, with two rows of stretchers on the inside. The back of the wall (ie the south-east side) did not have a straight edge, and may have been built to the edge of the natural cut like the north-east wall, rather than to an even thickness with a vertical edge. The surviving height was 19 courses (1.3m). It

was made of red, unfrosted bricks (24.5 x 12 x 7.5cm), sooted or burnt black and cracked in places from repeated firing. The bonding agent was a sandy clay that had been fired by heat.

3.2.8 The central dividing wall between the two flues (3244, see Plate 120) was constructed in a similar manner with red unfrosted bricks (23 x 11 x 6cm). It was 0.8m thick at the north-west end, narrowing to 0.6m thick after 1.65m, creating wider flues towards the south-east end below the kiln floor proper. This wall was of similar height to the side walls, surviving up to 12 courses deep. The bonding pattern of the wall was not entirely regular, but it appeared to consist of two outer skins of alternating rows of headers or runners with a central portion infilled with irregularly shaped half bricks and complete bricks.

Kiln 3 flues

3.2.9 The constriction of the width of the flues was common to all of Kilns 1, 2 and 3, and was to aid the draw of the flues, which would also have been equipped with doors to further regulate the air flow. If the structure can be compared to that of Kiln 1, which survived to a much greater extent, the point at which the flues narrowed might also mark the rear edge of the front (north-west) wall of the kiln, which would therefore have been about 1.65m thick (Fig. 64). The front wall was built in two parts that were not fully bonded into one another (Plate 117). The rear part was a wider continuation of the side and central walls, while the front part had a bottom course of bricks laid on edge below the horizontal courses, and was two bricks wide. There was no indication that the front wall was keyed-in to the rest of the wall in the surviving height. This double construction is also common to all the kilns at the Castle Hill brickworks, and as in Kiln 1, the front wall was probably angled above the top of the flue arches and the kiln floor, so that the facing wall gradually thinned, and the top of the wall would have been only as wide as the rear part of the wall at the base of the kiln.

3.2.10 Although the arches of the flues did not survive, their outline was visible as a shadow of blackened bricks on the rear wall of the kiln, particularly clear in the north-east flue (Plate 122). According to these marks, the maximum internal height of each arch would have been just over 1m. The maximum height of the internal wall did survive, however, where it had been keyed in to the rear wall. This profile revealed that it narrowed to a point, just like the imposts of the Kiln 1 arches, to form a base for each arch. The outer walls of Kiln 3 were similarly inclined to provide the base of the voussoirs for each arch.

3.2.11 The sides of each flue were lined with an additional skin of firebricks (Plate 122). The side linings of the flues (3246) were probably about one brick thick, though they were either largely robbed out or had been shattered during use and were gradually raked out between firings. Elements of the surviving parts were not sampled but appeared to be constructed from the same standard bricks as the rest of the kiln though they had been heavily re-fired during the use of the kiln. The bonding pattern was not obvious as the lining survived only as fragments, but they appeared to be set with a bonding agent of sandy clay, fired hard by the heat of the furnaces. The external surfaces of these bricks were frequently vitrified, and a slaggy deposit was found at the rear end of the north-east flue (3251), similar to that found in the Kiln 2 flues.

3.2.12 When Kiln 3 was demolished to make way for Kiln 2, the walls were levelled to the required height, and the flues were deliberately filled in. Immediately overlying the blackened floor of the kiln, and layer 3251, was a mixture of red and grey-green clays (3204) about 0.15m thick containing occasional broken brick. Overlying this clay were 12 courses of loosely stacked

pinkish-red unfrogged bricks (24 x 11 x 6cm) with neither regular coursing nor bonding agent (3204/3242/3237; Plate 119). These were probably bricks retrieved from the upper levels of Kiln 3, and used to create solid foundations for Kiln 2. These bricks were almost all complete, demonstrating that the demolition of Kiln 3 had been carried out carefully in order to reuse the bricks. Over the top of this layer was a 0.1m thick deposit of sand (3213) that had been burnt by the heat from Kiln 2, comprising a bedding layer for the flue floors of that kiln.

Kiln 3 stoke room

3.2.13 The Kiln 3 stoking area (group number 3233) was not only smaller than those of later Kilns 1 and 2, but it also probably just comprised a temporary timber structure erected during firings rather than the permanent brick walls that bordered the stoke rooms of Kilns 1 and 2 (Plate 121). However, evidence for any structure at all is only slight, consisting of just two posts (3206 and 3094), two drains (3087 and 3095), a presumed floor level, and some evidence for levelling.

3.2.14 A horseshoe-shaped drain laid on flat tiles (3095) was inserted into the natural clay of the stoking area at the base of the cut for Kiln 3 (Fig. 64). This lay within cut 3099, which was 0.4m wide, and was covered by fill 3098. The drain tile had the word 'Drain' scratched into the outside, a measure undertaken to avoid the brick tax that was in force from AD 1826 up until AD 1850 (see CBM, volume 6). The drain can therefore probably be dated to the second quarter of the 19th century. Only the west end was exposed at the very edge of the quarry cut, but it ran in from the east, and was aligned with the north-eastern flue of Kiln 3, although its course was not traced, as layer 3205, the thin trample layer representing use of the stoking area of Kiln 3, was not removed. This drain may well have emptied directly into the quarry hollow at the level of layer 3090.

3.2.15 Layer 3205 consisted of a thin (0.06m) but compact layer of ash and crushed CBM and overlay the natural clay and drain fill 3098. It probably represented the floor of the stoke room (partially cleared in Plate 121).

3.2.16 Directly adjacent to drain 3095 was the remains of a wooden post (3094) sitting on top of a small brick pad (Fig. 66, section 2203), inside a posthole 3097 (filled by 3096) that was cut through the same layers as drain 3095. This post lay on the same line as post 3206 which was found on the north-east side of the stoke room (Fig. 66, section 2204), and survived to a height of about 0.26m, with a similar diameter to 3094 (0.13m x 0.15m). Again, the posthole in which the post was set (3208) was of almost the same proportions (0.3m) and had a fill of blueish-grey silty clay (3207). This pair of posts probably formed the north and west outer corners of the Kiln 3 stoke room and may have supported a temporary covering for the stoke room during kiln firings. Both these posts were sealed by the construction layers of Kiln 2.

3.2.17 Later, a circular drain 3087=3089 running north-east to south-west parallel to Kiln 3, was added at the back of the stoking area along the edge of the quarry (Fig. 66, sections 2203 and 2204). This drain lay within cut 3088, which truncated layers 3086=3222 and 3085, and was filled with soft silt 3080 (Fig. 67, section 2200). This was not apparently covered by layer 3205, the trample layer at the base of Kiln 3. This circular drain was not sampled, but circular drains are usually extruded, ie machine-made, and did not generally appear until after AD 1850, providing a *terminus post quem* for the addition of this drain. Drain 3089 does not appear in the section below Kiln 1, so the drain must have turned between the two kilns and emptied into the quarry farther to the north-east.

3.2.18 Directly overlying the projected line of this drain and constructed from the level of the Kiln 3 stoking floor was a post (3093), which survived to a height of 0.4m. This post sat on top of a tile-and-brick pad (Fig. 66, section 2201). This post was not in line with posts 3094 and 3206 but could have been a free-standing post added to provide support for an extension to the wooden temporary structure providing cover for the stokers during the life of Kiln 3. As it overlay drain 3087, however, this seems unlikely, and the post was probably added just before the ground level was raised as part of the construction of Kiln 2 (see below).

3.3 Kiln 1

3.3.1 Of the three excavated kilns, Kiln 1 (1713) was the most complete (Figs 68 and 69; Plate 123). The structure had four main components: (1) the three flues at the base in which fuel was burned (2), the adjacent stoke room from which these fires were tended, (3) the kiln chamber warmed by the flues that lay directly below it, and (4) an outer wall enclosing the inner kiln chamber on three sides leaving a substantial cavity between them, variously used as an annex and later backfilled with soil and waste products, potentially for insulation. Each of these components will be described separately below.

3.3.2 Like Kiln 3, Kiln 1 was built into a purpose-built extension of the same quarry as Kiln 3. The additional excavation at the south-east edge of the original quarry was not as great as for Kiln 3; the edge of the original quarry lay only a metre or so from the front of the kiln (Plate 125), but the area occupied by the kiln itself was almost all newly excavated to house it. On the north-east side, the gap between the main kiln structure and Kiln 3 was 3.8m, but the natural between them had been dug away to a depth of around 1.5m. It is likely that the cut dug for Kiln 3 had removed part of this in order to obtain access to build the upper part of the kiln walls, but the original cut had been removed when the larger Kiln 2 replaced Kiln 3.

3.3.3 Nevertheless, Kiln 1 was certainly dug more than 1m into the base of a pre-existing quarry at the north-west extent of the kiln (the position of the stoke holes). This is indicated by the original south-west edge of the quarry (cut 1780) which descends at a 45° angle at this point beneath Kiln 1's façade (1724) before dropping off vertically at the foundation cut for the south-west kiln wall (Fig. 69). Further back (to the south-east), however, considerably more clay had been removed. The level of the natural beneath Kiln 1's north-east outer wall at this position would suggest that more than 3m of clay was quarried to house the back of the kiln structure (eg Plate 137). It is likely that the clay excavated in preparation for Kiln 1 was processed to make the bricks used in its construction. Although much clay was removed for the building of Kilns 3 and 1, a baulk of undisturbed natural survived between, which has rendered impossible the potential to place either in a stratigraphic sequence. As such, the relative dating of Kiln 1 after Kiln 3 rests mainly on the basis that Kiln 3 was a more primitive structure, but also on the date of a stamped brick from Kiln 1 and the drains that were probably associated with each kiln.

3.3.4 Once Kiln 1 had been built, narrow stone and brick walls were built on top of natural clay that had not been quarried at all to the south-west of the kiln, down the slope of the quarry to the south-west of the kiln, and on top of the baulk of natural clay left between Kilns 1 and 3 to the north-east. The area between these outer walls and the kiln was infilled with a sequence of redeposited natural clay layers, followed by more than one deposit of crushed brick and tile wasters. As a result, only the north-west side of the kiln, where the entrances to the flues and the stoking area lay, was entirely exposed either during its operation as well as

its excavation. The stoking floor (72.40m aOD) lay nearly 4m below that of the surface level to the south-west (c 76.30m aOD), which is also the approximate level to which the kiln walls survived. Accordingly, the extant height of the kiln from the stoke room floor to the highest surviving course of bricks in the kiln walls was about 3.6m (Figs 69 and 70), and the kiln chamber may have originally projected only a metre or so above this level. The ground immediately upslope of the kiln is believed to have been close to the original ground level of the brickworks when in operation. Almost all the below-ground structure of Kiln 1 had therefore survived.

3.3.5 The length from back to front of the kiln (north-west to south-east) was 7.87m, or 10.08m including the outer wall, with the stoke room projecting a farther 3.8m to the north-west. The kiln chamber was about 5.90m wide from the external edges of its walls from north-east to south-west, and the distance between the outer edges of the outer walls in the same direction was 10.60m. The entire structure was overlain by a relatively recent deposit (1752) of domestic rubbish (equivalent to 1766 which covered Kiln 2 and 1711 in the quarry pit to the north found during stripping of the NMU). This deposit filled the kiln chamber, and the full depth of the kiln down almost to the stokehole floor. The deposit included glass bottles, plastic items and children's toys indicating that it was probably deposited after 1950, and it must have post-dated 1938 when both Kilns 1 and 2 were still visible and were recorded on the 4th-edition OS map. This landfill was sealed by a layer of yellow-grey clay (1712) 0.11m deep, covered by a thin mantle of topsoil (205).

3.3.6 Whether Kilns 1 and 3 ever operated in tandem is unknown. The tithe map of 1842 shows a single kiln in the approximate position of Kiln 1 standing alone alongside four drying sheds and the moulding shed. It is however most likely that the Tithe map was not particularly accurate, and that the single kiln was Kiln 3, to which Kiln 1 was added somewhat later, as there is some evidence (admittedly limited) to suggest that Kiln 1 was built later (see below).

Kiln 1 chamber

3.3.7 The main chamber of the kiln consisted of the following basic elements: four kiln walls, a loading entrance on the south-east wall, and a vented stacking floor. Additionally, each corner of the kiln had a buttress set into its external edge, and the longer north-east and south-west walls had an additional buttress halfway down their lengths. Various repairs to these features were observed during their excavation.

The chamber walls

3.3.8 The north-east (1714), south-east (1715), south-west (1716), and north-west (1717) walls of the kiln were all constructed in the same manner. While the side walls (1714 and 1716) were 4.72m in length on their internal edge, the end walls (1715 and 1717) were 3.65m, creating a rectangular chamber. The north-east, south-east and south-west walls were all 0.99m thick. The north-west wall (1717) was substantially thicker being 1.48m at its highest surviving level. Around 25 courses of the kiln lining (1740) survived above the floor on most sides, except the north-west wall which was truncated to a height of about 12 courses in most places. Generally, the bricks in the internal part of the wall (behind the kiln lining) were arranged in an English bond, three brick lengths thick. The external skin (not given a separate context number) also consisted of bricks laid in an English bond and the kiln lining of the

internal chamber (1740) was arranged similarly (Plates 124 and 125). The internal corners of the kiln lining were rounded, perhaps to aid cleaning.

3.3.9 The north-west wall (1717) formed the open façade of the kiln, and it had a vertical face on the inside, but was sloping on the outer (north-west) side, being six bricks wide at the surviving top and gradually increasing in width in 23 surviving stepped courses to a width of about 2.5m. This width was reached at a height of about 1.75m above the base of the kiln, the height of the tops of the stokehole arches, and below this the wall was vertical (Fig. 70).

3.3.10 The upper levels of the internal kiln walls (1714, 1715, 1716, 1717) were bonded with a buff-yellow lime mortar, while the lower levels were generally bonded with clay. Clay bonding permits a greater capacity for expansion and contraction with extreme temperature variations, and where it had been exposed to high temperatures it had been fired to a hard terracotta. It is notable that the mortar on the external surface of the south-east wall (1715) had not been pointed but expanded out from the wall surface, suggesting that this part of the wall was below the exposed ground surface at the time of its construction. The types of bricks used in the internal kiln walls were of mixed types, some frogged and others unfrogged, generally of a light red or terracotta colour. Their size varied, but most measured 23.5 x 10.5 x 7cm. The inner lining of the kiln chamber (1740), however, was made exclusively from frogged bricks. They were also of a harder-fired, purplish-red colour, probably caused by their direct exposure to the higher temperatures of the kiln chamber, but also potentially manufactured specifically to withstand higher temperatures. The external faces of these bricks were also frequently vitrified, perhaps caused by residues of the sand used in the manufacturing of the bricks that were fired in the kiln.

The stacking floor

3.3.11 The kiln floor (1744) had a surface area of about 17.4m² (4.7 x 3.7m), and it was made from heavily fired purplish bricks measuring 23.5 x 11.5 x 5 or 7cm, bonded with a buff yellowish-white mortar (Plate 125). Preservation of the floor was good, and there were few signs of repair. One of the sampled bricks from the floor was a voussoir firebrick (taken from one of the upper parts of the flue arches below) with a stamp indicating the maker as Pearson's of Stourbridge (formerly Harris and Pearson) who were in operation from 1860. The bricks were laid on their long sides rather than flat, and in an arrangement that created 16 regular rows of 11 vents permitting the free movement of hot air upwards from the flues below (Fig. 70). Unless this voussoir brick was part of a replacement floor, it shows that Kiln 1 was built after 1860, and so cannot be the kiln shown on the Tithe map of 1836. It is possible that an earlier kiln was replaced in this location by Kiln 1, but if so no trace of this was seen during the excavations.

The loading entrance

3.3.12 The loading entrance of the kiln chamber was through the south-east wall (1715) and its presence was indicated by a number of minor structures (group number 1743) halfway along its length (Plate 126). These features included what was most likely a doorstep (1733) consisting of a small section of purplish red frogged bricks (23.5 x 10 x 7.5cm) and slightly thinner pavioir bricks (23 x 11.5 x 5cm). This probable doorstep was constructed on top of two slightly different sections of brickwork (1736 and 1737), being two courses of headers bonded with a buff pinkish white lime mortar. These bricks were all frogged and measured 23 x 11 x 6.5cm. Projecting out of the kiln wall toward the south-east at this location were two

small stubs of relatively crude brickwork (1734 and 1735) that most likely served as a footing for a slight step down to the loading entrance from the ground surface. This entrance was still a good 1.75m suspended above the kiln floor, indicating that a temporary set of steps, a ramp, or a pulley was used to load and unload the kiln chamber.

The buttresses

3.3.13 Six buttresses were arranged on the external edges of the kiln walls, one on each of the corners, and one halfway down each of the longer north-east and south-west sides. These buttresses (numbered clockwise from the north corner) are 1718, 1719, 1720, 1721, 1722 and 1723 (see Fig. 68). The two buttresses on the north-west façade of the kiln were substantially larger than the others, being 1m by 0.88m in plan on the north corner (1718) and 1.29 x 0.7m on the west corner (1723). The other four (1719, 1720, 1721 and 1722) measured 0.6–0.8m by 0.5–0.6m. There was some variation in their construction, which is described below, though all of them were keyed in to the inner kiln walls.

3.3.14 The large buttress on the north corner (1718) was constructed from purplish red bricks (23 x 11 x 7cm), set with a white lime mortar in an English bond keyed in to the adjoining north-east and north-west walls (Plate 127). It was constructed from about the level of the kiln floor, surviving to a height of about 1.5m where it descended to meet the wider part of the north-west wall. On the north-east wall, it appeared to be built into the natural clay, though this detail was not recorded. The large buttress on the adjacent west corner (1723; Plate 128) was made from identical bricks also in an English bond and set with the same mortar, though it was constructed from higher up, and survived only 0.89m high. It was similarly keyed in to its adjacent walls at its lower levels and was built into the natural clay. Both buttresses on the north-west wall were adjusted slightly to accommodate the construction of the outer wall (1720 on the west corner, 1730 on the north). Furthermore, the west buttress (1723) showed structural discrepancies between its base and upper levels, indicating either a minor rebuild or alteration, or a slight change of plan during the initial construction.

3.3.15 The buttresses on the opposite corners (1720/3038 on the east corner, 1721 on the south, see Plates 129–130) were made from various kinds of bricks and bonding agents, though they were all constructed with an English bond and were both of the same dimensions (0.8m by 0.58m). Both seemed to have had two phases of construction. The lower part of the east structure (ie 3038, see Fig. 71, section 151) consisted of two courses of relatively soft red brick (23.5 x 11 x 7cm) with a buff white unpointed lime mortar. The foundation initially appeared to be built into 3022, the fill of a drainage gully that housed a ceramic pipe running alongside the kiln wall that had cut through all the infilled layers. However, it was perhaps more likely that the buttress foundation actually overhung the gully cut, and that the gully fill was packed in underneath it. The slightly narrower two upper surviving courses of the buttress (ie 1720) consisted of purplish red bricks identical to those of the buttresses of the north-west façade (purplish red, 23 x 11 x 7cm), though they were bonded with a different, grey concrete mortar (Plate 131). The buttress on the south corner (1721) was made of the same purplish-red bricks, bonded with a lime unpointed mortar in the lower courses and a grey-white concrete pointed mortar in the upper ones. In this case, however, the lower foundation was somewhat narrower than the upper courses, though it was not excavated to a sufficient depth to identify the layer into which it was built.

3.3.16 The final two buttresses were located midway down the north-east and south-west sides of the kiln (1719 on the north-east wall and 1722 on the south-west wall). 1719 measured 0.6m by 0.5m and it was made from poor quality red bricks, similar to the lower parts of the eastern buttress (1720). The bricks were arranged in a non-standard pattern, being just two and a half bricks wide, and bonded with a buff white lime mortar. The buttress midway down the opposite wall (1722) was made of re-used purplish-red unfrosted bricks (23.5 x 11.5 x 7cm) laid in an English bond with a buff white lime mortar, and measured 0.8 x 0.58m. Neither of these two structures was fully excavated, so it is not known from what level they were constructed or whether they were keyed into the kiln walls lower down.

3.3.17 These six buttresses had several possible functions. They may have been built to mitigate against the collapse of the walls of the kiln; the fact that the largest buttresses were adjacent to the north-west (front) face of the kiln, where it was unsupported by the natural clay, supports this. The buttresses at the other corners did not, however, descend to any great depth below ground and could only have provided support for the uppermost part of the kiln walls. At Ashburnham it was noted that 'the upper parts of the kiln walls had the tendency to lift themselves with the head, and this caused severe distortion at the top of the kiln chamber' (Leslie 1970, 16), so the other buttresses may have been intended to limit such distortion. They may also have been stanchions to support temporary covers or windshields erected over or around the kiln during firings. It is possible that the buttresses served all of these purposes simultaneously.

Repairs and alterations to the kiln chamber walls

3.3.18 Some minor alterations have already been mentioned associated with the structure described above, but there were a small number of additional modifications made to the kiln walls, the purposes of which are not entirely clear. The first of these was a small curving section of brick wall (1732) added to the external surface of the north-east wall (1714) at its north-west end. The structure consisted of purplish red unfrosted bricks (23 x 11 x 6.5cm) bonded with a buff white lime mortar and keyed in to the north buttress (1718, see Plate 132). Though of a different construction, it mirrors a comparable addition made to the adjacent west buttress or stanchion (1723), consisting of a rough aggregation of mortar and broken bricks (1731) filling the corner space between the west buttress or stanchion and kiln wall (1740, just about visible in Plate 128). Structure 1731 was perhaps inserted to fill a cavity left by the quarried bank diving down toward the north-east.

3.3.19 A more extensive spread of mortar and broken bricks with a brick facing (1738) was used to repair a section of the south-west wall (1716). This spread extended as far as disrupting the upper courses of the internal kiln lining (1740), potentially associated with the alterations to the adjacent buttresses or stanchions 1721 and 1722 described above. A very similarly constructed repair (1739) was made to the opposite north-east wall (1714). Two very similar mortar repairs (1741 and 1742/1794) also seem to have been made to north-west ends of the north-east and south-west kiln walls. The top surface of both these alterations bore the imprints of bricks.

3.3.20 Finally, two extensive concrete repairs were made to the upper surfaces of the kiln walls extending from the east (1750) and south corners (1751) along the tops and outer edges of the adjacent walls (visible in Plate 129, for detail see Plate 131 and Fig. 72, section 148). In neither case was there any evidence of bricks or brick impressions in the top of the concrete,

which therefore concrete seems to have been poured on top of the remaining brickwork in order to consolidate or stabilise the uppermost courses. In Slot 3 on the north-eastern side of the kiln the concrete was poured in three stages (1793, 1794 and 1796), with a levelling deposit of sandy clay (1795) sandwiched between two of them (Fig. 72, section 148; Plate 133). The cut for the concrete was through two successive deposits of crushed brick and tile (1798 and 1797) used to partially backfill the space between the inner and outer walls (Fig. 72, section 146).

Kiln 1 outer wall

3.3.21 Surrounding the kiln chamber on three sides at a distance of about 2m from the chamber walls, and abutting the buttresses on the north-west side, was a less substantial outer wall (Fig. 68), creating a large U-shaped cavity or annex. The outer wall never formed a continuous perimeter but was built in a series of sections consisting of a rear retaining wall to the south-east (1727, 1728) with a central gap, and two L-shaped segments on the north-east (1729, 1730) and south-west (1724, 1725, 1726) sides. All these lengths of wall were constructed on natural clay in the sides of the area quarried out for the kiln. A gap 2.4m wide was left between the outer side walls and the rear south-east retaining wall, which was probably for access to the area between the inner and outer walls.

3.3.22 The south-east retaining wall was divided into a south-west (1727) and north-east (1728) half with a 1.8m gap between them, directly opposite the loading entrance of the kiln chamber and therefore probably facilitating ingress during the loading and unloading of the kiln. Slot 4 (3040) was dug in order to investigate whether this gap in the outer wall was an accident of survival caused by robbing or an intended gap and confirmed that it was deliberate. Both halves of the outer wall survived mainly as sandstone foundations, with the south-west part (1727) being 3.8m long and about 0.3m in width. The north-east part (1728) was 4.6m long and also 0.3m in width. Both consisted of a single line of roughly chiselled sandstone blocks in just one or two courses. The size of the blocks through the stone foundations of all the outer walls varied substantially, though most were at least 0.25m long, at least 0.20m wide and 0.12m high. The north-eastern 0.8m of 1728, however, was made of a single line of mortared brick headers (3049), set into a layer of redeposited clay (3045). Slot 5 was dug into the north-east end of 1728 to investigate this anomaly. The brick-built termination of the wall (3049) was only one and a half bricks wide (22.5 x 11.5 x 6cm) and was set with a lime mortar, and appeared to be similar to the brick stacks that formed the post pads of the drying sheds. It may simply have been that there were insufficient stone blocks to complete the job and that bricks were used instead. The lowest level of the sandstone foundation of the exterior south-east wall (75.42m aOD) was at a much higher level than the kiln floor (c 74.0m aOD), being only about 0.6m below the surrounding ground surface, and shows that this wall was not a retaining wall and must have been built to separate the working area around the kiln from the crushed tile road and other adjacent areas—in other words, as a visual or protective barrier.

3.3.23 To the immediate south-west of this brick pad, Slot 5 also uncovered a drain cut (3052) containing two ceramic drain pipes (3050, see Plate 134), backfilled with a firm yellowish-brown clayey sand and redeposited lumps of clay (3051). The drains ran at a level directly above that of the sandstone foundation of the rear wall and were oriented east-west on an oblique angle to the rest of the kiln structure. Neither pipe was sampled but both appear to be of extruded circular form from the photos.

3.3.24 The outer wall to the south-west (1726) similarly survived only as a sandstone foundation, in most places just one course deep, with a clay bonding visible between the blocks of stone. Slot 6 investigated the north-west termination of the wall foundation and its relationship with the perpendicular exterior wall that formed part of the exposed north-west façade (1724). The foundations deepened at the north-west end of the wall as the edge of the quarried cut for the kiln dropped away at this point (Plate 137, see also Fig. 69). The short section of brick wall connecting the end of this foundation to the north-west façade of the kiln (1724) was a corbelled English bonded brick wall (purplish red bricks, 23 x 11 x 6.5cm) with a buff yellowish-white lime mortar, and was constructed with a slight incline, similar to the adjacent north wall of the kiln chamber but with a somewhat steeper gradient (Plate 139). This short section of wall butted up to the western buttress 1730 but was not keyed into it. Wall 1724 was, however, keyed into the south-west wall of the stoke room (3060), discussed below. A short section of brickwork (1725) tied this wall into the perpendicular sandstone foundation of the south-west outer wall (1726). This brickwork was essentially of the same build as 1724, though it included a layer of roof tiles to bring it up to the level of the outer wall foundation (1726).

3.3.25 The short length of outer wall on the other side of the north-west kiln façade (1730) was very like 1724, being an English bonded wall of unfrogged purplish red bricks (23 x 11.5 x 7.5cm) with a buff white lime mortar (Plate 139). While the upper part of the wall was sloping, the successive courses of bricks being stepped slightly, the lowest six courses that were cut into the natural bank left between Kilns 1 and 3 were not. This section of wall was keyed into the north buttress 1718, the north-east stoke room wall (3062) described below, and the perpendicular length of outer wall extending from here toward the south-east (1729).

3.3.26 Wall 1729 was more substantial than the walls on the south-west and south-east sides, a consequence of the surviving natural being lower on this side as it sloped down to meet Kiln 3 (Plate 136). In order to expose the lower levels of this wall Slot 3 was dug across the cavity between the inner and outer kiln walls (Figs 68 and 72). The wall (1729) was constructed on two courses of roughly squared sandstone foundation blocks, the lower numbered 3056, the upper 3009. The construction cut (3010) appeared to have a sloping base, with 3056 deeper on the north-east side, which again was due to the slope down towards Kiln 3.

3.3.27 The upper course of the sandstone foundations was just over 0.5m wide and was followed by brick foundations 0.48m wide (3008) consisting of two courses of header bonded bricks (24 x 11.5 x 7cm). The bricks were set with a thick buff white lime mortar and roof tile was used to create a level surface between the bricks and the uneven sandstone. The upper part of this brick wall (3007) was narrower, only one brick (0.32m) wide, and consisted of five courses of Flemish stretcher bonded purplish red bricks (24 x 11.5 x 7cm), held together with a buff white lime mortar.

3.3.28 A number of slots were dug into the infill between the inner and outer kiln (Fig. 68). Slot 1 was on the south-west side, between outer wall foundation 1726 and kiln wall 1716. The external wall 1726 (Fig. 73, section 143/144) was set into 1755, a levelling deposit of redeposited firm yellow clay between 0.2 and 0.3m thick at this location, that seemed to lie around all of the kilns and was most likely laid in the preliminary stages of construction. It is probably equivalent to the second layer of redeposited clay that was laid down over much of the area of the drying sheds. Beneath this was a second layer of clay (1759) of a slightly lighter colour, but most likely of the same nature and purpose as 1755, and of about the same

thickness. Again, this layer can probably be equated with the first layer of built ground observed in the area of the drying sheds. These layers of redeposited clay overlay two distinct geological strata 1760 and 1761, a bluish-yellow and yellow clay respectively.

3.3.29 Within the cavity between the walls (Fig. 73, section 143/144) redeposited clay layer 1755 extended up to the kiln wall, where again it was the last in a small number of levelling deposits (1758 and the continuation of 1759), lying on top of the natural clay (1760), which lay at a level of about 75.5m aOD, though it sloped upwards towards the kiln (Plate 137). Above the redeposited clay (1755) was what appeared to be a thin trample layer (1754) of broken brick fragments and dust about 0.1m thick, covered by a more substantial layer of broken brick and stone in a matrix of reddish orange clayey silt (1753) about 0.25m thick. No construction cut for wall 1728 was recorded here, so it appeared that layers 1754 and 1753 abutted the foundations of the wall; 1754 presumably represented detritus from the construction of the kiln and 1753 further infilling of the cavity between the inner and outer walls to cover the foundations of 1726.

3.3.30 Slot 2 was excavated on the east corner the kiln, between the outer wall foundation (1728) and the eastern corner buttress or stanchion (1720). The outer foundation wall was built on top of 3030, the same redeposited yellow clay found elsewhere, deposited on top of the natural geology 3031, which dropped off rapidly to the south-west towards Kiln 2 (Fig. 71, sections 149 and 151). The corner buttress (1720, see Plate 130) had been built on top of a foundation (3038), described above. Within the cavity between the internal and internal walls (Plate 137) the natural geological layer was found at a depth of approximately 75.5m aOD, and the redeposited yellow clay layer extended across the length of the slot (Fig. 71, section 150). On top of 3030 a thin white layer of chalk had been compacted into a floor surface (3027), and above this was a sequence of compacted bands of trampled silty sand of various colours with lenses of broken up CBM (3025). Cut into this layer was a drainage gully (3028), about 0.23m deep, running at a level of 75.75m aOD. A ceramic drain pipe had probably been later removed from the gully, and the cut was filled by a deposit largely consisting of broken CBM (3026). A soft deposit of brownish-red and greyish brown silty sand (3029) sealed the fill of the gully and layer 3025. Parallel to and slightly undercutting the corner buttress or stanchion on the other side of the cavity was a second cut for a drain (3024) at a higher stratigraphic level (cutting 3029) but physically slightly lower at roughly 75.6m aOD, which contained a ceramic drain pipe (3023) surrounded by a firm reddish brown clayey sand with some lumps of redeposited clay and broken CBM (3022).

3.3.31 On the north-east side of the kiln, slot 3 was dug into the cavity, exposing the lower course and foundation of the outer wall 1729 described above, and extending down to the top of the natural clay. The sequence here was complex (Fig. 72, section 146; Plate 133). Above the level of the natural strata (3018), substantial clay levelling deposits (3017 overlain by 3016 then 3015) extended across the cavity to a depth of 0.45m. Above these were layers 3013 and 3014, which largely consisted of crushed brick and tile fragments in a yellow silty sand. The relationship between these and the kiln chamber was not established due to a later surface of bricks (3004) that was left *in situ*. 3013 and 3014 may represent construction debris from Kiln 1, although there was a higher proportion of tiles than might have been expected. Layer 3016 was thicker than 3013 closer to the kiln, and layers 3011 and 3012, firm layers of greyish green sandy clay containing charcoal flecks, were dumped to level out this uneven surface.

3.3.32 The outer wall on the north-east side (1729) was constructed from this level, its construction cut (3010) being dug through layers 3014 and 3015. The wall consisted of a sandstone foundation 3057 and 3009 followed by two courses of bricks (3008) rising just above the construction level, with the narrower wall proper 3007 above. The wall foundations and the backfill of the foundation trench were covered by a light brown silty sand layer 3005, which also abutted the base of wall 3007.

3.3.33 Overlying layer 3011 adjacent to the kiln chamber were four rows of header bricks (3004) forming a surface against the exterior of the kiln. This was abutted by sand layer 3005, which had been compacted by trampling, and clearly formed a working surface on the inside of the exterior wall, while 3004 performed a similar purpose against the kiln proper. Resting upon 3005 was a neat stack of roof tiles for an oast house leaning up against the external wall (Plate 463). These tiles might have been stored here to help close off the top of the kiln during firing.

3.3.34 Cut into this surface towards the centre of the of cavity between the walls was the run for a drain (3002), containing a ceramic pipe (3001) backfilled with a greyish brown silty clay containing frequent lumps of yellow clay (3000). The pipe ran at a level of approximately 75.5m aOD. The laying of this drainage pipe coincided with the raising of the floor level around the kiln, as the upper fill of the drain cut extended upwards well beyond the limits of the cut itself and formed a substantial deposit reaching the top of the external wall 1729, covering the stack of unfired tiles in the process. This substantial backfill (1799) was a brown silty clay containing a large amount of broken brick and tile, charcoal flecks and lumps of yellow clay.

3.3.35 Two further very similar levelling deposits brought this surface right up to the top of both walls, being a layer consisting almost exclusively of broken up CBM (1798) and a firm yellowish brown silty clay (1797) containing moderate amounts of brick and tile. Material recovered from 1798 include two brick drainage whelms, a malting kiln floor tile and two circular field drain drains, which probably all date to the latter half of the 19th century.

3.3.36 A second drain was cut through 1799 and 1798, and ran parallel and close to the external kiln wall at a level of roughly 76.1m aOD. This drain cut (1792) contained a similar ceramic pipe (1791) to the drain at the much lower level, and had been backfilled with a loose brown sandy silt with yellow clay lumps (1790). Neither of the in-situ drain tiles were sampled, but both appeared to be of circular extruded types. The outside of the kiln chamber wall above this level was repaired with concrete (1793–6 overlying cut 3019, see above) while this surface was still in use.

3.3.37 It was possibly at the same time that the outside of the kiln chamber wall was repaired with concrete (1793–6 overlying cut 3019, see Fig. 72, section 148). Although no cut for the pouring of the concrete was observed, so that it seemed as if layers 1799 and 1798 abutted the concrete, the concrete had no finished surface on the outside, suggesting that instead it had been poured into a revetted slot on the outside of the kiln wall from a higher level.

3.3.38 The infilling of the space on the north-east side may have been to reduce the exposed height of the kiln chamber wall on this side, as the repairs and additional buttresses suggest, and to increase insulation around the kiln. The drains in this area were part of a wider system channelling rainwater down-slope from the drying sheds into the quarry north of the kilns and keeping rainwater away from the kiln chamber itself. The infilling of the space on the north-

east side may also have been to compensate for the raising of the level of the drying sheds up-slope, and the consequent need for further drainage.

Kiln 1 flues

3.3.39 The three flues of Kiln 1 (3057) lay directly below the kiln floor with about 0.75m of vented brickwork between them, built into the lowest level of the north-west façade wall of the kiln (1717; Fig. 69). The flues opened onto the stoking area, where three arched openings provided access to the fire within the flues for their stoking, raking and other maintenance. While the brickwork of the surrounding wall was the same described above for 1717, at these lower reaches the wall was not corbelled but vertical. The abutments, arches and sections of wall were all bonded with the same buff white lime mortar.

3.3.40 The impost of each arch were not constructed separately from the rest of the wall, but the semi-circular arches consisted of three courses of bricks, the innermost being firebricks, while the outer two courses were of the same material as the bricks found elsewhere in wall 1717 (Plate 138). The majority of the bricks used to construct the arches were regular rectangular bricks, with every third or fourth brick being wedge-shaped, although the pattern was not entirely regular. The abutments between the arches were formed of eight courses of cut down bricks to bridge the gap between the tops of the pseudo-imposts and the tops of the arches.

3.3.41 The exterior of the arches and the impost of the flues were faced with a wrought iron strip 150mm (6") wide, covering about two thirds of the first course of the arch, and attached to the brickwork by means of retaining iron pins. At the apex of each arch a strip of iron of similar width continued vertically upwards across the second course of the arch, ending partway across the third. These vertical strips appeared to curve out from the wall of the kiln at their tops. The surviving ends of these strips were not finished and had probably broken off. To the top left of the central arch, and level with the top of the vertical strip, a ring-headed pin had been driven into the brickwork, the ring set horizontally (see metalwork, volume 6). Six brick courses above this ring a ring-ended vertical strip had been driven into the brickwork and hung down for two courses. It seems likely that a vertical rod had been suspended from the top ring, passing through the lower ring, and may have been part of a mechanism to suspend a door for each flue for the purposes of controlling the updraught (the flues themselves were the only ventilation), as well as perhaps to protect the stokers from the heat of the fires. The base of each of the three flues was lined with stretchers and headers arranged in no consistent pattern, about two brick lengths wide, or 0.55m, at the entrance of the flues, broadening out to roughly 0.75m once the flues had passed the extent of the kiln wall (1717). Though their full extent was not exposed, the flues almost certainly extended to the far wall of the kiln (1715) as they did in Kilns 2 and 3 where they were full exposed, an estimated length of 6.7m

3.3.42 Although the greater part of the flues in Kiln 1 were not excavated, upon removal of the north-west façade wall (1717) the internal build of the kiln base and flues were exposed (Plate 140). This part of the kiln was constructed differently, with the two internal impost consisting of a pointed arch with steep and straight sides abutted on each side by the semi-circular rounded arch of each flue. This complex arrangement of arches was put in place to transfer the massive weight of the vented kiln floor and the contents of each firing down through the impost. The outermost impost of the left and right flues, unlike on the external

facing, was constructed separately as a pillar of bricks. Although they were not recorded in detail, vents seem to have been regularly placed along the intrados of the flue arches. Plate 140 shows the buff white mortar adhering to just six bricks in each arch, with gaps between them. While the vents in the kiln floor above were placed between every other brick length, in the flue intrados it would appear that they were placed regularly between every two brick lengths. These vents not only acted to channel the heat of the fires upward into the kiln, but they also provided vents for smoke which would have had no other exit.

Kiln 1 stoke room

3.3.43 The stoke room (group number 3058) was situated to the north-west of the kiln at the level of the flue openings (72.03m aOD), roughly 4m below highest part of the surviving kiln walls. The major extant feature of the stoke room was the floor (3059), which was made from orangey red bricks (23 x 11.5 x 6.5cm) laid end to end in a stretcher bond with no bonding material, and with a deliberate slope down towards the north-west, away from the flues (Fig. 68; Plate 141). The floor was set into a 0.05m sand bedding. The length and width of the floor was 3.8m and 5.2m respectively, providing a surface area of 19.76m². Toward the east corner of the stoking room floor the bricks had been substituted with a single large slab of sandstone (3065). Whether this was original or a repair was not entirely clear, and neither was its purpose, though it may have been a piece of the foundation showing through due to a miscalculation made when building the brick floor. A short course of five of the same slabs (3066) lay on the north-west edge of the kiln floor, continuing underneath the north-east stoke room wall (3060). On the north-east side of the floor a single and slightly staggered line of bricks had been removed to form rudimentary drain (3067) which emptied into a perpendicular brick-lined culvert (3061) that formed the north-west limit of the stoke room, running downwards toward the south-west. Where the culvert met the south-west wall (3060) it fed into a ceramic pipe (3068) which continued through the wall towards an unknown location. Similarly, the culvert was fed at the other end by another ceramic pipe (3069) that ran beneath north-east wall 3062 (Fig. 74, section 2205), probably emerging as 3087 or 3079 at the base of the Kiln 2 stoke room wall (Fig. 66, section 2203). Another drain (3070) was found to the north-west of the stoke room at a higher level. Its ceramic pipe was substantial and aligned roughly SW-NE, but not quite parallel to the kiln, headed in the direction of the stoke room of Kiln 2, and perhaps carrying water away from this location and finally into manhole 3053 (Plate 142), which was located to the north-west of the stoke room, also used to capture surface water from the surrounding area. The manhole was lined with unmortared brick (22.6 x 11.3 x 6.9cm) laid in a header bond.

3.3.44 The stoke room was bounded on its south-east limit by the flues, and on its north-east and south-west limits by walls 3062 and 3060 respectively. The north-west edge of the stoking room floor was not enclosed by any permanent structure though it was marked by the brick-lined culvert (3061) described above. Both of the side walls were of the same construction, being English bonded bricks (23.5 x 11 x 7cm), with a buff yellowy white lime mortar, laid one and a half bricks thick. Neither wall was keyed in to the main structure of the brick kiln, but instead where each stoke room wall met the face of the kiln a small stub of perpendicular wall (3063 and 3064), keyed in to the sidewalls, had been built abutting the kiln façade, presumably to provide some additional stability (Plates 137 and 143). Wall 3060, however, was bonded with the exterior wall of the upper kiln 1724 and 1725.

3.3.45 Beyond the stoke room to the immediate north-west and directly beneath it, there was a complex sequence of layers that pre- and post-dated the construction of the stoke room, and that were associated with its working life (Fig. 74, section 2205). Due to the previous quarrying (3230), a number of substantial layers were imported to level the surface before the construction of the stoke room floor (3229, 3227). Among these layers was a substantial deposit of brushwood (3229), probably laid down to stabilise the surface during the works. These layers also contained a couple of substantial pieces of timber (3228, 3232), neither of which was obviously structural. Above these layers were two discrete deposits of mixed clay, both about 0.2m in depth, one of which lay directly beneath the floor of the stoke room as a bedding layer (3226), and the other (3225) a levelling layer just beyond it, probably mixed due to trampling and hence associated with the working of Kiln 1. Beyond the extent of the stoke room there were further accumulated layers of clay and crushed CBM (3224, 3223), sealed by another layer trampled brushwood (3222), this representing remains of the fuel used for the firing of Kiln 1 (see Volume 6 Waterlogged wood report). These layers reached approximately the height of the stoke room floor, but above them there were further layers of clay and silty clay (3221, 3220) that probably represent levelling deposits that post-dated, or represented the very late stages of, Kiln 1's use. It was into these layers that drain 3070 was cut (3218, filled by 3217), and sealed by a final layer of silty clay (3219).

A note on the repairs, alterations and phasing of Kiln 1

3.3.46 Despite the complexity of the various structures associated with Kiln 1, it is possible that most of its components were constructed during the initial building phase. The fact, for instance, that the stoke room walls were not keyed into the north-west façade does not necessarily indicate that they belong to a substantially later phase. The difference in the upper and lower levels of the some of the buttresses (1720 and 1721) need not indicate two phases of building significantly removed in time, but could instead represent two phases of building work during initial construction. Again, the adjustments made to the north (1718) and west (1723) buttresses or stanchions to accommodate the outer walls (1730 and 1724/1725) do not necessarily indicate a distinct phase in which an outer wall was added, but merely that the main kiln structure was built first. If so, however, these adjustments do indicate that the minutiae of the construction of Kiln 1 were not entirely planned from the start, and at least some of the features were added on a somewhat *ad hoc* basis as the building progressed.

3.3.47 On top of these minor structural adjustments, however, there are a number of features that indicate maintenance and repair, as might be expected for a structure that was essentially left open to the elements, used only seasonally and regularly underwent extreme heating and drying episodes. The brick and concrete repairs to the kiln walls (1731–2, 1738–9, 1741–2, 1750–1, 1794) are good instances of this, and some of the 'buttresses' may also have been secondary additions to help stabilise the above-ground kiln chamber walls. Drainage seems to have been an ongoing problem, and there were several campaigns of work undertaken to alleviate this issue, both between the inner and outer walls of the kiln to direct water away from the chamber and flues and on the stoke room floor to prevent this area becoming flooded, which, incidentally, is precisely what occurred during excavation. The insertion of the drains took place in at least two phases in the area between the exterior and interior kiln walls, and the drains at the end of the stoking area also indicate several phases of drainage.

3.4 Kiln 2

3.4.1 Kiln 2 (group number 1745) was located to the immediate north-east of Kiln 1 (Fig. 63), with its stoke room floor about 1m higher than that of Kilns 1 and 3. The reason for its slightly elevated level was because it was built on top of the remains of Kiln 3, the surviving elements of which comprised the lowest courses of the flues and the kiln walls (Fig. 65). Unlike Kiln 1, almost all the upper brick structure of Kiln 2 had been robbed out during or after its demolition (cut number 1779). All that remained was a small section of the kiln chamber wall in the south-west corner, a small number of the buttresses, remains of the three flues minus their arches, and the two walls of the stoke room alongside its somewhat damaged floor). However, four buttresses survived to the height of Kiln 1 that had been set back from main chamber structure and had been built up from a much higher level than the stoke room floor. These remains are nevertheless sufficient to state that Kiln 2 was built on the same basic template as Kiln 1. The substantial difference is that Kiln 2 did not have an outer wall around its kiln chamber.

3.4.2 The length of the kiln structure from north-west to south-east was 8.0m, with stoke room projecting a farther 4.1m to the north-west. The width between the exteriors of the north-east and south-west kiln walls was 6.2m. Like Kiln 1, Kiln 2 was covered by the same substantial overburden of domestic landfill dating to the mid-twentieth century (1766, equivalent to 1752 over Kiln 1), topped by a 0.1m layer of redeposited yellow-grey clay and a thin layer of topsoil. The depth of the landfill over Kiln 2 was substantial and descended all the way down to the flues.

Preparation for the construction of Kiln 2

3.4.3 When Kiln 3 was demolished to make way for Kiln 2, the flues of Kiln 3 were filled with carefully stacked bricks to provide a firm base for the overlying kiln (Plate 117). At the end of the stokehole layers of infill were laid across the ends both of Kiln 3 and Kiln 1 to make up the ground. The first of these was a thick deposit of yellow clay numbered 3084=3221, then a mixed clay 3220, which is equivalent to successive deposits 3083 and 3082 farther north-east (Figs. 67 and 74, section 2205). These deposits abutted the ends of walls 3062 and 1786, the stokehole walls of Kiln 1 and Kiln 2 respectively. The mixed clay was cut into by a shallow depression filled with further brushwood, numbered 3219=3081.

3.4.4 Within the area of the former stoking area of Kiln 3, a deposit of crushed brick, tile and chalk fragments 0.5m thick (3073) was deposited over the stoking area, up against the face of Kiln 3, and its brick infill, and against wall 3087 on the west side. This appears to have abutted layers 3084 and 3085.

3.4.5 Approximately halfway between the walls of the stokeroom was a post (3093), which survived to a height of 0.4m, and was set on top of a tile and brick pad at the level of the Kiln 3 stoking floor (Fig. 66, section 2201). The outer parts of the post had rotted away, leaving a post (3094) about 0.18 x 0.15 in its oval diameter. The shadow of the decayed post (3097) was 0.32m diameter, showing the original size of the post, and this was abutted by layer 3073. The post may therefore either have been erected during the life of Kiln 3 or have been inserted during the preparation for Kiln 2. On balance, it seems more likely that the post was erected to provide a support for a horizontal between the Kiln 2 stokehole walls.

3.4.6 Drain 3089 was put out of use by the raising of the ground beyond the stoking areas of both Kiln 3 and Kiln 1, but a hole was knocked through the base of the end of wall 3087, and a horseshoe-shaped drain 3079 inserted, on much the same line as 3089 below, to drain the stoking area of Kiln 2 (Fig. 67; Plate 152). On site this drain was recorded as running into drain 3069, whose line and base level it shared, just beyond the end of wall 3062, the east wall of the stoking area for Kiln 1. The cut for drain 3069 was cut through layer 3219=3081, showing that this was a late addition made to improve drainage.

3.4.7 Kiln 2 was set into the same quarried clay bank as Kiln 3, though it had been widened slightly to accommodate the slightly larger size of Kiln 2. Moreover, a layer of firm yellow clay (1772) was observed around Kiln 2, which probably represented an imported levelling deposit similar to the one observed around Kiln 1, and also seen around the drying sheds complex to the south-east. The foundation cut (1776) of Kiln 2 was dug into this yellow clay, and also partly rested on the walls of the earlier Kiln 3, so it may have been the case that the clay was imported in order to create a level construction surface for Kiln 2. After the structure was built insulation layers mainly comprising broken up brick and tile (1756, 1757 and 1777, see below) were backfilled between the quarry sides and the walls, as well as between the south-west wall of Kiln 2 and the north-east outer wall of Kiln 1. However, the upper levels of Kiln 2, and with them the layers that would have revealed a stratigraphic relationship between the two kilns, had been robbed out. The surviving segment of the kiln chamber walls, the flues and the stoke room, which together comprise the only surviving features of Kiln 2, are described in what follows.

Kiln 2 flues

3.4.8 As described above, the Kiln 2 flues sat above a foundation that had been built into the Kiln 3 flues consisting of about 12 courses of loosely stacked bricks with no bonding agent (3204/3242/3237; Plate 117), topped by a 0.1m layer of sand bedding (3213). Above this foundation there appears to have been two courses of mortar bonded bricks, topped by the floor lining of the Kiln 2 flues.

3.4.9 Although the dividing walls had been truncated to a maximum height of about 0.6m, all three of the Kiln 2 flues (1782.1–3 from north-east to south-west) survived minus their arched tops. The fact that these flues were missing their tops provided an opportunity to observe their entire length, rather than just the openings that were accessible in Kiln 1. The openings of the flues, lying with the north-west kiln wall and its additional façade described above (1785), were 2.44m long and a little narrower than the main channels, being 0.5m wide (Figs 67 and 75). Beyond the north-west wall the remaining 3.66m of flues were 0.68m wide. The two internal dividing walls of the flues (not assigned context numbers) were mainly made from purplish red frogged bricks (24 x 11 x 7cm) with some softer red bricks (22 x 10.5 x 7cm). All three of the flues were lined with firebricks (23 x 11 x 7cm) and this lining displayed many repairs indicated by inserted half-bricks and tiles, irregular bonding patterns and the use of clay, clay and sand, and lime mortar as bonding agents. Like those of Kiln 1, the arched openings of the flues had been faced with wrought iron fittings, though in Kiln 2 these had been bent forward during the collapse of the superstructure of the kiln (Plate 147).

3.4.10 The walls of the kiln structure were partly built on top of Kiln 3 and partly beyond it, as Kiln 2 was wider than Kiln 3. The cuts for the kiln wall foundations (1778) were substantially larger than the walls themselves, which left a large cavity to backfill. Various backfills were

observed around all three of the north-east, south-east and south-west walls (1756, 1757 and 1777, see Fig. 76, section 141), all of them characterised by large amounts of broken up brick and tile. The rear (south-east) wall of Kiln 2 was built partly on top of and partly in front of the rear wall of Kiln 3 (Plate 119). A mixture of bricks was used, most being relatively soft, red and frogged examples (23 x 11 x 6.5cm), bonded with clay, just like the lower levels of the chamber walls of Kiln 1. At the level of the flues, there was no discernible pattern in their bonding and the wall was 1.1m thick. This wall was one of the few parts of Kiln 2 that survived to the height of the chamber, which is described below.

3.4.11 Due to the presence of Kiln 1 adjacent, which limited the scope for widening to the south-west, further natural clay was removed on the north-east side, and the wall on this side of Kiln 2 (1783) was built into the natural clay slope beyond the edge of Kiln 3. As a result, the wall of Kiln 3 here was overlain by the north-east flue of Kiln 2 (Fig. 65). The wall was made from bricks that varied between harder purplish red bricks and softer red bricks, generally measuring 24 x 11 x 6.5cm, with more frogged examples occurring toward the north-west end of the wall, bonded with clay, in an irregular pattern. The wall was about 1.05m thick, equivalent to about three and a half brick lengths and it survived to a height of only about 0.6m above the level of the flue bases.

3.4.12 The south-west wall on the opposite side of the kiln (1784) was built partially over the corresponding Kiln 3 wall but extended beyond it to the south-west where it had been built into the natural clay. The wall was constructed in the same manner as 1783, with a mixture of frogged (about 10%) and unfrogged bricks of a purplish red colour, and some softer red bricks, similarly bonded with clay in no recognisable pattern. The wall was roughly the same thickness as 1783, being about 1.2m.

3.4.13 The north-west wall of the kiln (1785), which housed the flue openings, was a little more complex. Its interior essentially comprised the north-west terminals of each side wall, as described above, together with the terminals of the two dividing walls of the three flues. Once these four sections of wall had been joined by the three arches of the flues, this wall would have risen up as a continuous structure to the top of the kiln, perhaps corbelled back into a gradually narrowing structure as was the case with Kiln 1. Judging from where the flues narrow, which probably indicates the internal extent of the north-west main kiln wall, this front wall would have been 2.38m thick. However, the external edge of this wall seems to have had an additional wall built in front of it, 0.65m thick and not keyed in, of a much more regular English bond set with a hard-white mortar as opposed to the clay bonding of the adjacent internal wall (Plate 147). This was also considered to be part of 1785. The bricks varied between purplish red and softer red examples and about 40% of them were frogged bricks of various types (see volume 6, CBM report). While this wall might have constituted a re-facing of the original kiln façade, as there was a regular row of frogged headers facing the much less regularly built wall interior behind, it was probably part of the original design. The sampled bricks from 1785 (which were mixed from the inner and outer parts of the wall) included three re-used fire bricks stamped 'Cowen', from Newcastle-upon-Tyne, as well as other stamped examples of firebrick from Stourbridge in Staffordshire, and another stamped firebrick from an unknown source, all of late 19th-century date.

3.4.14 The flues contained various materials related to their final firings, including a slaggy residue (3043) of partially vitrified grey sand mixed with baked clay. There was also a distinct layer of purplish red burnt sand (3042) very similar to deposit (1744) found on the floor of the

Kiln 1 chamber. Both these deposits were probably derived from material falling downwards through the vents from the kiln chamber during firings. Traces of spent fuel (3041) were also found in the south-west flue (1782.3), about 1m into the channel, apparently of wood rather than coal (see volume 6, Charred Plant Remains).

3.4.15 These various residues were overlain by large amounts of rubble deriving from the demolition of the kiln structure (1781 in 1782.1, 3032 in 1782.2, and 3033 in 1782.3). This material comprised various kinds of bricks, including heavily fired frogged bricks and a number of firebricks, some of which were stamped and from Stourbridge, and all of late 19th-century dates (see CBM report). There was a silty matrix at the base of these rubble layers indicative of a period of disuse before its demolition and infilling with domestic rubbish (1766). The rubble was also found on top of the two dividing walls of the flues (3034 over the north-east dividing wall, 3035 over the south-west one). Within 1766 was a substantial part of a fleur-de-lis roof finial, which may have been one of the products of the brickworks.

Kiln 2 chamber

3.4.16 Very little of the actual firing chamber of Kiln 2 survived. The total extant remains comprised a small section of the rear wall (1765) with an incorporated buttress in the south corner (1764), and five further buttresses that may in fact have been freestanding stanchions for supporting a temporary roof structure rather than buttresses in the technical sense of the term. In the following account, for the sake of simplicity, they are referred to as 'buttresses', but their functional ambiguity should nevertheless be borne in mind.

3.4.17 The rear south-east wall Kiln 2 (1765) survived to a greater height than any of the other kiln walls at its southern extent, being about 20 courses high, or 1.55m, and incorporating a stanchion or buttress (Fig. 77; Plates 145–6). Towards the base of this wall (1765) a ceramic drain was preserved *in situ*. This wall was keyed into the perpendicular walls of the north-east and south-west kiln sides. Most of the wall had been built over the back wall of Kiln 3 or over the stacked bricks in its flues, but beyond this it was built into the natural clay and into redeposited clay 1772 and a mixed clay construction level (1776), and the construction cut was backfilled with crushed CBM and clay (1777). These layers were all made visible during the machining back of the south-east quarry face, where the natural clay was visible as a darker blue grey stratum descending toward the north-east, and the redeposited yellow clay could be clearly seen overlying it (Plate 146).

3.4.18 The east corner of Kiln 2 was also equipped with a buttress (1749), though this one did not appear to be keyed into the main wall of the structure (Plate 151), and nor did it descend even to the depth of the kiln floor, bottoming only 0.84m below the ground surface. It was slightly smaller than all the other buttresses, being 0.6m by 0.6m in plan. 1749 had a poured concrete base containing broken brick and tile that had filled a foundation in what appeared to a layer of redeposited yellow clay, but that had also cut through the original backfill of the Kiln 2 chamber wall foundations (1756, an ashy deposit containing large amounts of broken brick and tile as well as 1757, a substantial dump of tiles), so it was a later addition.

3.4.19 Each end of the north-west kiln façade had a buttress (1746 and 1747), which again were apparently free-standing structures that had probably abutted rather than been keyed into the kiln walls. Both buttresses appear to have begun as a brick wall just one brick length thick and about 1m high, acting as a facing for the undisturbed natural on the south-west and for a redeposited yellow clay filling the construction cut for the kiln on the north-east side

(Plates 149 and 150). The kiln may therefore originally have had short wing walls without buttresses at this end. Subsequently, a wider unmortared brick footing was added at the front (north-west), and the side walls of the stoking area were built in front, 1787 in front of 1746 and 1786 in front of 1747. The unmortared brick footing strongly suggests that the buttress and the side walls were built at the same time. Above this the wall was then encased in brick both front and back, the brick coursing being clearly visible on the west buttress (1746) but largely obscured by concrete on the north buttress (1747). It seems likely that the concrete and brick ballast was poured into the foundation trench of the buttresses, though it is possible that it was added later to strengthen them. Buttress 1746 measured 1 x 0.9m and survived 1.50m deep, buttress 1746 measured 1.1 x 1m and survived 1.64m deep (Fig. 76, section 139).

3.4.20 On top of the buttress foundations seven courses of brickwork survived at the ground level in buttress 1746, and two courses in buttress 1747. Both were constructed using the same dark red frogged bricks laid in an English bond and with the same hard grey concrete mortar. Buttress 1747 also abutted the outer wall of Kiln 1, showing that it was later.

3.4.21 A fifth buttress (1748) was positioned adjacent to the north-east wall though set back from the line formed by buttresses 1747 and 1749 at an estimated distance of about 0.75m from the kiln chamber wall. The structure had three distinct builds (Fig. 76, section 141; Plate 150). The foundation was cut into the yellow redeposited clay (1756) that the kiln chamber walls has also truncated and consisted of clay-bonded bricks (24 x 12.8 x 6.5cm). On top of this was a levelling layer of mortar and broken roof tiles. This was topped by dark red bricks (24 x 11.5 x 7.5cm) set with a buff white lime mortar, measuring 1 x 0.72m, and surviving to a height of 1.1m.

3.4.22 Projecting from the rear of the south-east wall was buttress or stanchion 1763, made of red bricks (24 x 11.5 x 7.5cm) bonded with clay, measuring 0.72m in width and surviving to a height of 0.64m. The buttress was barely recorded during excavation, though it is at least partly visible in Plate 151, where its foundation appears to cut the layer of redeposited yellow clay.

3.4.23 The chronological sequence of these six buttresses is unclear, as only one of them (1764 on the south corner) was integral with the original kiln chamber (1765). Buttresses 1746 and 1747 were not primary, as they encased narrow walls. The narrow walls may have been built to retain the backfill of the construction cut of the main kiln, acting as short wing walls, which were later converted into buttresses. This may, however, have been a temporary arrangement before the second phase of initial construction. Unlike the other buttresses, the foundation of buttress 1749 cut the backfill of the kiln's construction cut, which may indicate that it was added at a substantially later date, perhaps along with buttress 1748 and perhaps also buttress 1763.

3.4.24 The foundations of all these buttresses went through the redeposited clay laid down shortly before the construction of Kiln 2, but the foundations of 1749 also went through the backfill of the Kiln 2 chamber foundations, suggesting that it may have been added at a substantially later date, perhaps along with 1748 (which was set back from the chamber so did not cut the same backfill), and perhaps also 1763, which was not recorded in any detail. There may have been good reason for constructing these heavy structures once the main kilns structure had been built and consolidated with its backfill, as contrary to being buttress, these brick piles that were actually for supporting a seasonally erected roof structure may have

risked compromising the kiln due to the extra weight they placed behind its walls. As such, building them as separate and therefore removable features might have been considered a prudent approach in terms of risk management.

3.4.25 There is one further feature that survived at the working level of the Kiln 2 chamber. On the upper ground surface, to the south-east and north-east of where the Kiln 2 chamber would have stood, there was an extensive floor surface (1767) made of pinkish red sandy clay, about 0.2m thick, containing large amounts of broken brick and tile, lying on top of the insulation layer 1777. The surface presumably constituted a working area for the loading and unloading of Kiln 2, and while it sealed the earlier demolished buttresses 1763 and 1764, the construction cuts for buttresses or stanchions 1747 and 1749 abutted this layer.

Kiln 2 stoke room

3.4.26 With its brick floor and pair of side walls, the stoke room of Kiln 2 was similarly laid out to that of Kiln 1. The floor (1788), which lay at about 73.25m aOD, had a width of 4.65m and a length of 3.9m, providing a surface area of 18.14m². The floor was made of a single layer of relatively soft red bricks, some of which were frogged, set into a bedding of sharp yellow sand (3071) and a patchy thin ashy layer (3072). The bricks were arranged on neat offset rows of headers with frequent half bricks and queen closers. Set into the floor was a soakaway drain (3074, filled by 3073), which had cut through the redeposited yellow clay seen elsewhere (3075).

3.4.27 The floor was overlain by a thin mantle of silt, similar to that found in the flues, and in some areas there was a thin (0.2m) layer of brownish-yellow sandy clay (1768). The silt was indicative of a period of disuse prior to its demolition and backfill. Areas of the floor had been severely truncated (Plate 152), probably due to the robbing of the brick (3047) during demolition, and these gaps were filled by a firm dark grey brown silty clay containing broken up CBM, charcoal and chunks of mortar (3046) derived from the demolition of the kiln. The silt and sandy clay deposits were directly overlain by landfill deposit (1766).

3.4.28 The sides of the Kiln 2 stoke room were bonded by lengths of brick wall, each with a very small perpendicular return stub at the north-west end (Fig. 75). The north-east wall (1786) was two brick-lengths wide (0.5m) and 4.35m long and it survived to a height of 0.7m. The bricks were uniformly of good quality relatively soft red bricks (24 x 11.5 x 7.5cm), laid in an English bond set with a hard-white lime mortar. The construction cut of this wall (1773) cut through a firm yellowish silty clay (1770), which was probably the levelling deposit imported previous to the construction of the kiln observed elsewhere. Once the wall was built, its reverse was backfilled with two levelling deposits of bluish-grey clay and the (1771) greyish-yellow clay (1769) followed by a dump of roofing tile in a sandy clay matrix (1757), similar to the insulation deposit described above around the kiln walls and buttresses. This last deposit was later cut by the foundation of the north buttress (1747). At the north-west end of the wall there was a small wall stub return (1789), 1.2m long and 0.35m thick. It was built from medium pale red and yellowish red frogged bricks (23 x 11 x 7cm), in an English bond set with a hard, white lime mortar.

3.4.29 The opposite south-west wall (1787) of the stoke room was constructed differently (Fig. 67; Plate 154) and descended to a much greater depth than the north-east wall, presumably because this area had already been lowered for the Kiln 3 stoke room, while the opposite wall was built into an extension of the quarry made especially to accommodate the

Kiln 2 stoke room. The south-west wall had two one-brick thick external skins with a 0.2m cavity between them filled with broken brick, giving a total thickness of 0.7m. Each of these external faces was set on a solid corbelled foundation. They were constructed from frogged (40%) and unfrogged bricks, of a purplish to softer red colour measuring 23 x 11 x 7cm. The bricks were set with a hard-white mortar in an English bond. The wall survived to a height of 0.8m and had a length of 5.2m, a little longer than the north-east wall as it overlapped and abutted the north-west kiln wall. The wall abutted the external edge of the kiln wall (1785) but it was not keyed in, and its terminal also abutted the part of the foundation structure of buttress 1746 (Plate 149). Like the opposite wall, this wall included a small return wall stub (1789) 0.69m long and 0.48m thick that abutted the north-west wall of the kiln, built in the same manner and with the same bricks and bonding. The foundations of the wall (3078) comprised bricks arranged roughly and bonded with clay, placed in a foundation cut (3076/3087) that had been made into the floor of the Kiln 3 stoke room, with near vertical sides that had been backfilled with a yellowish brown silty clay (3077).

3.4.30 A small number of other layers associated with the working life of Kiln 2 but situated just beyond the bounds of the stoke room are described above together with those associated with Kiln 3 (Fig. 67, section 2200). Above the layers associated with Kiln 3's working life, they included a levelling layer for the construction of the Kiln 2 stoke room (3084), followed by 3083 and 3082, all of which represented redeposited natural clay probably laid down in sequential brick-making campaigns. Above these was a layer containing large amounts of brushwood, perhaps stored here for use as fuel for Kiln 2.

A note on the phasing of Kiln 2

3.4.31 As with Kiln 1, the fact that the stoke room walls abutted the kiln walls rather than being keyed into them does not indicate a substantial difference in chronology. It merely indicates that the stoke room walls were built after the kiln structure, the integrity of which they did not disturb. The same is almost certainly true for the front façade of the north-west kiln wall, whose role was to provide the wider base from which the wall could be angled back above the tops of the flue arches, as in Kiln 1. It certainly did not appear to have interrupted the integrity of the stoke room floor, arguing against a later addition. There were, however, multiple minor repairs to the flue linings, which we might imagine occurring episodically through the working life of the kiln. Whether these were carried out by adults or children is uncertain; there are numerous later 19th-century photographs showing children working on brickworks sites.

3.4.32 There was only one significant group of alterations made to the kiln structure that indicates a demonstrably distinct and major rebuilding campaign, and that is the sequence of buttresses that were added to the structure at unknown points in time. While 1764 was integral to the chamber structure, 1746 and 1747 on the north-west façade were certainly secondary, though how much later than the initial construction is unclear. 1748, 1749 and 1763, however, were all more removed from the kiln's actual structure, and due to the robbing of the chamber adjacent, cannot be phased except as probably later additions.

The chronology of Kilns 1, 2 and 3

3.4.33 The horseshoe drain with DRAIN inscribed on the outside provides good evidence that Kiln 3 was already in use at some point between 1826 and 1832, and its smaller size also supports the evidence that it was the earliest kiln. If the stamped voussoir tile in Kiln 1 belongs

to its primary construction, then this must have been erected after 1860 and before 1871, when two kilns are clear on the 1st edition OS map. Kiln 2, of similar size and type to Kiln 1, was certainly erected last, as it contained a number of stamped firebricks, which provide a probable date range for construction between 1880 and 1892. It also both overlay Kiln 3 and one of its buttresses abutted the outer wall of Kiln 1, strongly supporting the view that it was later than Kiln 1.

3.5 A brick surface to the north-west of the kilns

3.5.1 Just over 22m due WNW of Kiln 1's stoke-room excavations revealed a small brick surface (797), 2.22m by 2.35m in plan (Plate 155). The surface was situated below the infill on the north edge of a clay quarry pit. The bricks were neatly arranged in neat lines of headers, with some variation around the centre of the surface, but with considerable gaps between them (c 0.04m) and no bonding. The bricks were of the same local fabric as the bricks from the kilns and other brickworks structures, and were of similar size, indicating a 19th century or later date. Included among the bricks that made up this surface were likely products of the nearby kilns, including a pavioir and a solid voussoir, the latter being heavily vitrified, potentially indicating a former use in one of the arches of Kiln 1 or 3, or a waster. The surface upon which the bricks lay was not burnt, and the gaps were filled with a grey clay, but no significant quantities of charcoal.

3.5.2 This does not therefore appear to represent a clamp kiln, and the gaps between the bricks might indicate that this was not a working surface but perhaps a small storage platform using the bricks to keep the load off the ground, and with gaps between the bricks to aid drainage of surface water. The platform was potentially therefore associated with the products of the kilns. The layers around and overlying 797 were characterised by large amounts of 19th-century pottery, bottle glass and broken up brick and tile.

3.6 WC2 Brickworks—kilns context inventory

Summary of Kiln 1 context numbers	
Contexts	Summary description
1713–1744	Structural features in upper levels of Kiln 1
1750–1755	Concrete repairs on Kiln 1, overburden and insulating layers between inner and outer walls
1758–1762	Deposits between inner and outer walls of Kiln 1
1791–1999	Layers from Slot 3 in Kiln 1
3000–3031	Various layers mostly from slots dug around Kiln 1
3037–3040	Features from lower levels of Kiln 1
3048–3070	Kiln 1 various features and deposits especially from stoke room
3215–3232	Various features possibly associated with both kilns both most directly associated with Kiln 1 excavated in latest stages

Summary of Kiln 2 contexts	
Contexts	Brief description
1745–49	Structural features of Kiln 2
1756–57	Insulating layers on Kiln 2
1763–90	Structural and construction features and layers in Kiln 2
3033	Stray context of rubble deposit around Kiln 2 (sheet missing?)
3040–47	Kiln 2 deposits and material from between Kilns 1 and 2
3071–99	Kiln 2 features mostly associated with stoke room and surrounding area

Kiln 2 chamber contexts

1746	W stanchion
1747	N stanchion
1748	NE stanchion
1749	E1 stanchion
1763	E2 Stanchion
1764	S1 stanchion
1765	S2 stanchion
1783	NE wall of kiln
1784	SW wall of kiln
1785	NW wall foundations
1756	Fill of 1778, which is the construction cut of NE kiln wall, cut by stanchion 1747
1767	Floor found to the E of Kiln 2 sealing earlier stanchions but cut by later ones
1774	Layer cut by stanchion 1747 in the N corner of kiln 2, levelling layer previous to construction
1775	Levelling layer N corner [should this be W corner?] of kiln 2, containing possible material from kiln 1 outer wall
1777	Insulation layer backfilling construction cut 1778 of Kiln 2
1778	Construction cut of Kiln 2 seen at SE end on clay bank, but would have been present on NE, SE and SW sides as well

Kiln 2 flue contexts	
1781	Rubble fill of NE flue
1782	The three flues of Kiln 2
3032	Rubble fill of central flue
3033	Rubble fill of flue (?) overlying 3041 and 3042 and overlain by 1766
3034	Rubble overlying the dividing wall between flues .1 and .2
3035	Rubble overlying dividing wall between flues .2 and .3
3041	Spent fuel deposit in in flue .3 under 3033
3042	Burnt red sand in all three flues
3043	Slaggy vitreous product in flues

Kiln 2 stoke room contexts	
1757	Fill of 1773, which is the construction cut of NE stoke room wall
1768	Sandy clay layer lining cut 1779 of stoke room
1769	Clay layer overlying 1771 cut by 1779
1770	Silty clay levelling deposit cut by 1773, the construction cut of NE stoke room wall
1771	Clay levelling layer filling 1773, construction cut NE stoke room wall
1773	Construction cut for NE wall of stoke room
1786	NE retaining wall of stoke room
1787	SW retaining wall of stoke room
1788	Stoke room floor
1789	NW wall stubs of stoke room
3046	Silty clay within a truncation on the floor of Kiln 2, overlain by 1766
3047	A truncation on the floor of the stoke room, possibly due to robbing, and filled by 3046
3071	Sand bedding for stoke room floor
3072	Ashy bedding for stoke room floor
3073	Soakaway fill drawing from floor 1788, possibly cut by wall 1785
3074	Cut of soakaway drain
3075	Redeposited yellow clay seen elsewhere, overlain by 1780, cut by 3074 and 3076 and ?1785
3076	Foundation cut for SW stoke room wall
3077	Backfill of 3076
3078	Rough unfaced foundation of SW stoke room wall
3079	Drain, lines up with 306 in stoke room of Kiln 1
3080	Fill of drain cut 3088

Kiln 2 stoke room contexts	
3087	Foundation cut of SW wall of stoke room
3210	Intermediate post open NW wall of Kiln 2 stoke room built off Kiln 3 deposits
3215	E-W drain fill draining from Kiln 2 stoke room and store room 1, fill of 3216
3216	Drain cut running from soakaway 3074/5 in Kiln 2 stoke room to Kiln 1 stoke room and into drain 3068

Kiln 3 chamber contexts	
3200	Three components of NE wall
3201	Fill of construction cut 3202 for NE wall
3202	Construction cut for NE wall
3214	Foundation cut of W corner of wall
3234	Group number for 3235–7 recorded quickly for kiln 3
3235	NE wall of kiln
3236	SW wall of kiln
3238	End of NE wall of Kiln2, same as 3250
3239	SW wall of kiln
3240	Corner support of buttress of Kiln 2
3241	SE wall of Kiln 2, sitting in front and above 3249, the SE wall of Kiln 3
3247	NE wall of kiln, NE wall of Kiln 2 on top of it
3248	NE wall of Kiln 2 on top of NE wall of Kiln 3
3249	SE wall of kiln
3250	SW wall of Kiln 2 sitting on top of Kiln 3

Kiln 3 flues contexts	
3203	Backfill of flues
3204	Lower backfill of flues
3213	Bedding layer over Kiln 3 flues for Kiln 2
3237	Broken bricks in flues
3242	Brick infill of flues
3243	Brick floor of flues
3244	Central divider of flues
3245	Heat affected natural floor of flues
3246	Brick lining of flues
3251	Slag in SE end of NE flue

Kiln 3 stoke room contexts	
3081	Layer associated with stoke room
3082	Redeposited clay in depression to N of kilns and stoke rooms, containing sandstone from earlier stoke room?
3083	Trampled layer in depression below kiln 2 stoke room level
3084	Deposited clay at a lower level than Kiln 2 stoke room
3085	Thin layer of clay associated with decaying brushwood
3086	Degraded brushwood
3088	Earlier drain remains cut
3089	Drain associated with stoke room
3090	Clay layer over 3091 and 3092
3091	Layer of rubble
3092	Layer of rubble
3093	Post in 3091/2 in rubble
3094	Post pipe in corner of stoke room
3095	Ceramic drain associated with Kiln 3 feeding into stoke room
3098	Backfill of drain 3099 containing drain 3095

Kiln 3 stoke room contexts	
3099	Drain cut for 3095
3205	Clay floor of stoke room
3206	Post pipe associated with stoke room
3207	Fill of 3206
3208	Cut of posthole for 3206
3209	Decayed material from post 3093
3211	Wood part of 3086
3212	Fuel deposit like 3086
3233	Group number for Kiln 3 stoke room

Contexts not associated with specific structures		
Context no	Brief description	Slot/area
233	Masonry pad between Sheds 2929 and 2940	-
243	Rectangular brick chamber for access to pipes?	-
244	Layer of material built up over demolition of 243	-
254	Ceramic drainage pipe running to the north of the sheds	-
267	Brick pad between Sheds 2929 and 2865, see also 788	-
268	Masonry associated with the end of pipe 254	-
269	Fill of cut 270	-
270	Construction cut for structure 243 into made ground	-
296	Brick structure between Sheds 2863 and 2864	-
297	Foundation cut for structure 296	-
298	Fill of 297	-
299	Second fill of 297	-
707	Subsoil through which brick pads protrude	-
725	Layer of building material laid down after brickworks ceased, varies across site	-
736	Construction cut for brick structure 296	-
737	Redeposited natural or built ground under the brick structures laid down after the site was levelled, possibly a trample layer on the natural, relates to 296	-
738	Redeposited natural packed in and around 296	-
739	Silty clay deposit lining around brick structure 296	-
740	Charcoal-rich deposit inside the chamber of 296	-
741	Cut for stench pipe, probably associated with 296 but unable to locate	-
742	Fill of trench cut 741	-
765	Clay deposit sealing the inner chamber of structure 243	-
766	Dumped rubble and brick used to fill the inner chamber of 243	-
771	Cut assigned to a thin layer associated with structure 243	-
773	Brick pad just to the south of drain 254, between sheds 2865 and 2929	-
774	Cut of drain containing drain pipe 254	-
775	Fill of 774 around pipe 254	-
781	Redeposited natural layer between 215 and 725	-
782	Linear cut somehow associated with drain 254	-
783	Fill of 782	-
784	Fill of 782	-
788	Masonry that is part of brick pad 267	-
1915	Built ground	-
1916	Topsoil	-
1928	Black charcoal layer, unexcavated	-
1941	Posthole, unexcavated	-
1942	Posthole, unexcavated	-

Contexts not associated with specific structures		
1943	Posthole, unexcavated	-
1944	Posthole, unexcavated	-
2800	Topsoil over entire area	-
2801	Group number for all built ground contexts across whole area	-
2809	Natural in slot	2951
2810	Built layer in slot	2951
2811	Built layer in slot	2951
2812	Clayey silt layer in slot	2951
2817	Cut into 2811 and 2810 in slot 2951, not yet associated with a structure	2951
2818	Fill of 2817	2951
2822	Bowl-shaped cut	2951
2823	Fill of 2822	2951
2825	Clay layer	2952
2830	Clay layer	2952
2831	Cut for posthole not yet associated with structure	2952
2832	Fill of 2931	2952
2833	Cut of unknown purpose	2952
2834	Fill of 2833	2952
2835	Construction cut for brick pad 1923, not yet associated with a structure	2951
2836	Fill of 2835	2951
2854	Built layer	2951
2855	Built layer	2951
2856	Natural	2950
2857	Natural clay	2952
2858	Built layer?	2952
2859	Silty clay layer	2952
2860	Posthole cut not yet associated with a structure	2952
2861	Fill of 2860	2952
2862	Built layer	2950
2886	Built layer	2953
2887	Built layer	2953
2904	Brick wall between sheds 2863 and 2864	-
2905	Brick pad associated with 2904 between sheds 2863 and 2864	-
2906	Small section of brick wall between sheds 2863 and 2864	-
2912	Brick pad between sheds 2864 and 2865	-
2918	Pile of rubble between sheds 2864 and 2865	-
2945	Broken brick and rubble layer between sheds 2929 and 2865	-
2948	Brick pad between pugmill 2892 and shed 2863	-
2950	Group number for slot between sheds 2863 and 2864	2950
2952	Group number for slot between sheds 2864 and 2865	2952
2954	Group number for slot between end of shed 2864 and workshop 2894	2954
2972	Group number for slot across shed 2865 and into gap between sheds 2865 and 2929	2972
2981	Cut of drainage trench between buildings	2966
2982	Fill of 2981	2966
2990	Trample layer	2972
2991	Trample layer	2972
2992	Cut of small pit or drain	2972
2993	Fill of 2992	2972

Contexts not associated with specific structures		
2994	Cut of possible robber pit	2972
2995	Fill of 2994	2972
2996	Built ground	2972
2997	Built ground	2972
2998	Built ground	2972
2999	Built ground or floor	2972
4000	Trample layer	2972
4001	Cut of posthole	2972
4002	Fill of posthole	2972
4003	Built ground	2972
4006	Cut of posthole or stakehole	2972
4007	Fill of 4006	2972
4008	Cut of shallow linear feature	2972
4009	Fill of 4008	2972
4010	Cut of possible linear feature	2972
4011	Fill of 4010	2972
4012	Built ground	2972
4013	Built ground	2972
4014	Cut of possible posthole	2972
4015	Fill of posthole	2972
4016	Trample layer, probably same as 4000	2972
4017	Trample layer, probably same as 4016 and 4000	2972
4018	Trample layer, same as 2990 and 4061	2972
4019	Built ground, same as 2996 and 4057?	2972
4021	Built ground or floor surface, same as 4058 and 2998	2972
4022	Built ground or floor surface, lowest level, same as 4059 and 2999	2972
4026	Fill of 4027	2966
4027	Bowl-shaped cut	2966
4028	Fill of 4029	2966
4029	Bowl-shaped cut W of pad 2942	2966
4030	Built ground	2966
4031	Built ground	2966
4034	Cut of unknown purpose	2972
4035	Fill of 4034	2972
4036	Trample layer	2972
4037	Fill of 4038	2972
4038	Cut of ovoid feature	2972
4039	Trample layer, same as 4061	2972
4041	Built ground	2972
4042	Built ground	2972
4043	Built ground	2972
4044	Cut of posthole or drain	2972
4045	Fill of 4044	2972
4061	Trample layer, same as 4039	2972
4090	Natural	2972
4113	V-shaped cut filled by 4050	2972
4181	Drain to the E of sheds, lined with bricks and with ceramic pipe	

Contexts not associated with specific structures		
4219	Unusual feature cut into natural, at unspecified location	
4220	Fill of 4219	

4 WC2 BRICKWORKS: DRYING SHEDS AND WORKSHOP

By Toby Martin

4.1 Introduction

4.1.1 The WC2 area of the A21 dualling scheme excavations revealed the industrial complex of the Castle Hill brickworks. The main elements of the brickworks were the three kilns to the north-west, and an arrangement of drying sheds, workshops and pugmills to the south-east. Farther to the south-east the remains of a cottage were excavated, and beyond the kilns to the north-west a sequence of clay pits was found.

4.1.2 The complex described here included six parallel brick drying sheds, aligned NE-SW, and an L-shaped workshop continuous with the northernmost shed (Figs 78–81). While the only surviving structural components of the drying sheds were brick-built post pads, the workshop was made with brick walls and a paved brick floor. Two paved open-air pugmills were excavated adjacent to the workshops, and on the northern edge of the site the remains of a small building were found lying next to the road, referred to here as the 'office'. There were also a number of ceramic drains found in various parts of the complex, and two small rectangular features, one of which seems to have provided access to drainage pipes (Structure 245) and the other housed a hearth (Structure 296). Further, there were a small number of other minor structures that were not obviously connected to any single one of the above features. This document provides an archaeological description of the drying sheds, the moulding shed or workshop, the office building and various other minor structures located in an around these buildings.

4.2 General stratigraphic and chronological summary

4.2.1 A single feature pre-dated the construction of the brickworks complex, which was a substantial pit (4191) underlying the workshop building, most likely belonging to the early 19th century and probably a result of clay extraction prior to the construction of the sheds, mills, workshop, and kilns (see Fig. 93 below). This pit may represent the initial mining of clay for the construction of the brickworks complex itself, with the extracted clay hypothetically being moulded into bricks that were fired in temporary clamp kilns. Following this preliminary phase of activity there was a major project stripping the topsoil and subsoil from the area that was to be built upon. Quite how much soil was removed is impossible to estimate as the limits of this clearance were not reached during the excavation and so could not be compared with depths of subsoils and topsoils in the vicinity. However, where the natural was excavated and could be compared to the working surface of the brickworks a depth of around 0.6–0.8m might provide a very rough estimate, though these layers had all been built up artificially. Where this mass of soil was taken to remains unknown, but it may have been used to gradually backfill the various pits in the area from which clay was mined. The result of this project was an expanse well in excess of 2,000m² cleared to the natural geology.

4.2.2 The natural geology on which the brickworks complex was built was the Wadhurst clay formation, part of the Wealden Group that characterises a large area of south-east England, formed from mudstone, silts and clays. The clays around Tunbridge are particularly deep and it was this abundant natural resource that proved to be particularly suitable for the manufacture of bricks throughout the Weald, and was specifically exploited by the Castle Hill brickworks.

4.2.3 The natural geology encountered around the sheds and workshop complex displayed a high degree of variation. In Slot 2952, around the centre of the site (Fig. 78), the natural consisted of blueish grey clays containing mudstone of various sizes (2805, 2806). In the adjacent Slot 2951, just a couple of metres away, the natural was an orangey brown silty clay with sandstone. In Slot 2949, just over 10m away, the natural consisted of various layers of darker silty clays of purple, grey and brown hues (2840–2), all overlying a deeper natural stratum of light orange sandy clay (2845). A similar sand (2856) was found in Slot 2950, lying directly between Slots 2949 and 2951. Towards the south-east, however, in the area where Shed 1 met the workshop extension, the natural was a blueish-grey clay (4168), as it had been around the centre of the site. Down toward the south-west, however, the natural was a dark grey silty clay with chert and sandstone (2976 in Slot 2966) and a bluish grey shaley clay also containing sandstone (4090 in Slot 2972). As such, there was a great deal of variation across the site, both horizontally where the natural silty clay varied in colour between greys, oranges and browns, but also vertically where thin lenses of clay and sand were found between thicker layers of silty clay.

4.2.4 Overall, the depth of the natural geology across the site from south-west to north-east was relatively even, being between 76.7m and 76.2m aOD in the south-west corner of the site (in Slot 2966), and about 76.4m in the north-east (in Slot 2953). However, there was a gradual slope upwards from the north-west to the south-east, with the level of the natural rising from roughly 75.5m to about 77.0m. Where the excavation cleared the overlying deposits from a large area of the site beneath Shed 1, the surface of the natural (4168) was noticeably uneven with substantial undulations. It may, therefore, have been with the initial aim of achieving a level surface that large quantities of redeposited natural were laid down across the entire site prior to much of the building work. Subsequent additions of built ground may have been laid with the aim of creating a clear, clean and even working surface after the site had been out of use during wet seasons.

4.2.5 Before any layers of made ground were built up, however, the foundations of the individual brick pads that supported the superstructure of Shed 3 were constructed on top of the exposed natural, sometimes dug a few centimetres into it to achieve an even height (Fig. 82). A number of these were to be dug into and replaced at a later date, but the first ones have no indications of foundation cuts into anything but the natural. Although their sizes are very mixed, on average the pads of the north-east wall were larger than those of the south-west wall (Table 1), so Shed 3 may well have been a lean-to structure with a single-sided pitched roof. Following the construction of these brick pads the first layer of redeposited yellowish natural clay (2804/4205) was laid and packed around these brick foundations to a height of about 0.30m.

4.2.6 It was into this layer that the foundations of Shed 0 were cut (Fig. 83). Shed 0 was unique among the drying sheds for having one wall of brick pads acting as foundations for a post-built superstructure, and one wall supported just by postholes. Shed 0 was probably therefore a lean-to structure with single-sided shed roof. The area excavated to investigate this shed was not the full length of the other sheds, but appeared to contain both ends of the line of pads and of postholes, perhaps indicating that this shed was much shorter than the others. However, the very shallow depth of the pads and postholes that were found means that it is possible that these had simply been removed when levelling up the area, so the length of Shed 0 remains uncertain. Individual foundations for each of Shed 0's brick pads

were cut through a single layer of redeposited clay and up to 0.25m into the natural geology. It would seem to be at this stage that the main workshop building was constructed in which the bricks were moulded, as this structure also sat above just one layer of built ground. The workshop ran perpendicular to Sheds 3 and 0 and was built with solid brick walls rather than brick pads, with foundations that cut through 0.3m of redeposited yellowish clay, matching the description of the material that was packed around the foundations of Shed 3 and through which the foundations of Shed 0 were cut. Pugmill 2 was probably built during this phase to the immediate south-east of the workshop building.

4.2.7 The next phase of the site is defined by the laying down of a second substantial layer of redeposited natural clay of a more orange or brown hue than the yellowish layer beneath it. Its thickness varies substantially across the site, but it was generally of a similar (*c* 0.3m) thickness as the first layer of made ground. This layer (4180) sealed the foundations and postholes of Shed 0, so it was shortly before this phase that Shed 0 was demolished and Shed 2 was potentially built (Fig. 84). The sequence in which Sheds 2, 1, 4 and 5 were built, however, is difficult to define stratigraphically, and most of them might belong to the same phase. Some of this uncertainty arises because the stratigraphy between Sheds 1 and 2 was not investigated so there is a break in the sequence. Joining together the stratigraphy of Sheds 4 and 5 with the rest of the site is also difficult for similar reasons.

4.2.8 There is also tentative evidence that the foundations for Shed 2 only cut through the first layer of built ground, with the second layer of built ground being built up around the brick pads, though the stratigraphy was unclear (Fig. 89). The Shed 2 brick pads were not cut to any great depth, as only two, three or four courses tended to survive, to a maximum depth of about 0.3m, most similar in this respect to those of Sheds 3 and 0. The supposition that the brick pads of the sheds became gradually larger with deeper foundations would also suggest that Shed 2 was the next in the sequence after Shed 0, and it was built on approximately the same footprint, though slightly closer to Shed 3 so that there was just over 1m between them. The building of Shed 2 probably therefore represents the replacing of the cruder and potentially much smaller leant-to structure of Shed 0 with something larger and more permanent. It may well have been at this point that some of the brick pads of Shed 3 were replaced with deeper and more substantial foundations, a building programme intended more to consolidate than to expand the space available to dry the moulded bricks. Coincident with this phase may have been a similar act of consolidation which was the rebuilding of the workshop's south-east wall, cut into the same foundation as the earlier one, but very slightly cutting through the outer ring of Pugmill 2.

4.2.9 While the area of Shed 1 and much of the area of Shed 2 was machined down under close archaeological supervision to look for traces of earlier structures, revealing Shed 0, the areas of Sheds 3, 4 and 5 were not similarly taken down, so it remains uncertain whether earlier drying sheds lay beneath the excavated structures. Limited extensions were dug into the area of Shed 3, and these did not reveal anything below the excavated structure, but this evidence is not conclusive, and the trenching carried out across Sheds 4 and 5 to establish the deposit sequence was too limited to clarify whether or not earlier buildings existed below them. The 1836 tithe map shows four drying sheds and the workshop building, so it is likely that further early sheds did exist.

4.2.10 Shed 1, to the north-east of the paired Sheds 2 and 3, was cut through the second layer of redeposited natural clay that had probably packed around the foundations of Shed 2.

Shed 1, however, had much deeper foundations, which survived in the range of seven to eleven courses, or up to a depth of about 0.9m (Figs 85 and 88). The perpendicular extension of the workshop building was probably constructed simultaneously as it belongs to the same stratigraphic phase and may well have been structurally continuous with Shed 1, even if constructed differently with brick walls and a brick floor. Pugmill 1 may also belong to this expansion phase, located as it was at the interface between Shed 1 and the workshop extension and at the same stratigraphic level as both.

4.2.11 Sheds 4 and 5 were probably built either shortly afterwards or in the same phase and most of their brick pads are of a similarly large size and depth as those belonging to Shed 1. They also cut through at least two layers of made ground, though the stratigraphy was more complex in this part of the site at the south-west limit (Figs 86 and 87). Slots found in Shed 5 could possibly indicate longer foundation trenches rather than individual rectangular foundation cuts, at least in part. Although the evidence is somewhat tenuous, it might perhaps suggest that Shed 5 was different from the others, and perhaps the latest in the sequence.

4.2.12 The 1st edition Ordnance Survey map of 1871 shows a large L-shaped building consisting of the workshop, its extension and Shed 1, and two pairs of drying sheds, being Sheds 2 and 3 at the centre of the complex, and Sheds 4 and 5 on the south-west limit (Fig. 59). Two kilns are depicted on this map, highly likely to be Kilns 1 and 3. There is some difficulty, however, reconciling the archaeological evidence with the earlier tithe map from 1842, which depicts four evenly spaced drying sheds, the north-easternmost being continuous with the workshop building at right angles, and a single kiln. The single kiln is in the same position as Kiln 1, but it has already been demonstrated that the chronology suggests that the single kiln on the Tithe map was Kiln 3. An estate map of 1849 (layout is not included in Fig. 59) shows six sheds, the north-easternmost wider than the rest and again linked to the workshop, and also includes a single kiln. The varying numbers of drying sheds indicates either that earlier versions of the drying sheds lay below the excavated ones, or that the earlier maps were not entirely accurate. Possibly several earlier sheds of similarly slight construction to Shed 0 lay to the south-west below Sheds 4 and 5, and were not identified during the excavation.

4.2.13 The historical maps indicate a few subsequent subtle changes. The 2nd edition OS map from 1898 shows that Sheds 1 and 2 were combined into a single structure by this date. This is probably indicated by the wall structures (2902, 2903, 2905 and 2907) that were put in place between Sheds 1 and 2 at their south-west limit, as well as hearth structure 296 at their north-east end, which would have been constructed at a point when a roof structure bridged the gap between these two sheds (Fig. 80). It is analogous with a similar hearth structure (2947) inside the workshop building and was probably used for the drying of sand used in the moulding process. As such, the installation of a second hearth is a pointer to the expansion of the productive capabilities of the Castle Hill brickworks towards the end of the 19th century.

4.2.14 The 3rd edition OS map from 1910 provides a *terminus post quem* for the original office building of which just a small corner intruded into the excavated area (Fig. 79). The office lay directly next to the A21 road, and may have served as an administrative building, but also a space in which the products of the brickworks would have been displayed. The 4th edition surveyed in 1938 shows that in the intervening years the office was expanded into an L-shape, and this extension was found within the excavated area.

4.2.15 The 1938 map is the first OS map on which one of the pugmills is shown, although they were certainly in operation much earlier. This OS map also depicts the survival of large parts of the Castle Hill brickworks, even after some of the key elements had been demolished. An article in a local newspaper quotes local recollections that it became a piggery in the 1930s (Botany 1967). The workshop building had been almost entirely demolished by 1938, and its demolition was evident during excavation as a layer of rubble that covered this area. The map also shows that since 1910 Shed 3 had been added to the already combined structures of Sheds 1 and 2, though whether this was to do with the brickworks or the piggery is hard to say: no structures uniting Sheds 2 and 3 were archaeologically evident. The map also indicates that sheds 4 and 5 had been joined together by this stage, and a small rectangular building had been erected at their south-east limit, lying just beyond the limits of excavation, at a location that would have previously been occupied by the end of the workshop building.

4.2.16 The historic maps obviously do not depict any of the subtler structural changes. For instance, the two north-easternmost brick pads of Sheds 2, 3, 4, and 5 were all built with far higher degree of regularity than any of the brick pads from any individual shed, which is suggestive of a single phase of rebuilding. All these pads were relatively small, being about one brick-length wide and two and a half brick-lengths in length, descending only to a relatively shallow depth. This probably indicates the rebuilding of the facades of at least these four sheds if not also that of Shed 1, potentially at a point when a track was built between the sheds and the kilns (Fig. 78), leading off from the A21, by spreading a large amount of crushed CBM in this area, and potentially also the installation of the substantial ceramic drain that ran parallel to it. Dating this phase of activity was not possible through stratigraphy or maps, though it must have taken place after the full array of drying sheds had been constructed.

4.3 Detailed description of Drying Shed 3 (Fig. 82)

4.3.1 Drying Shed 3 (group number 2865) was probably the first shed to be built, as its foundations do not cut any other layer than the natural which had been cleared of subsoil and topsoil prior to the commencement of building works (Fig. 89). The building was about 36.3m long, and the width between the outer edges of its brick pads was around 3m. There were 17 brick pads on the north-east wall, and 15 on the south-west wall, with a gap either side of the substantially larger central brick pad (1960), suggestive perhaps of a pair of entrances, or otherwise the result of two brick-pad foundations that had been robbed out and were not immediately evident in the soil (Plate 168).

4.3.2 Table 1 summarises the structural features of Shed 3. The Shed 3 brick pads were variable, but overall, they were of somewhat slighter size than those of Sheds 1, 2, 4, and 5 (Fig. 82; Plates 156–182). The brick pads on the north-east wall tended to be larger (mean surface area 0.25m²) than those on the south-west wall (mean surface area 0.18m²). This may suggest that, like Shed 0 (see below), there was a single-sided sloping shed roof supported by a more substantial wall on the north-east side of the building. Although this remains a possibility, it is based on average sizes, and a small number of slighter brick pads can be found among the generally larger pads of the north-east wall. In other words, there is insufficient regularity between the pads to draw firm conclusions. The fact that the brick pads of Shed 3 seem to line up with those of Shed 0 may indicate that both structures were standing and in use at the same time. Brick pad 1940 appeared to have been entirely robbed out though its cut was clearly evident.

4.3.3 The relative chronology can be further examined by an examination of the stratigraphy. A sample of the brick pads of Shed 3 were excavated. Brick pad 252 on the north-east wall (Figure 82: Fig. 79 section 114) survived to a depth of four courses (0.32m), the top and bottom ones were highly regular, but the middle two had a number of voids caused by irregularly angled bricks, all bonded with clay. No foundation cut was seen, but the structure seemed to be embedded in a layer of redeposited clay (202).

4.3.4 Brick pad 1945, 13.5m to the south-east on the same wall, survived to a height of six courses (0.40m) and appeared to be embedded in the natural clay (2805, Fig. 82; Fig. 89, section 1410). Above this, however, the pad also seemed to be surrounded by two layers of redeposited clay, one substantial (2804, 0.33m thick), the other less so (2803, 0.02m). These layers appeared to be packed around the bricks rather than truncated by any foundation cut.

4.3.5 Brick pad 251 on the opposite south-west wall survived to a height of five courses (0.34m) and appeared to be embedded in a layer of redeposited natural (753, Fig. 82; Fig. 79 section 119). No foundation cut was visible, so this material had probably been packed around the bricks.

4.3.6 The final brick pad (4053) excavated in Shed 3 lay just over 23m to the south-east on the same wall and was excavated as part of Slot 2972 (Fig. 78). The brick pad was constructed on top of the natural clay (4090), and around it several layers of redeposited clay had been built up, presumably as successive layers of built ground, one or more of which may have been a floor surface of Shed 3 (4053/4051, 4050/4057, 4048/4056, 4059, 4060, with 4021/4052/4058 potentially representing a floor surface), up to a depth of about 0.55m. At some later stage the lower levels of the brick pad had been accessed by a modification cut (4054, filled by 4055), when the structure had presumably been altered in some way, and perhaps the current brick pad 4053 had been installed. Later again a robber pit (4046) had been dug around the pad to salvage the bricks (backfilled with 4047). This salvage operation explains why only two courses of the brick pad survived, and at a much lower level than those of the rest of Shed 3.

4.3.7 The stratigraphy of these four brick pads strongly suggests that the foundations of Shed 3 either rested on top of the natural or on an initial levelling layer, and in some cases were cut slightly into them. Layers of redeposited clay were then built up around the brick pads. As such, Sheds 3 lies on the earliest stratigraphic horizon, though Shed 0 may have followed it relatively quickly. The complex stratigraphy around brick pad 4053 indicates that Shed 3 underwent at least one phase of adjustment or repair, and after it went out of use efforts were made to recover some of the bricks of the structure.

4.4 Detailed description of Drying Shed 0 (Fig. 83)

4.4.1 Drying Shed 0 (group number 2863) was one of the earliest of the sheds along with Shed 3. It lay beneath Shed 2 but on a different footprint, offset slightly towards the north-east (Figs 78–81). The remains of Shed 0 were highly fragmentary and consist of seven cuts for brick pads (2819, 4174, 4206, 4207, 4208, 4209, 4215, 4222) comprising part of the south-west wall, some of which retain the remainder of a brick pad (4216 in 4206, 4217 in 4208, 4218 in 4209, 4221 in 4222; Plates 184–190), and two postholes (4225 and 4226, see Fig. 83; Plates 191–2) which comprised the remains of the north-east wall. Accordingly, the north-east and south-west walls of Shed 0 were constructed differently, with one row of lighter posts dug

into the ground, and a second row of probably more substantial posts set on top of brick pads. Shed 0 was therefore probably more of a lean-to structure with one substantial wall and one much lighter one, perhaps with a single sided pitched shed roof. Shed 0 was about 3.1m wide from the external edges of its foundations, but its length is unknown. In Figure 78, it has been reconstructed as a much shorter building, as the line of brick pad foundations appears to terminate about 17.6m apart. However, it is possible that there were additional foundations that were no longer evident, being relatively ephemeral features.

4.4.2 All the foundation cuts for these features were dug through a layer of what was probably redeposited clay (4205), between 0.1 and 0.2m thick, that had been lain directly on top of the natural clay (4196) as a levelling deposit prior to the construction of the drying shed. This is the layer that had been built up around the Shed 3 brick pads. A second layer of redeposited clay (4180) overlay this one and simultaneously sealed all the structural features of Shed 0, and so was laid down after Shed 0 had been demolished. This layer (4180) was the construction layer for Shed 2.

4.4.3 Table 2 summarises the excavated structural features of Shed 0. The two postholes that were the only recorded features of the north-east wall were consistently shaped, being circular and with 0.15m diameters. Though neither was excavated, both were filled with a firm yellowish clay. The seven foundation cuts for brick pads were also relatively consistent in size, ranging between 0.8–1.1 x 0.4–0.7m. Only two of these foundation cuts were excavated: 2819 and 4207 (Fig. 83; Plates 184 and 186). Both were found to be approximately 0.24–0.27m deep and were filled by similar yellow-orange clays like the fills of the postholes. Foundation cut 4207 had two fills, the lowest of which (4223) acted as a platform for the laying of its brick pad (4211), a second fill (4210) had been backfilled around the pad after it was constructed. Foundation cut 4207 also contained a posthole (4212, filled by 4213) adjacent to the brick pad. This posthole, however, had only been cut into the uppermost of these fills, and so potentially indicates a secondary repair or an additional roof support of the same dimensions as those postholes on the opposite wall (0.15m diameter), running to a similar depth of 0.2m (see S1446 and P1456).

4.4.4 The brick pads that survived in five of these foundation cuts (4211, 4216, 4217, 4218, 4221; Plates 186–190) were all the same very slight nature and were markedly smaller than all those of the other sheds. All of them consisted of just two bricks (23–24cm x 11cm x 8cm) bonded with clay, creating a pad of around just 0.06m². The uniformity of these brick pads strongly suggests that their diminutive size was not a result of robbing, though their upper courses had obviously been salvaged for reuse elsewhere, perhaps for the construction of Shed 2, which superseded this one. The same episode of robbing had removed the entirety of the pads from foundation cuts 2819, 4174, 4206 and 4215. If the brick pads had indeed been as small as 0.06m², it remains to be explained why such large foundation cuts of around 0.5m² were required. One possible solution is that each of these foundations once housed both a brick pad and a post, as was the case with 4207 (Plate 185). The apparent absence of postholes in the other foundation cuts may well be because none of them was excavated as carefully and deliberately as 4207. The motivation for such a construction, however, is difficult to explain.

4.4.5 A number of other minor and unexcavated features were found at the same level as the Shed 0 brick pads, including four more postholes (4172, 4176, 4177 and 4179), which were all found within what would have been the interior space of Shed 0, and perhaps relating to

internal structures (Plates 193–195). Their spatial patterning did not however suggest any specific structure.

4.5 Detailed description of Drying Shed 2 (Fig. 84)

4.5.1 Drying Shed 2 (group 2864) lay between Sheds 1 and 3 (Fig. 78), and partially over the footprint of Shed 0. Its foundations cut into the redeposited clay that had formerly been packed around the brick pads of Sheds 3, showing that it was later. Stratigraphically therefore Shed 2 belonged to the same broad phase as Sheds 1, 4 and 5 (see below). Like all the other sheds the major surviving components of Shed 2 were its brick pads, though there was also a drainage pipe that was probably contemporary. The shed was about 36.3m long and about 3m across between the external edges of the brick pads, which were set into two rows of pairs with about 1.8m between neighbouring pads (Fig. 84). These features are summarised in Table 4.

4.5.2 As with the other sheds there was a great deal of variation between the size and structural details of the brick pads (Plates 196–223), with one long brick structure (2907) potentially serving as the base for two structural posts towards the south-east end of the shed (Plate 219), or alternatively it represented an isolated section of solid brick wall, most likely bearing a direct relationship to a similar adjacent structure at the end of Shed 1 (2902) and two further sections of wall running between 2902 and 2907 (2905 and 2906). There were two further areas of irregularity in the shed walls in the area of the diminutive pads 1946 and 1947 in the north-west half of the building, and another potential gap between 1958 and 2907 in the south-east half. The latter may have constituted an entrance. The proximity of the two smaller pads may well indicate a structural difference, which is also suggested by 1947 lying slightly more toward the interior of the building than on the line of the wall. At the south-east end of the shed there was also a small surviving section brick floor, the original extent of which is unknown (Plate 223).

4.5.3 Five of the Shed 2 brick pads were excavated to clarify their structure and stratigraphy. Slot 2951 dug between brick pads 1936 and 1955, within which one of the foundations cuts for Shed 0 was also revealed, provided a useful section across the width of Shed 2 (Figs 78 and 79; Plate 224). Neither of these brick pads had evident foundation cuts but appeared to have had the uppermost layer of redeposited clay (2811) embedded around them, though they sat on top another layer of redeposited clay (2810) that sealed the foundations of Shed 0.

4.5.4 Brick pad 273 only survived to a height of two and a half courses lay within a foundation cut (726), backfilled by 728, and cut into a layer of redeposited clay (Fig. 84; Fig. 79 section 112). Brick pad 285 survived to a depth of four courses (S128) and sat within a well-defined foundation cut 785 backfilled with a silty sand, although the excavator did suggest that the colour differences in the soil could have been to do with colour leaching out from the mortar of the brick pad itself (Fig. 84; Fig. 79 section 128). Brick pad 2824 was excavated as part of Slot 2950 and it survived to a depth of just two courses and lay in a construction cut (2849), though the cut was not especially clear (Fig. 88, section 1417). Brick pad 1957 was excavated as part of Slot 2952 and it also only survived as two courses of brick and had been constructed inside a foundation cut (2808) which was backfilled with a loose clay (2807, Fig. 89, section 1411). The cut truncated a layer of redeposited clay (2825) which sat on top of another layer of redeposited clay (2804) overlying the natural (2805 and 2806). It should be noted that the foundation cuts for all these brick pads were not especially clear, and in some

cases, it seems to have been assumed that there should have been a foundation cut, so one was arbitrarily assigned, which was not of course necessarily appropriate. The records are not clear enough to indicate one way or another whether they existed, so it could be the fact that all the brick pads of Shed 2 were built on top of made ground and had a further layer of built ground embedded around them. The foundation cuts that were identified for the Shed 3 brick pads were relatively shallow, with maximum depths around 25cm, which is why these pads did not survive to any great depth.

4.5.5 A small section of badly truncated brick surface (2915) was found at the south-east end of Shed 2, perhaps representing part of a larger brick floor at this end of the shed, or part of a slightly raised area on which the bricks were placed to dry. This surface comprised a single layer of brick paviments laid as stretchers. Two ceramic drains (4173 and 4175) were found about halfway down Shed 2 running down the centre of the interior, below where the original working surface would have been, and cut through a layer of redeposited clay (4170) below the level of the brick foundations.

4.6 Detailed description of Drying Shed 1 (Fig. 85)

4.6.1 Drying Shed 1 (group number 2863) lay on the north-east perimeter of the brickworks complex (Fig. 78). Its south-east end may have been continuous with the brick-walled extension of the workshop complex, or at least there was only a very small gap of less than 2m between them. The remains of a small office building were located adjacent to its north-east end, and Pugmill 1 lay at the south-west end of the building at the interface between the post-built shed and the brick walls of the workshop. The total length of Shed 1 was 32.3m and its width was around 3.7m between the external edges of its brick pads. Shed 1 consisted of 14 brick pads on the north-east wall and 13 on the south-west wall, the latter apparently missing its north-west terminal pad (Fig. 85). The brick pads were arranged in regularly arranged pairs across the width of the building, with neighbouring pads being about 2.5m apart. The fact that the brick pads of Shed 1 were cut into two layers of redeposited clay suggests that it was built at a slightly later date than Sheds 0 and 3, after a second layer of built ground had been laid. The brick pads of Shed 1 were also far more substantial than those of the earlier sheds in terms of both their depths and their surface areas.

4.6.2 Table 4 provides a summary of the structural features of Shed 1. The fact that the north-west terminal brick pad of the north-east wall was not found can probably be explained by later truncation or robbing. Alternatively, there may never have been a brick pad at this location, which would angle a diagonal entrance of the building toward the loading bays of the kilns. This would, however, have given rise to unnecessary structural complications. A variety of different construction types were used to build each pad, but those in the south-east half of Shed 1, on both walls, were relatively consistently sized and constructed. In most cases the bricks were laid on their bases, with just one or two laid on their heads to key together adjacent courses. The brick pads in the north-west half of the shed were less regularly constructed with a small number being somewhat larger and more square than rectangular (275, 278, and 1913, for instance), and at least three of the more rectangular examples were oriented perpendicular to the line of the wall rather than in line with it. There is a possibility that these very large brick structures represent brick piers that directly supported the roof rather than being pads for posts. Either way, these variations may indicate

some structural differences at this end of the building, or perhaps that this end of the building saw more subsequent repairs and adjustments.

4.6.3 Seven of the brick pads of Shed 1 were excavated in order to better understand their below-ground structure and their associated stratigraphy. The excavation of brick pads 274 and 279 (Fig. 90, sections 108 and 118; Plates 226 and 227) show that Shed 1 was built on considerably larger and more robust foundations than the earlier three sheds. Not only were the pads built up from a deeper level, with surviving depths of 0.5m and 0.7m (six courses for 279; eight for 274), but below the pad itself the foundations broadened out by the width of half-a-brick on all edges. Brick pad 274 also had a thin layer of tiles at its top (746) bonded with mortar (748), presumably to bring it up to a particular level (Fig. 90, section 108). A construction cut for brick pad 279 could not be seen in the redeposited clay layer (717) in which it was embedded, though there was an amount of broken up CBM (718) packed in around the top of the foundation platform at the base of the pad itself, which may indicate the presence of a no longer visible foundation cut (Fig. 90, section 118). A foundation cut was, however, observable around brick pad 274 (744, backfilled by 745) and it appeared to cut through at least two distinct layers of redeposited clay (754 and 755). There is a question as to whether it cut through the uppermost layer of redeposited clay as well (756, which was directly overlain by topsoil). The interface between 755 and 756 is precisely where the pad foundation narrows into the pad, so it would more likely that the foundation cut did not cut this uppermost layer, but that 755 represents the original working surface of the shed, while 756 represents a second stage of use after the ground had been artificially raised with redeposited clay. The layer directly overlying the natural at the base had an appearance consistent with weathered or trampled natural clay, which may indicate that this was the originally cleared surface contemporary with the construction of Shed 3.

4.6.4 Brick pad 1930 on the south-west wall, excavated as part of Slot 2950, descended to a substantial depth of 0.9m (Fig. 88, sections 1416 and 1418; Plate 243). It lay within a foundation cut (2853, backfilled by 2852), which went through two similar layers of clay silt (2854, 2855) as well as a substantial depth of naturally deposited sand (2856). Again, the construction cut rose only the approximate height where the pad broadened out into a foundation, and there appeared to be a second stage of use when a drain pipe was installed in the backfill of the foundation cut (see below), which was sealed by a layer of mixed topsoil (2847). In addition, the backfill of the foundation cut (2852) appeared to extend beyond the cut itself and over the top of the layers it had cut through, as if the foundation was not just backfilled but the backfill was also packed around the lower levels of the brick pad.

4.6.5 Brick pad 1920, excavated as part of Slot 2949, had been constructed in a very similar manner (Fig. 90, section 1413; Plate 235) with a construction cut that truncated at least two layers of made ground (2840 overlain by 2939, overlain by a very thin layer 2846), and even went slightly into the natural (2842). Again, all of this made ground, the foundation cut and its fill were sealed at the level of the interface between the foundation and its pad, and a secondary phase was indicated by a final layer of made ground (1915) that sealed these layers and surrounded base of the brick pad.

4.6.6 A somewhat different sequence was indicated by brick pads 1914 and 1919 (Fig. 90, section 1430; Plates 231 and 234) to the south-east. Once again, the brick structures had a distinguishable foundation and pad. However, unlike the foundation cuts for pads 1930 and 274, the foundations of pads 1914 and 1919 appeared to cut through even the uppermost

layers of made ground and lay at a height above that between the interface between the foundation and the pad. The foundation cut for brick pad 1919 (2890, backfilled with 2891) cut through two layers of made ground (2889 and 2962), the upper of which (2889) was found at a level higher than the point at which the foundation narrowed into a pad (S1429). The cut and its backfill were sealed by a layer of trampled clay (2886) indicative of a working surface. Something similar was observed around brick pad 1914, where the foundation cut again cut through a layer of made ground that extended to a height above that of the interface between the brick foundation and its pad. This sequence of layers was also observed around brick pad 1926, where the foundation cut seemed to ascend to a height above that of the interface between the foundation and the pad, cutting through not only the layers of made ground also cut by the foundation for brick pad 1920 (layers 2846, 2939 and 2840), but it also appeared to truncate layer 1915 which had sealed the foundation cut and backfill of pad 1920.

4.6.7 The only explanation of the differences between these three pads and those described above is that they had been replaced or at least adjusted after the second layer of made ground had raised the floor of the shed. Indeed, the primary foundation cut for brick pad 1914 may in fact be visible as a large concave scoop (2868, backfilled by 2869) that was truncated by the second foundation cut (2870) made to replace the original brick pad (Fig. 90). However, if the pads were replaced then it would be an odd decision to end the foundation course far below the surface, but at the same height as the supposedly earlier foundations of the other pads. The sizes of these potential recuts are also insufficiently large to provide practical access to the foundations for adjustment, so we must presume that the whole pad and its foundation were replaced, even if there is no good explanation for their precise structure.

4.6.8 Despite these minor differences in the precise layers the foundation cuts for Shed 1 truncate, all the structures were put in place at a time when at least two layers of redeposited clay had been intentionally laid down to raise the ground surface. Once the shed was constructed, some of these brick pads also indicate a secondary phase of use when the ground surface was raised once again. The most important factor here is that this was not the case for Sheds 3, 0 and 2, which belong to an earlier phase.

4.6.9 A number of somewhat ambiguous and slight features were recorded inside Shed 1 which most likely relate to the working life of the building. These features were observed during the removal of the layers of redeposited clay by machine, and were recorded only summarily (Fig. 85; Plate 250). The first of these was a shallow and narrow depression (4144) about 4.5m long, 0.38m wide and only about 0.04m deep running just off-centre down the middle of the shed. This scored the surface of 4145, the presumed initial working surface of Shed 1. The feature was filled by layer 4141, which was part of the second phase of redeposited clay in Shed 1 that brought the ground level of the shed up beyond the interface between the foundations and pads. The best explanation for this long, narrow and shallow depression is that it represents a barrow run used for the transportation of bricks as they were loaded from the workshop and then unloaded to be taken to the kilns. A sequence of five sub-rectangular depressions were also recorded at the south-east end of the shed in the same layer 4145 (Fig. 85, 4146, 4147, 4148, 4149 and 4150; Plate 254). These features were all around 0.7 wide and 1.18 long, with shallow depths of 0.09m, and they were aligned in a row just inside the south-west wall. The best explanation for these features is that they represent depressions caused by the weight of stacking bricks in this part of the shed. Depressions like these and the possible barrow run may help to explain why it was deemed necessary to lay

down a new working surface; the heavy activities that took place in a drying shed would have caused an unevenness in the ground surface that would have hindered work.

4.6.10 A number of gullies containing ceramic drains were found within the footprint of Shed 1, all running parallel, or close to parallel, with its walls. As such, it is highly likely that at least some of them were contemporary with the initial construction of Shed 1, and others represented later measures taken to reduce ground surface water in this area of the site. Drain pipe 747 ran adjacent to the south-west wall on its external edge and was revealed during the excavation of brick pad 274 (Fig. 90, section 118; Plate 227). It consisted of a ceramic drain (747) lying within a narrow linear cut (750, 0.17m wide, 0.1m deep) backfilled with a dark yellowish-brown clay silt. The cut truncated the uppermost layer of made ground only (756), so it was most likely contemporary with the second phase of Shed 1's use. It was observed to the south-west wall past brick pads 275 and 276 but had been truncated away beyond these extents. The same drainage pipe re-emerged to the south-east running alongside brick pads 1929, 1930 and 1921 (Fig. 88, section 1416; Plates 236 and 242–3). At this location, it was once again at a level above the interface between the foundation and pad of structure 1930, cut into the uppermost layer of made ground (2852).

4.6.11 On the other side of the shed a very similar drain pipe was observed during the excavation of brick pad 279 (Fig. 90, section 108; Plate 226). Again, the gully (723 filled by 722) contained a ceramic pipe and was cut into the uppermost layer of redeposited clay (717), above the height at which the foundations of brick pad 279 broadened out into the brick pad itself. It would seem therefore that this drain was broadly contemporary with 747 on the other side of Shed 1. It is potentially the same drain found at the south-east end of the shed, where a ceramic drain pipe (4128) cut diagonally across the north-east wall on a course for the workshop building before which point it was truncated by pit 4126 (see below). This drain (4128) was not excavated but only exposed on the surface, at the same height as 723 and 747 on the other side of the shed.

4.6.12 Ceramic pipe 4127 was observed cutting through the uppermost layer of the inside of the shed, and although it was not excavated it would appear to be of a comparable phase to the two external drain pipes described above (747 and 723) and it continued under the floor of the workshop. This pipe may have truncated drainage pipe 4129 which ran at a perpendicular angle at the same level, only a short segment of which was exposed on the surface. Two further gullies were observed between the walls of Shed 1 cutting through the uppermost layer of redeposited natural.

4.6.13 A small group of five postholes were excavated between the walls of Shed 1 at its south-east end (Fig. 85, 4122, 4123, 4124, 4125, 4132; Plates 252 and 253). They were all approximately the same oval or sub-square shape (0.22–0.32 x 0.14–0.28m). The two that were excavated (4122 and 4132) had depths between 0.12 and 0.18m, cutting the second phase of made ground in the shed (4141). They are roughly aligned in a row parallel to the shed wall, and in very close association to the rectangular depressions described above. The best explanation for these posts is that they mark a fence dividing off the area of rectangular depressions. Evidence for a comparable structure was, however, located running alongside brick pads 1924 and 1924 on the same side of the building but to the north-west. At this location, a group of at least three postholes (4118, 4133 and 4136) were aligned along a shallow linear depression (4121) presumably dug as a trench in which to set these posts (Fig. 85; Plate 255). The linear feature was 3.6m long and 0.44m wide with a shallow depth of just

0.06m. The postholes all had very shallow depths of about 0.05m and diameters around 0.25m.

4.6.14 The final feature that was potentially associated with Shed 1 was a more substantial pit (4126). The pit was oval (0.70 by 0.78) and 0.28m deep, and it cut through made ground 4141, the upper layer in the sequence, so it relates to the second phase in the shed's use. If the pit was open for any length of time its location directly on the south-entrance of the shed adjacent to Pugmill 1 and the entrance to the workshop would have been extremely impractical. As such, it may have served some structural purpose could be a feature that postdates the working life of the brickworks, and the fact that it cut straight through drain pipe 4128 supports this theory.

4.7 Detailed description of Drying Shed 4 (Fig. 86)

4.7.1 Drying Shed 4 (group number 2929) lay between Sheds 3 and 5 in the south-west half of the site. Its foundations were cut deep in the redeposited clay, indicating that it belonged to a later stage in the development of the brickworks after at least two substantial layers of made ground had been built. The shed was about 35.7m long and 3.2m wide between the external edges of its brick pads. The pads were set in adjacent pairs with just a couple missing from the south-west wall at the south-east end, which had most likely been robbed out (Fig. 86). A small number of additional features were associated with Shed 4, most significantly two short lengths and one long line of brick stretchers set into the floor, representing either the remains of a barrow run that once ran the length of the shed or a shallow structure used to support and level brick drying racks. Ceramic drains were also located at the north-west end of the shed.

4.7.2 Table 5 summarises the nature of Shed 4's brick pads (see also Plates 257–279). The pads fall into two main and relatively consistent types: most were very large and robust measuring somewhere around 0.70 by 0.48m, and a minority were considerably smaller, around 0.50 by 0.25m. There was a difference in the average surface areas of the pads in the south-west side (0.30m²) and those in the north-east side (0.25m²), but there was no consistent difference, as the south-west side also featured some very large brick pads. The placement of these smaller brick pads is not sufficiently regular to indicate any obvious structural differences, but these differences may highlight brick pads that were replaced during a single phase of rebuilding, or potentially that were not replaced with larger pads. Stratigraphy does not help answer this question as no recuts were visible during excavation.

4.7.3 A small sample of the brick pads of Shed 4 were excavated to determine their depth and associated stratigraphy. Brick pad 265 on the north-east wall around the middle of the building was excavated and descended to a depth of three courses or 0.23m (Fig. 91, section 131; Plate 257). No construction cut was observed, but then again, the slot dug to investigate the structure was probably not large enough to reveal such a feature. In any case, the brick pad was embedded in redeposited clay (202). To the immediate north-east of brick pad 265 was another very small brick pad 267, consisting of just two bricks laid side by side (Fig. 91, section 132; Plate 257). While such a small structure is unlikely to have been part of the initial build and could not have supported anything substantial, it is possible that it was a base for an outer support for a part of the structure that had become unstable, or perhaps a small porch or lean-to structure.

4.7.4 Brick pad 241, of a similar size and structure to 265 but toward the north-east end of the shed, was five courses deep, or 0.37m (Fig. 91, section 130; Plate 259). Again, the slot dug to investigate this brick pad was insufficiently large to determine whether or not a construction cut was present, but the structure was embedded in redeposited clay (202). Brick pad 231 was located at the north-west terminal of the south-west wall and descended to a substantial depth of ten courses (including one of tile) or 0.73m, all of which had been dug into redeposited clay (202, Fig. 91, section 133; Plate 258). It is also worthwhile noting that the pad gradually narrowed towards its surviving height after the first four courses of its broad foundation.

4.7.5 Slot 2966 was dug across the width of Shed 4, which also continued into Shed 5 (Fig. 92, section 1435; Plate 274). The slot went through brick pads 2931 and 2936 which turned out to be quite differently constructed. 2931 had been badly disturbed and appeared to be cut into 4030, a layer of redeposited natural clay. This layer elsewhere was about 0.5m thick and overlay a second thinner layer of deposited clay (4031). Brick pad 2936, however, survived to a depth of six courses, or about 0.5m where it appeared to be lying on top of the deeper layer of made ground (4031). Though the foundation cut was ephemeral and difficult to see (4062) it was tentatively observed as backfilled by a slightly different silty clay (4063), and appeared to cut through 4031 as well, at a greater depth than the foundation structure itself descended.

4.7.6 The section on the opposite side of Slot 2966 was more revealing of the stratigraphy and construction method of the shed (Fig. 92, section 1431). The cleared natural (2976) was visible gradually rising toward the south-west and overlying this were at least four visible layers of redeposited clay (2975, 2983, 2984, 2974, 2973, 2971), the last of which (2971) was the most substantial at about 0.4m thick. The section revealed a number of cuts including 2985 at the north-east end, the cut of a modern test pit, which had modern topsoil in its lowest fill. Cut 2988 within Shed 4 was only tentatively recorded and was later dismissed as a variation in the fill rather than a feature. Cut 2981, which lay between Sheds 4 and 5, however, most likely represents the channel of a drainage pipe that once ran down the space between the buildings. The cuts to the south-west of these belonged to Shed 5, and will be described below. This section demonstrates conclusively that the brick pads of Shed 4, at least at this location, had individual foundation cuts for each structure.

4.7.7 It would seem therefore that there were not only two distinct sizes of brick pad in Shed 4, but also substantial variations in the depths to which the foundations descended, with no necessary correspondence between these variables, nor between their relative position in the shed walls. Possible explanations include the idea that the brick pads were replaced sporadically in a continuous but non-consistent manner, or that the shed was built in the first instance with a degree of variation in its foundations.

4.7.8 Thin spines of brick stretchers, just one brick wide, were found at three locations running down the centre of Shed 4, at the north-west end (233), at the south-east end (2938), and just a little to the north-west of the latter (2939), all unbonded. These spines of bricks were located at the precise centre of the shed and it is possible that they supported a line of central posts supporting the roof. However, being only one brick deep (Fig. 81; Fig. 92, section 1435) and embedded in the surface of redeposited clay layer 4030 in the south-east and over the top of a ceramic drain in the north-west, it is much more plausible that they functioned as a barrow run to assist in moving loads of bricks along the shed.

4.7.9 The final features associated with Shed 4 were a pair of ceramic drains (unnumbered) located at its north-west end, presumably cut not far into the upper layer of redeposited clay made ground.

4.8 Detailed description of Drying Shed 5 (Fig. 87)

4.8.1 Drying Shed 5 (group number 2940) was the last in the line of these buildings, situated on the south-west limit of the complex. The shed was 2.89m wide, measured between the outer edges of the brick pads, and it was probably the same length as the other sheds (c 36m), but its south-east end lay just outside the area of excavation (Fig. 87). Except for the pier at the very south-east end, which lay beyond the excavated area, the north-east side was complete. Both ends of the south-west side also lay beyond the limits of excavation. However, at least four of the brick pads on this side were within the excavation, but were missing, potentially indicative of brick robbing after the complex had gone out of use. There were no other brick features associated with Shed 5.

4.8.2 Table 6 summarises the brick pads that comprise the remains of Shed 5 (see also Plates 280–294). As can clearly be seen, all the pads except those at the north-west end of the shed were very large, around the same size as the larger brick pads in Shed 4. All the excavated brick pads of Shed 5 were relatively substantial and descended to a depth of at least three courses. Brick pad 240, one of the smaller structures at the north-west end of the shed, was embedded in the redeposited clay (202) down to a depth of three courses or 0.20m (Fig. 91, section 129). Brick pad 1705 descended to a similar depth of four courses, around 0.30m (Fig. 91, section 136), though its excavation did not permit a view of its associated stratigraphy. The same was true for the excavation of brick pad 799 (Fig. 91, section 138), though it descended to a greater depth of six courses, or about 0.43m. Most of the pads were constructed of reused half-bricks, and a few, for example pads 1707 and 800, were little more than jumbled fragments (Plates 283 and 285), although those in pad 800 were mortared together. A sherd of early 19th century pottery came from pad 798.

4.8.3 Slot 2966 provided sections running all the way across Sheds 4 and 5. The north-west-facing section (Fig. 92, section 1435) showed very clearly that brick pad 2942 of Shed 5 sat in a small foundation cut (4033, backfilled by 4034; Plate 294) which had cut into a substantial layer of redeposited clay (4040) to a depth of about 0.28, within which sat four courses of the brick pad structure. More interestingly, a potential continuation of this foundation cut was evident in the south-east-facing section (Fig. 92, section 1431) as a steep-sided and somewhat irregular feature (2979, backfilled by 2980). This cut was the only evidence that Shed 5 might have had pads placed in a foundation trench, at least in the vicinity of Slot 2966, although as it was narrower than the foundation cut for 2942, it may alternatively have been an unconnected feature. The south-west side of Shed 5 was not located in Slot 2966, although it continued into the area in which a pad should have been located. A cut (2967 filled by 2968) was found in the expected approximate locations, however, on both the north-west-facing and south-east-facing sections. However, as the brick structures were apparently missing, this cut may alternatively have been the remains of a robber trench or robber pit.

4.8.4 This slot revealed some additional features associated with Shed 5. The possible drainage gully between Sheds 4 and 5 (2981) described above did not appear in the north-west-facing section, so may instead have been a pit. An obliquely angled stakehole was found within the interior of Shed 5 (2977, filled by 2978), potentially used to support an internal

structure, either a roof support or perhaps a drying rack. Adjacent to this stakehole, a bowl-shaped cut (2969, filled by 2970) was found also within the interior of Shed 5, though its purpose is unknown.

4.9 Workshop building (Figs 93, 94 and 97)

4.9.1 The workshop building or making shed (group number 2894) lay at the south-east extent of the brickworks complex on a perpendicular alignment with the drying sheds (Figs 78–81; Plates 295–6). At its north-east extent, a small extension (group number 4088; Plates 295 and 297) had been built at a right angle to the main building, precisely aligned and potentially continuous with Shed 1. The south-west end of the building lay outside the excavated area, but can be estimated from the historic maps (Fig. 59). The exposed length was 19.9m, and the width between the external edges of the walls was 3.77m. Unlike the drying sheds, the workshop and its extension were constructed from solid and continuous brick walls, and the floor was also made of bricks. As well as the structural elements of the building itself a small number of associated features were located, including a hearth and some ceramic drains.

4.9.2 A single feature pre-dated the construction of the workshop building, which was a substantial rectangular pit (4191) cut into the natural clay and located beneath the brick floor of the workshop (Plate 298). The feature was only exposed in a slot dug through the shed, so its full extent is unknown, but it was 2.2m long, at least 1.1m wide and 0.5m deep (Fig. 93, section 1444). Iron panning in the feature indicated that it may have been left open for some time. It was filled with a greyish brown silty clay with a large quantity of crushed CBM. Finds from this fill included fragments of a leather shoe, a large ceramic pancheon, and a highly decomposed brush that was not recoverable. The shoe is dated as either 18th or early 19th century, the pottery as 19th century, giving a likely date in the first quarter of the 19th century. It seems likely that the pit pre-dated the construction of the brickworks complex, confirming the likely date of construction at around the end of the first quarter of the 19th century.

4.9.3 The workshop was constructed after the overlying subsoil and topsoil had been cleared and following the deposition of artificial made ground on top of the cleared natural. Once pit 4191 had been backfilled (with 4192), it was sealed by 4196, a substantial layer of yellowish shale-clay about 0.3m thick (Fig. 93, section 1444). Two features were cut into this layer: the foundations of the north-west wall (4201) and a shallow bowl-like feature (4250, backfilled by 4248 and 4195) of unknown purpose. The foundation of the north-west wall consisted of tightly packed stones, with the wall itself (4075) built on top of these in brick (Plate 298). The purpose of the redeposited clay layer was probably to level the ground after the backfilling of the large pit, but also because the natural (4201) sloped up to the south-east wall (4076). The south-east wall's foundation cut (4204, backfilled by 4203) therefore only truncated the natural (4201). This foundation was not only at a slightly higher level than the opposite wall, but it was also constructed from brick. However, the south-east wall seems to have been replaced at some point in the workshop's working life, as it sits at a slightly higher level than the original foundation cut. The second foundation cut also seems to cut through Pugmill 2. No remains of the original wall survived, so it may have been the case that the workshop building was originally a lean-to structure. Quite when this rebuild occurred is not known, but it may have been simultaneous with the construction of the workshop extension. Following the reconstruction of the south-east wall, a levelling layer about 0.2m thick of mid

greyish brown silty clay (4194) was deposited between the walls, sealing the bowl-like feature and packed up against the upper reaches of the foundations of both walls. A thin bedding layer of sand (4193, 0.03m thick) was then laid on top of this in preparation for the construction of the brick floor (see below).

4.9.4 The workshop extension appears to have been constructed after a few more layers of redeposited clay had accumulated outside the workshop (Fig. 93, section 1442; Plate 300). However, because no section was dug to tie in the layers within and beyond the north-west wall of the main building the relationship is difficult to establish with confidence. The foundation cut (4158) for the south-west wall of the extension (4079) cut through at least two layers of redeposited clay (4157 and 4143). The foundation was stepped and about 0.5m deep containing at least six courses of brick beneath ground level, which had been backfilled with a light yellow-grey clay (4159). Following this backfill, a third layer of redeposited clay (4141) was laid down to level the surface before the construction of the brick floor. Before the clay was deposited, however, horseshoe-shaped drain 4117 was installed on the surface of layer 4143. Such drains date to the first half of the 19th century.

4.9.5 A section taken through the same walls at a slightly different location (Fig. 93, section 1448) showed something slightly different, with the foundations of the north-east (4081) and south-west (4079) walls being cut through four layers of redeposited clay (4234 overlay the natural, overlain by 4235, 4227/4243 and 4236/4229). Between the laying of the penultimate and final layer of clay a drain had been installed in a deep trench (4232, backfilled by 4233), at a far lower level than 4117 mentioned above. While the foundation cut (4239, backfilled by 4240) for the south-west wall (4079) at this location was similarly wide and not so sharply stepped, the foundation cut (4237, backfilled by 4238) for the north-east wall (4081) was not stepped at all and fitted the foundation structure more tightly.

4.9.6 The three exposed walls of the main workshop building on the north-west (4075/4078), south-east (4076), and north-east (4077) sides were all constructed from bricks bonded with mortar, though in some locations clay was used instead. The walls were all one brick-length thick and were laid in an English bond of alternating courses of headers and stretchers (Plate 299), though in some locations it appeared that the wall had been thickened with an extra skin of headers at its lowest level. The two walls of the workshop extension (4088) were built in the same manner on both the south-west (4079) and north-east (4081) sides, with a slightly thickened section of wall (4080) where 4079 met 4075 on the corner of the building, potentially to provide additional support for a key part of the roof structure at this key location. The north-west wall (4075) continued across the adjacent extension, and a doorway (4083) was evident by a gap by an area of smaller thinner bricks on a slightly different alignment to the floor (Plate 304).

4.9.7 The floor of the workshop or making shed (4084; Plates 295 and 302) was constructed with a single course of bricks laid perpendicular to the length of the building and not bonded, lying on top of a thin layer of sand (4193). A small area of repair (4085) where the patterning of the floor had been disrupted was evident against the south-east wall to the south of hearth. The floor of the workshop extension (4082) had been constructed in the same manner, though it lay on bed of crushed brick (4247) rather than sand. A central partition (4087) of bricks laid on end ran down the centre of the floor, either indicative of a partition in the room itself, or potentially just representing the filling of gaps during construction. In an area where the extension floor had been damaged a horseshoe-type ceramic drain was visible (4117) running

obliquely across the building, which is also visible in S1442 described above. Both the workshop and the extension floors had been quite severely damaged by robbing and subsidence. In the north corner of the workshop, in an area in which there was no brick floor, there was a small concentration of charcoal-rich silty sand (4089) over an area of about 1.2 by 0.8m (Plates 295–6). Potentially, this area represented where fuel was stored for the hearth, or perhaps where ash had been dumped temporarily. It may be that the brick flooring was never installed at this end of the building, but it is equally likely that it had been robbed here. It is also possible that the brick floor of the making shed was a secondary addition, and that there may have been more widespread evidence of activity prior to the laying of the brick floor elsewhere within the workshop. Alternatively, this deposit may have related to activity during construction of the workshop building.

4.9.8 A small area of stone paving (4100) was located outside the building directly between the south-east wall (4076) and Pugmill 2 (Fig. 97), and it may indicate the location of a doorway between the mill and the workshop (Plates 295). The wall at this location did not survive to a sufficient height for any evidence of a doorway to survive. Alternatively, and perhaps more likely, a much larger entrance may have existed immediately to the north-east where there is a large gap between the south-east wall and the north-east end wall. In this scenario, the stone paving would have continued into this area, providing a solid and cleanable surface for the transportation of clay from Pugmill 2 to the moulding shed.

4.9.9 Hearth 2947 (Fig. 94, section 1443; Plates 304 and 306) was a substantial rectangular structure (2.5m long, 0.85m wide and 0.5m deep) toward the north-east end of the main workshop building, crudely cut through the floor of the workshop after the laying of the brick floor. Within the rectangular structure was a T-shaped cavity, with the widest part representing the area from which ash would have been cleared, which was accompanied by an area of adjacent worn bricks at the floor level. The narrower part of the cavity was set with four iron fire bars forming a rectangular grate. The cavity was filled at its lowest level by an ashy layer of coal clinker (4188), overlain by a greyish brown clayey silt (4185), probably derived from the final demolition of the building. The structure was substantial and most likely related to a part of the production cycle that belonged to the moulding of bricks rather than their drying. The most likely purpose for this hearth is that it was used to dry the sand that was used for the dusting of the brick moulds. Another such structure was found to the north-west between Sheds 1 and 2 (see below, Structure 296).

4.9.10 The main workshop building was constructed following the initial deposition of made ground with foundation cuts that went through this redeposited natural clay. Construction followed the previous use of this area potentially for the mining of clay, which necessitated the laying down of made ground to create a level surface. The construction of the extension came at a slightly later stage, perhaps coincident with the rebuilding of the workshop's south-east wall, following the laying down of more made ground. The foundations of this extension cut through the same layers of redeposited clay into which Shed 1 was built, so these two structures would appear to be broadly contemporary. The workshop building and extension were sealed by a later of greyish brown silty clay containing a large quantity of demolition rubble, most likely representing the demolition of the workshop itself, about 0.1–0.3m thick, overlain by the topsoil.

4.10 Other structures associated with the drying sheds (Figs 95 and 96)

Structure 243 (Fig. 95)

4.10.1 Between the north-west ends of Sheds 3 and 4 was a rectangular brick-built feature (243), 1.8m by 1.2m (Figs 80 and 95; Plate 309). The wall was two brick widths thick built in a running bond with lime mortar. The structure descended to a substantial depth of at least 1.46m (the bottom 0.40m was probed rather than excavated), or ten courses. About two of these courses would have projected above ground, and a layer of mortar on the south-west wall indicated that this was not the limit of the original height. The top part of the feature was filled by the same demolition debris that covered the brickworks site (244), which overlay a soft silty clay layer (269/765), overlying a thick layer of rubble including some substantial sandstone blocks (766). Because the stratigraphy of the surrounding soil was not investigated, the relative phasing cannot be determined. However, its upper reaches did not appear to cut into the surrounding layer of made ground which was probably filled in around it (270). This at least places the structure as contemporary with the drying sheds. The purpose of this small but very deep structure is not known and it was not fully excavated. Nevertheless, its depth suggests that its purpose may have provided access to drainage pipes.

Drainage and brick pad between Sheds 3 and 4 and a trackway

4.10.2 An isolated stack of brick was found between Sheds 3 and 4 and the north-west extent (Figure 96, section 124). The bricks were not bonded but arranged in a relatively orderly fashion, suggesting that this may have once represented a post pad, and it is directly in line with the terminal posts of the adjacent walls of Sheds 3 and 4. This is potentially indicative of a modest structure lying between these two sheds, perhaps some form of bracing joist to provide structural stability.

4.10.3 Adjacent to this brick structure was a pair of ceramic drainage pipes on two different levels but on the same alignment: a wide-diameter pipe (254) dug into the uppermost later od redeposited clay (725) and a lower narrower pipe cut through the uppermost layer and the natural clay. Unlike all the other drainage pipes found among the sheds which ran parallel to their lengths, these two pipes were aligned to be perpendicular to the buildings, essentially running between the kilns and the shed complex. The area between the kilns and the sheds seems to have been the location of a trackway or road that came off the same road that is now the A21, which would have facilitated the transport of finished bricks from the kilns. The road was evident from a very large amount of crushed CBM that filled the linear band between the kilns and sheds. As such, these large drainage pipes that were aligned with this roadway may have been associated with it rather than the kilns or sheds and probably drained water away from the road surface.

Structure 296

4.10.4 Structure 296=741 lay between the north-west ends of Sheds 1 and 2 (Figs 80 and 95; Plate 310). It was a rectangular brick-built structure 1.7m by 0.9m, surviving to a height of six courses, possibly in an English bond held together with lime mortar. Two toothed iron bars spanned the internal space, which would have held lateral bars to form a grate (see Plate 466). Beneath the grate the structure continued to a depth of 0.86m, to a brick-lined central chamber, which was filled with a charcoal-rich silty clay also containing an amount of clear glass (740). The structure would therefore appear to be a form of hearth or flue structure of

unknown purpose. Although a cut was located for an adjacent substantial ceramic drainage pipe (471), the stratigraphic associations of the structure 296 were not evident, but it might be assumed that the structure was contemporary with the drying sheds as it was either cut through or embedded within the upmost layers of redeposited clay (737). The hearth is analogous to that which was found inside the moulding shed, and it is likely that it served the same purpose of drying sand. It is also likely that it was built at a time when Sheds 1 and 2 were joined. The historic maps provide a date between 1871 and 1898 for this event.

Open-sided enclosure between Sheds 1 and 2

4.10.5 Between Sheds 1 and 2, and also apparently integral to their structure, were four sections of wall (Fig. 80: 2902, 2905, 2906, 2907) forming a three-sided enclosed space, with a means of egress on the rear wall facing the workshop building. This rear wall (2905) also appeared to terminate in a brick pad, indicating that this small open-sided enclosure was probably roofed. The stratigraphy of these walls was not investigated, but in all likelihood this structure represents a part of the joining together of Sheds 1 and 2, as seen on the 1898 OS map. If the sheds were joined at one end, even if the rest of the space between the sheds was not roofed, it may have led the cartographers to count the two sheds as a single building. The construction of this bridging structure would have also created a small courtyard to its south-east, in the corner formed by the workshop and its extension. Although there are no features indicative of the use of this courtyard or the small enclosure, they together indicate the growing complexity of the use of space at the Castle Hill brickworks, probably toward the end of the 19th century given that Sheds 1 and 2 were clearly separated on the 1st edition OS map of 1871.

4.11 Office building (Fig. 96)

4.11.1 Traces of a small rectangular structure (group number 286), about 5m by 4m, were found on the north-east limit of the site adjacent to the north-west end of Shed 1, partly obscured underneath the north-east baulk, and also immediately to the side of the A21 road (Figs 78–81; Plates 307 and 308). According to the historic OS maps, the office was built in two stages. A rectangular building with its long axis parallel to the A21 is shown on the 3rd edition map of 1910, so must have been built in the first decade of the 20th century, and this was extended westwards at the south-east end sometime between 1910 and 1938, when the resulting L-shaped building appears on the 4th edition OS map.

4.11.2 Only one edge of the earlier building lay within the excavated area (Fig. 96). This was a short length of wall (282, in foundation cut 281, backfilled by 283) abutted by the thinner and later extension wall (286, in foundation cut 757, backfilled by 758). A slight extension of the limit of excavation revealed the presence of two bay windows set into this original wall (one of which is visible in Plate 307). Both were made of lime-mortared bricks and survived to a height of two courses. The bricks in the extension wall (286) were arranged in a running bond of offset stretchers. This wall comprised two outer skins with a slim cavity between them (Fig. 96, section 113). The smaller section of wall of the main building (282) appears to have been a single thicker structure set in an English bond. The extension wall (286) was set on concrete foundations (721, 759) and it was integrated with a third wall (289), just one brick-width thick, running perpendicular to it (Fig. 96, section 110), presumably representing an internal division of the extension, also set into concrete foundations (724). These concrete foundations contained an amount of broken up CBM and flower pot fragments (760).

Unfortunately, the stratigraphic relationship between the office building extension (286) and brick pad 279 of Shed 1 was not recorded due to an under-dug section. Nevertheless, as the foundation cut for the wall was less than 20cm deep, it must only have been dug through the uppermost layer of redeposited natural and is therefore probably a later structure than any of the drying sheds.

4.11.3 To the south-east of the office building, and on the same side of Shed 1, was a small group of four postholes (1941–4) arranged in a square roughly 1m by 1m (Fig. 78). None of these features was excavated but they appeared to be sub-circular and sub-rectangular features with CBM and charcoal fills cutting through the uppermost layer of made ground (1915). As such, they represented a relatively late feature of unknown purpose, probably contemporary with the office building.

4.12 Drying sheds tables

Table 1: Summary of the structural features of Shed 3

Pad number (NW to SE)	NE wall			SW wall				
	Context no	Type	Dimensions		Context no	Type	Dimensions	
1	284	Pad type 2	0.60	0.23	300	Pad type 2	0.61	0.28
2	246	Pad type 3	0.62	0.40	245	Pad type 2	0.50	0.24
3	249	Pad type 3	0.18	0.38	248	Pad type 2	0.49	0.28
4	252	Pad type 3	0.68	0.36	251	Pad type 1	0.47	0.22
5	256	Pad type 1	0.52	0.50	255	Pad type 1	0.64	0.54
6	1954		0.68	0.48	1952		0.51	0.24
7	1959		0.58	0.35	1953		0.47	0.22
8	1951		0.60	0.35	Not found		-	-
9	1937		0.60	0.37	1960		0.64	0.52
10	1945		0.60	0.37	Not found		-	-
11	1948		0.62	0.37	1940		0.60	0.47
12	1961		0.61	0.36	2928		0.69	0.11
13	2919		0.60	0.34	2927		0.79	0.54
14	2920		0.60	0.37	4053		0.45	0.14
15	2921		0.60	0.35	2926		0.49	0.24
16	2922		0.60	0.32	2925		0.52	0.29
17	2923		0.64	0.31	2924		0.67	0.24
Mean surface area	0.25m ²				0.18m ²			

Table 2: Summary of Shed 0 (4228) structural features

Pad number (NW to SE)	NE wall			SW wall				
	Context no	Type	Dimensions		Context no	Type	Dimensions	
1	Not found		-	-	4209		0.80	0.40
2	Not found		-	-	4208		0.80	0.40
3	Not found		-	-	4215		0.48	0.64
4	Not found		-	-	4174		1.10	0.70
5	Not found		-	-	2819		1.03	0.53
6	4226	Posthole	0.15	0.15	4207		1.02	0.65
7	4225	Posthole	0.15	0.15	4206		0.80	0.40
8	Not found		-	-	4222		1.00	0.65

Table 3: Summary of Shed 2 (2864) structural features

Pad number (NW to SE)	NE wall			SW wall				
	Context no	Type	Dimensions		Context no	Type	Dimensions	
1	285	Pad type 2	0.64	0.30	271	Pad type 3	0.50	0.27
2	247	Pad type 3	0.48	0.31	793		0.24	0.10
3	250	Pad type 3	0.29	0.38	272	Pad type 3	0.56	0.44
4	253	Pad type 5	0.71	0.28	273	Pad type 4	0.38	0.23
5	1947		0.23	0.11	1946		0.24	0.12
6	1949		0.24	0.12	1938		0.24	0.12
7	1933		0.60	0.35	1931		0.60	0.50
8	1956		0.60	0.35	1935		0.60	0.35
9	1934		0.65	0.40	1932		0.58	0.37
10	1957		0.32	0.25	2824		0.24	0.12
11	1955		0.47	0.23	1936		1.14	0.24
12	1950		0.48	0.24	1958		0.47	0.23
13	2914		0.46	0.25	2907		1.80	0.23
14	2913		0.48	0.24	None	-	-	-
15	2911		0.48	0.24	2908		0.50	0.24
16	2910		0.84	0.60	2909		0.65	0.34
Mean surface area	0.16m ²				0.16m ²			

Table 4: Summary of Shed 1 (2863) structural features

Pad number (NW to SE)	NE wall			SW wall				
	Context no	Type	Dimensions		Context no	Type	Dimensions	
1	Not found	-	-	-	277	Pad type 2	0.72	0.36
2	274	Pad type 3	0.70	0.48	278	Pad type 5	0.66	0.58
3	275	Pad type 5	0.74	0.72	279	Pad type 5	0.63	0.57
4	276	Pad type 3	0.60	0.36	792		0.82	0.72
5	1922/1927		0.38	0.38	1913		0.58	0.62
6	1924		0.61	0.36	1917		0.74	0.48
7	1925		0.61	0.37	1923		0.58	0.36
8	1926		0.69	0.37	1920		0.60	0.37
9	1929		0.63	0.37	1918		0.61	0.38
10	1930		0.76	0.44	1919		0.66	0.36
11	1921		0.60	0.57	1914		0.61	0.37
12	2901		0.61	0.36	2898		0.61	0.37
13	2902		0.60	0.37	2899		0.62	0.36
14	2903		0.73	0.48	2900		0.60	0.35
Mean surface area	0.28m ²				0.29m ²			

Table 5: Summary of Shed 4 (2929) structural features

Pad number (NW to SE)	NE wall			SW wall				
	Context no	Type	Dimensions		Context no	Type	Dimensions	
1	232		0.60	0.18	231		0.78	0.22
2	236		0.58	0.27	235		0.45	0.23
3	239		0.71	0.46	238		0.41	0.24

Pad number (NW to SE)	NE wall				SW wall			
	Context no	Type	Dimensions		Context no	Type	Dimensions	
4	242		0.77	0.47	241		0.69	0.47
5	258		0.69	0.47	257		0.68	0.49
6	260		0.82	0.58	259		0.68	0.47
7	262		0.69	0.48	261		0.68	0.46
8	264		0.67	0.41	263		1.0	0.45
9	265		0.67	0.48	1706		0.71	0.49
10	266		0.68	0.48	794		0.62	0.48
11	2930		0.69	0.46	2937		0.49	0.21
12	2931		0.76	0.42	2936		0.60	0.47
13	2932		0.71	0.49	2935		0.48	0.24
14	2933		0.72	0.46	Not found	-	-	-
15	2934		0.62	0.24	Not found	-	-	-
Mean surface area	0.30m ²				0.25m ²			

Table 6: Summary of Shed 5 (2940) structural features

Pad number (NW to SE)	NE wall				SW wall			
	Context no	Type	Dimensions		Context no	Type	Dimensions	
1	230		0.66	0.23	Not found	-	-	-
2	234		0.57	0.23	Not found	-	-	-
3	237		0.69	0.33	Not found	-	-	-
4	240		0.45	0.20	Not found	-	-	-
5	1704		0.76	0.55	1705		0.70	0.58
6	1702		0.70	0.62	1703		0.74	0.58
7	800		0.70	0.60	1701		0.75	0.62
8	798		0.82	0.58	799		0.62	0.60
9	1707		0.72	0.51	Not found	-	-	-
10	795		0.57	0.55	Not found	-	-	-
11	2941		0.72	0.53	Not found	-	-	-
12	2942		0.62	0.51	Not found	-	-	-
13	2943		0.58	0.55	Not found	-	-	-
14	2944		0.58	0.55	Not found	-	-	-
Mean surface area	0.31m ²				0.42m ²			

4.13 WC2 Brickworks—drying sheds context inventory

Contexts relating to Shed 0 (4228)		
Context no	Brief description	Slot
2819	Cut for a post or platform, contemporary with 1936 and 1953	2951
2820	Fill of 2819	2951
4174	Rectangular feature, probably under Shed 2	
4205	Construction layer, earliest in Shed 2 on top of natural, indicative of earlier shed on not the same footprint as Shed 2	
4206	Construction cut for robbed out brick pad	
4207	Construction cut for brick pad 4211	
4208	Construction cut for robbed out brick pad	

Contexts relating to Shed 0 (4228)		
4209	Construction cut for robbed out brick pad	
4211	Brick pad, belonging to Shed 0, in 4207	
4212	Cut for posthole associated with brick pad 4211, in 4207	
4213	Fill of posthole, probably 4212	
4215	Brick pad from earlier shed	
4216	Brick in construction cut 4206	
4217	Two bricks in the construction cut 4208	
4218	Two bricks in construction cut 4209, same as 4221	
4221	Brick pad in construction cut 4222	
4222	Construction cut for brick pad 4221	
4223	Fill of 4207	
4225	Posthole of E wall of Shed 0	
4226	Posthole of E wall of Shed 0	

Contexts relating to Shed 1 (2863)		
Context no	Brief description	Slot
274	Brick pad, SW1	-
275	Brick pad, SW2	-
276	Brick pad, SW3	-
277	Brick pad, NE1	-
278	Brick pad, NE2	-
279	Brick pad, NE3	-
717	Redeposited natural packed in around brick pad 279	-
718	CBM and mortar packed around brick pad 279	-
719	Lime mortar fill of brick pad 279	-
720	Part of brick pad 279	-
722	Fill of drainage pipe ditch 723	-
723	Drainage pipe ditch associated with office or Shed 2863	-
744	Construction cut for brick pad 274	-
745	Fill of construction cut 744	-
746	Tiles on the top of brick pad 274	-
747	Drainage pipe in gully 750	-
748	Mortar holding 274 and 746 together	-
750	Cut of gully in which pipe 747 was laid	-
751	Fill of gully 750	-
754	Layer just above natural of trampled natural	-
755	Made ground above 754	-
756	Made ground above 755, overlain by topsoil 204	-
792	Brick pad, NE4	-
1913	Brick pad, NE5	-
1914	Brick pad, NE11	-
1917	Brick pad, NE6	-
1918	Brick pad, NE9	-
1919	Brick pad, NE10	-
1920	Brick pad, NE8	-
1921	Brick pad, SW10	-
1922	Brick pad, SW4a	-
1923	Brick pad, NE7	-
1924	Brick pad, SW5	-
1925	Brick pad, SW6	-
1926	Brick pad, SW7	-
1927	Brick pad, SW4b	-

Contexts relating to Shed 1 (2863)		
1929	Brick pad, SW8	-
1930	Brick pad, SW9	-
2837	Construction cut for brick pad 1926 in slot 2951	2951
2838	Fill of 2837	2951
2839	Built layer	2951
2840	Probable natural layer	2951
2841	Natural layer	2951
2842	Natural layer	2951
2843	Bowl-shaped cut in slot 2951 between 1923 and 1926	2951
2844	Fill of 2843	2951
2845	Lowest natural layer	2951
2846	Built layer	2951
2847	Mixed topsoil around brick pad 1930	2951
2850	Fill of 2851	2951
2851	Posthole filled by 2851	2951
2852	Fill of 2853	2951
2853	Construction cut for 1930	2951
2863	Group number for structure	-
2866	Trample layer associated with structure	2953
2867	Built layer	2953
2868	Possible pit or linear running along E wall of 2863	2953
2869	Fill of 2868	2953
2870	Construction cut for 1914	2953
2871	Fill of 2870	2953
2888	Cut of linear, probably same as 2868	2953
2889	Fill of 2888	2953
2890	Construction cut for 1919	2953
2891	Fill of 2890	2953
2898	Brick pad, NE12	-
2899	Brick pad, NE13	-
2900	Brick pad, NE14	-
2901	Brick pad, SW11	-
2902	Brick pad, SW12	-
2903	Brick pad, SW13	-
2949	Group number for slot inside shed 2863	2949
2953	Group number for slot between pads 1914 and 1919 and along east wall of shed 2963	2953
2955	Trample layer between pads 1914 and 1919	2953
2956	Built ground between pads 1914 and 1919	2953
2957	Built ground between pads 1914 and 1919	2953
2958	Construction cut for pad 1914	2953
2959	Fill of 2958	2953
2960	Construction cut for brick pad 1919	2953
2961	Fill of 2960	2953
2962	Built ground near brick pad 1919	2953
2964	Built ground, same as 2957	2953
4118	Cut of posthole probably cutting gully 4121 beneath Shed 1	
4119	Fill of 4118	
4120	Fill of 4121	
4121	Linear feature containing a number of postholes including 4133 and 4135 beneath Shed 1	
4122	Posthole at SE end of Shed 1	

Contexts relating to Shed 1 (2863)		
4123	Posthole at SE end of Shed 1	
4124	Posthole at SE end of Shed 1, unexcavated	
4125	Posthole at SE end of Shed 1, unexcavated	
4126	Pit at SE end of Shed 1	
4127	Ceramic drain running length of Shed 1 and continuing under workshop floor	
4128	Ceramic drain at SE end of Shed 1 running under workshop floor	
4129	Length of ceramic pipe beneath SE end of Shed 1, truncated by 4127	
4130	Unknown linear feature beneath Shed 1, perhaps related to 4121	
4131	A unexcavated pit beneath Shed 1, but surveyed as a linear	
4132	Posthole at SE end of Shed 1	
4133	Posthole cut into linear 4121 (not located)	
4134	Fill of posthole 4133	
4135	Posthole in linear 4121 under Shed 1	
4136	Fill of posthole 4135	
4138	Fill of posthole 4122	
4139	Fill of posthole 4132	
4140	Fill of pit 4126	
4141	Layer of built ground under Shed 1, with features 4122–4132 cut into it	
4143	Linear deposit running underneath Shed 1, cut by 4144	
4144	Linear cut or depression beneath Shed 1	
4145	50% of the original floor surface of Shed 1, below 4141	
4146	Depression running on SW side of Shed 1, possibly from storing bricks. Size and location undefined	
4147	Sub-rectangular feature at SE end of Shed 1, caused by stored brick weight	
4148	Sub-rectangular feature at SE end of Shed 1, caused by stored brick weight	
4149	Sub-rectangular feature at SE end of Shed 1, caused by stored brick weight	
4150	Sub-rectangular feature at SE end of Shed 1, caused by stored brick weight	
4155	Fill of 4146	
4157	Layer on top of natural beneath 4143 and 4145	
4168	Natural geology overlain by 4157	

Contexts relating to Shed 2 (2864)		
Context no	Brief description	Slot
247	Brick pad, SW2	-
250	Brick pad, SW3	-
253	Brick pad, SW4	-
271	Brick pad, NE1	-
272	Brick pad, NE3	-
273	Brick pad, NE4, see also 727	-
285	Brick pad, SW1	-
726	Construction cut for brick pad 273	-
727	Same as brick pad 273, once excavated	-
728	Fill of construction cut 726	-
743	Mortar holding bricks together in brick pad 273	-
785	Construction cut arbitrarily assigned to brick pad 285	-
786	Fill of 785	-
793	Brick pad, NE2	-
1931	Brick pad, NE7	-
1932	Brick pad, NE9	-
1933	Brick pad, SW7	-
1934	Brick pad, SW9	-
1935	Brick pad, NE8	-

Contexts relating to Shed 2 (2864)		
1936	Brick pad, NE10	-
1938	Brick pad, NE6	-
1946	Brick pad	-
1947	Brick pad, SW5	-
1949	Brick pad, SW6	-
1950	Brick pad, SW12	-
1953	Brick pad – on context sheet as belonging to 2865	-
1955	Brick pad, SW11	-
1956	Brick pad, SW8	-
1957	Brick pad, SW10	-
1958	Brick pad, NE11	-
2114	Brick pad, SW13	-
2807	Fill of construction cut 2808	2952
2808	Construction cut for brick pad 1957	2952
2821	Brick pad below brick pad 1936	2951
2824	Brick pad	2951
2848	Silty clay sealing 2824 fill of 2849	2951
2849	Construction cut for 2824	2951
2864	Group number for structure	-
2907	Brick pad, NE12	-
2908	Brick pad, NE13	-
2909	Brick pad, NE14	-
2910	Brick pad, SW16	-
2911	Brick pad, SW15	-
2913	Brick pad, SW14	-
2914	Brick pad	-
2915	Brick floor	-
2916	Brick floor	-
2917	Brick floor	-
2951	Group number for slot inside shed 2864	2951
4023	Fill of 4024	-
4024	Construction cut for rectangular post	-
4025	Brick pad	-
4169	Variation in made ground, no location, probably under Shed 2	
4170	Made ground for construction of brickworks, no location, probably under Shed 2	
4171	Cut, sheet not filled in, probably under Shed 2	
4172	Unexcavated posthole, no location, but cut in 4170, probably under Shed 2	
4173	Pipe, unexcavated, probably running beneath Shed 2	
4175	Drainage pipe running N, probably beneath Shed 2	
4176	Posthole in made ground 4170 probably beneath Shed 2	
4177	Posthole in made ground 4170, probably beneath Shed 2	
4178	Remains of brick pad overlying 4170, probably beneath Shed 2	
4179	Posthole in 4170, probably beneath Shed 2	
4180	Construction layer beneath 4169 and 4170	
4189	Cut of ditch at SE end of Shed 2	
4190	Fill of 4189	
4210	Fill of a construction cut disturbed during demolition of Shed 0, above 4223	
4224	Fill of ditch 4189	

Contexts relating to Shed 3 (2865)		
Context no	Brief description	Slot
245	Brick pad	-

Contexts relating to Shed 3 (2865)		
246	Brick pad	-
248	Brick pad	-
249	Brick pad	-
251	Brick pad	-
252	Brick pad	-
255	Brick pad	-
256	Brick pad	-
284	Brick pad	-
300	Brick pad	-
752	Construction cut for brick pad 251	-
753	Fill of construction cut 752	-
1937	Brick pad	-
1940	Brick pad	-
1945	Brick pad	-
1948	Brick pad	-
1951	Brick pad	-
1952	Brick pad	-
1953	Brick pad	-
1954	Brick pad	-
1959	Brick pad	-
1960	Brick pad	-
1961	Brick pad	-
2803	Built layer	2952
2804	Built layer	2952
2805	Upper layer of natural	2952
2806	Lower layer of natural	2952
2813	Construction cut for brick pad 1952	2951
2814	Fill of construction cut 1952	2951
2815	Cut into 2814	2951
2816	Fill of cut 2815	2951
2865	Group number for structure	-
2919	Brick pad	-
2920	Brick pad	-
2921	Brick pad	-
2922	Brick pad	-
2923	Brick pad	-
2924	Brick pad	-
2925	Brick pad	-
2926	Brick pad	-
2927	Brick pad	-
2928	Brick pad	-
4046	Cut of robber trench dug to retrieve bricks from pad 4053	2972
4047	Fill of 4046	2972
4048	Cut of feature associated with pad 4053	2972
4049	Fill of 4048	2972
4050	Fill of 4113	2972
4051	Built ground, same as 4043	2972
4052	Built ground	2972
4053	Brick pad	2972
4054	Cut of modification associated with 4043	2972
4055	Fill of 4054	2972
4056	Trample layer, probably same as 4061	2972

Contexts relating to Shed 3 (2865)		
4057	Built ground	2972
4058	Built ground or floor surface, same as 4021 and 4052	2972
4059	Built ground or floor surface, same as 4022 and 2999	2972
4060	Lowest level of built ground, possibly same as 4042	2972

Contexts relating to Shed 4 (2929)		
Context no	Brief description	Slot
231	Brick pad, SW1	-
232	Brick pad, NE1	-
235	Brick pad, SW2	-
236	Brick pad, NE2	-
238	Brick pad, SW3	-
239	Brick pad NE3	-
241	Brick pad, SW4, see also 791	-
242	Brick pad, NE4	-
257	Brick pad, SW5	-
258	Brick pad, NE5	-
259	Brick pad, SW6	-
260	Brick pad, NE6	-
261	Brick pad, SW7	-
262	Brick pad, NE7	-
263	Brick pad, SW8	-
264	Brick pad, NE8	-
265	Brick pad, NE9, see also 787	-
266	Brick pad, NE10	-
787	Masonry of brick pad 265	-
791	Masonry that is part of brick pad 241	-
794	Brick pad, SW10	-
1706	Brick pad, SW9 (surveyed as 1206)	-
2929	Group number for structure	-
2930	Brick pad	-
2931	Brick pad	-
2932	Brick pad	-
2933	Brick pad	-
2934	Brick pad	-
2935	Brick pad	-
2936	Brick pad	-
2637	Brick pad	-
2938	Elongated spine of bricks	-
2939	Elongated spine of bricks	-
2966	Group number for slot excavated across shed 2929	2966
2967	Cut at W edge of slot 2966	2966
2968	Fill of 2967	2966
2969	Bowl-shaped cut	2966
2970	Fill of 2969	2966
2971	Silty/sandy clay layer	2966
2973	Sandy clay layer	2966
2974	Built ground or floor	2966
2975	Lower built ground or floor	2966
2976	Natural beneath floor	2966
2977	Cut of stakehole	2966
2978	Fill of stakehole	2966

Contexts relating to Shed 4 (2929)		
2979	Cut of construction trench	2966
2980	Fill of 2979	2966
2983	Built ground	2966
2984	Built ground	2966
2985	Cut of test pit	2966
2986	Fill of test pit	2966
2987	Subsoil	2966
2988	Cut of unknown feature	2966
2989	Fill of 2988	2966
4062	Construction cut for pad 2936	2972
4063	Fill of 4062	2972

Contexts relating to Shed 5 (2940)		
Context no	Brief description	Slot
230	Brick pad, NE1	-
234	Brick pad, NE2	-
237	Brick pad, NE3	-
240	Brick pad, NE4, see also 790	-
790	Masonry that is part of brick pad 240	-
795	Brick pad, NE10	-
798	Brick pad, NE8	-
799	Brick pad, SW4	-
800	Brick pad, NE7	-
1701	Brick pad, SW3 (surveyed as 1201)	-
1702	Brick pad, NE6 (surveyed as 1202)	-
1703	Brick pad, SW2 (surveyed as 1203)	-
1704	Brick pad, NE5 (surveyed as 1204)	-
1705	Brick pad, SW1 (surveyed as 1205)	-
1707	Brick pad, NE9 (surveyed as 1207)	-
2940	Group number for structure	-
2941	Brick pad	-
2942	Brick pad	2966
2943	Brick pad	-
2944	Brick pad	-
4032	Fill of 4033	2966
4033	Construction cut for 2942	2966

Contexts associated with workshops		
Context no	Brief description	Slot
2894	Group number for workshops	-
2897	Clay overlying 2894	-
2947	Hearth for a coal fire inside workshop	-
4075	E-W wall along northern side of workshop	-
4076	E-W wall along southern side of workshop	-
4077	N-S wall along east side of workshop	-
4078	Continuations of 4075 but separated by doorway	-
4079	N-S wall on western wall of extension 4088	-
4080	Corner or roof support of extension 4088	-
4081	N-S wall along eastern side of extension 4088	-
4082	Brick floor of extension 4088	-
4083	Doorway between workshop and extension	-
4084	Brick floor of workshop	-

4085	Repair to brick floor 4084	-
4086	Track marks across workshop	-
4087	Internal partition in floor in extension	-
4088	Group number for workshop extension	-
4089	Floor surface beneath brick floor 4084	-
4100	Stone paving linking workshop to Pugmill 2	-
4117	Brick drain underlying 4082 and 4088	
4158	Construction cut for 4080 and 4179, probably under workshop, but also possibly Shed 1	
4159	Fill of 4158	
4185	Backfill of hearth 4185	
4188	Primary fill of 2947	
4191	Rectangular pit under floor of shed sealed by 4194	
4192	Fill of pit 4191	
4193	Sand bedding layer for brick floor 2987 [incorrect number]	
4194	Levelling layer for the construction of the shed	
4195	Levelling layer for the construction of the shed	
4196	Natural layer cut by 4191 and then 4205	
4203	Backfill of foundation cut 4204	
4204	Foundation cut of S wall of moulding shed	
4214	Linear feature to N of N wall of workshop, cuts 4196	
4237	Construction cut of E wall of 4081, similar period as Pugmill 1	
4238	Fill of 4237	
4239	Construction cut for W wall of 4081	
4240	Fill of construction cut 4239	
4247	Bedding for brick floor 4082 of crushed brick.	

Contexts associated with office building		
Context no	Brief description	Slot/area
281	Cut of foundation for the office building	-
282	Masonry of office building	-
283	Fill of foundation cut 281	-
286	Extension to office structure	-
287	Foundation cut butting 281	-
288	Layer associated with 286	-
289	Row of bricks associated with 286	-
708	Foundation cut for wall relating to office	-
709	Fill of 708	-
710	Fill of 708	-
711	Brick wall in foundation 708	-
712	Cut to accommodate foundations of structure 286	-
713	Fill of structure 286/voided	-
714	Fill of structure 286/voided	-
715	Fill of structure 286/voided	-
721	Concrete foundations for brick structure 286	-
724	Concrete footings for structure 289	-
757	Cut associated with 286	-
758	Fill of 757	-
759	Concrete footings for brick wall, part of 286	-
760	CBM layer in 757, associated with structure 286	-

5 WC2 BRICKWORKS: PUGMILLS

By Toby Martin

5.1 Introduction

5.1.1 South-east and north of the making shed were two pugmills (Figs 78–81). These open-air pony- or donkey-powered machines were used to mill the raw clay into a smooth and even ‘pug’ that was taken to the workshop to be moulded into bricks. Both of the excavated pugmills at the Castle Hill brickworks were exceptionally well preserved (Plate 295), one of them still containing its final load of clay and elements of the iron milling mechanism of the central chamber. Pugmill 2, which was probably the earlier structure, was constructed immediately adjacent to the Making Shed. Pugmill 1 lay just outside the extension to the Making Shed and the south-east end of Shed 1. Both pugmills were positioned immediately adjacent to entrances of the Making Shed, optimising the flow of materials through all stages of the brick- and tile-making process, from the pugmills to the Making Shed to the drying sheds and then finally to the kilns, moving north-west (and downhill) with each stage.

5.1.2 After it went out of use, a substantial iron pipe was laid across Pugmill 2, which appears to have come from the pond in Castle Hill Wood directly east of the cottage (Plate 311). This may have been connected with the final stages of use of the brickworks, or have post-dated the brickworks, and have been connected to its use as a piggery. The description of the pugmills will be followed by a short description of the archaeological investigations that took place at the pond on Castle Hill Wood.

5.2 Pugmill 2 (Fig. 97)

5.2.1 Pugmill 2 (group number 2893; Plate 311; Fig. 98) was located directly adjacent to the workshop just outside its south-east wall, joined to the building by a small area of stone paving 4100 (Plate 312). This may have been the location of a doorway into the workshop, or alternatively there may have been more substantial entrance further to the north-east where wall 4076 ended. This wall did not survive to a sufficient height to identify a threshold. The pugmill structure was just over 7m in diameter and consisted of three main elements: an outer ring, an inner ring and a central mechanism. The outer ring provided the track around which the pony or donkey would have walked. The draught animal pulled a rotating arm that was attached to the mill screw. This mechanism lay at the centre of the pugmill at the end of a rectangular recess cut into the ground that provided access to the partially sunk barrel in which the clay was milled. Between the outer ring and the central mechanism there was a substantial brick surface comprising the inner ring.

5.2.2 Before the mill was built a large circular ditch (4199) was dug beneath where the outer ring was to be constructed, 0.6m deep and 0.85m wide with near vertical sides (Fig. 93, section 1444). This was filled with a large quantity of angular mudstone and silty clay (4198) in order to form a free-draining soakaway drain beneath the outer ring for the purpose of draining away the waste from a draught animal, as well as to create a firm foundation for a surface that would experience a lot of wear. The ditch cut through one layer of yellowish redeposited clay (4200) as well as the natural (4201 and 4202) beneath it. It is important to note that this layer of redeposited clay was the same as that which was laid down prior to the construction of the workshop and after the foundations of Shed 3 were laid. The construction of Pugmill 2 was therefore broadly contemporary with the construction of the workshop building and perhaps

also the earliest drying sheds. That said, it is also true that the level of the natural slopes up slightly at the location of Pugmill 2, from 75.5m aOD at the north-west extent of the drying shed complex to about 77.0m at the location of Pugmill 2. Accordingly, it is perfectly possible that while several layers of built ground were being laid across the drying sheds complex at various stages, this area slightly uphill and entirely cut off from this activity by the presence of the workshop may not have received these layers of redeposited clay, which makes it hard to tie into the rest of the sequence with any certainty.

5.2.3 Following the construction of the annular drain, a layer of sand (4197) was put down as a bedding for the pugmill surface. The outer ring of Pugmill 2 (group number 4099) was constructed originally from roughly hewn stone cobbles of mixed sizes (from 0.25 to 0.16m in lengths), but generally conforming to a long and narrow shape, not dissimilar from that of a brick. The external edge was finished with a circle of bricks (4115, 4186), laid on their edges and bonded with mortar, though only fragments of this edging survived. The internal edge of the ring was finished similarly (4187). There were also, however, large areas of brickwork probably constructed from wasters from the kilns and indicative of various stages of repair.

5.2.4 A total of 10 different areas representing original and replaced surfaces were identified on the outer ring of Pugmill 2. There were four areas of cobbles located at various points of the ring: 4101 (Plate 313) was located adjacent to the stone paving 4100 and was bonded with sandy mortar; 4104 (Plate 314) and 4105 (Plate 315) were located on the south-west quadrant and were bonded with the same mortar; and 4109 (Plate 316) was a small island of probably original cobbles found to the south with no obvious bonding, which may have been a survival from the original build. Another large area of cobbles (4110; Plate 317) with no apparent bonding also survived across almost the entire eastern half of the ring which may also have been original. A small repair of mixed cobbles and brick (4103; Plate 318) bonded with sandy mortar was present in the north-west quadrant, somewhat mixed in with 4102. There were three final areas of brick repair: in the north-west quadrant bonded with a sandy mortar (4102; Plate 319), in a small area in the south (4106; Plate 320) bonded with a lime mortar, and adjacent to the last one bonded with clay (4108). Placing these repairs in a sequence is not possible, but the bonding agents (no apparent bonding; clay; sandy mortar; lime mortar) and materials (cobbles; bricks and mixed cobbles; bricks) indicate at least four episodes of repair. The outer ring was the only structure in the entire brickworks complex to be surfaced with cobbles and was perhaps an intentional design to aid the traction of a draught animal on an open-air surface that probably would otherwise have become slippery and potentially dangerous due to inevitable spillages of clay. The cobbles also indicate that the mill may have been built when there was not a plentiful supply of bricks or wasters from the kilns.

5.2.5 The inner ring of Pugmill 2 (group number 4098) was laid on the same bedding of sand (4197) as the outer ring. The inner circle had two major parts: an area constructed with bricks laid on their base in the north-west quadrant (4183), and a much larger area to the south-east constructed of brick laid on their sides (4182), the former perhaps representing a single repair although it is also possible that that this was an original design built in a haphazard manner. Neither of these areas was constructed using concentric courses of bricks. Instead, each area used straight lines of headers arranged running NE-SW and NW-SE to create four unevenly sized quadrants that converged at the central mechanism. The bricks in both 4182 and 4183 were bonded with clay. A portion of the bricks in 4182 in the eastern part of the ring was substantially worn (4114; Plate 321) and another worn area was present in the southern part

(Plate 322). It is unsurprising that the inner ring was less damaged and repaired than the outer ring, given that it was just the latter element that was tracked by a draught animal, but it may also have been the case that the cobbles made for a less durable surface than the bricks.

5.2.6 Within the north-west portion of the inner ring was a sunken area lined with bricks and accessed by steps, which provided access to the sunken central mechanism of the pugmill where the milled clay was unloaded. At the north-west end of the recess there were two steps down (4094; Plate 323), while the south-east (4093), north-east (4092) and south-west sides were lined with brick walls (Plate 324). The floor of the recess was also lined with bricks.

5.2.7 The only traces of the actual milling mechanism that survived in Pugmill 2 were two postholes (4097 and 4184) on either side of the sunken area close to the centre. which may have supported the central barrel in which the clay was milled. Posthole 4097 was 0.29m square (Plate 325), and posthole 4184 still retained part of the wooden post, which was about 0.25m in diameter. These held the posts of the frame that supported the central rotating shaft to which the paddles for mixing the clay were attached, and which also held the barrel containing the clay in place. In the absence of any brick support for the central barrel, there was presumably a transverse timber between the posts that held the spindle on which the central shaft rotated. As the sunken area was not circular and was too small (0.6m across) to have accommodated it, the barrel must have stood at ground level, resting on the edges.

5.2.8 Besides the various wear and repairs, there were two other pieces of evidence from Pugmill 2 indicative of a chronological sequence. The first of these was that the brick repair to the outer ring 4102 was cut by the foundation trench for the rebuilding of the workshop's south-east wall. This suggests that Pugmill 2 was present during the earliest phase of the workshop and predated its second phase. The second piece of evidence comprises a large metal pipe (2946) that overlay the pugmill running from the south-east baulk of the excavation to the centre of the mill where it rested on a specially constructed brick plinth (4096), perhaps supplying water to the workshop building (Plate 326) from the large pond at Castle Hill Wood (see below). This pipe could date to the period in which the site was still brickworks, but it could equally well belong to the later period when the site was used as a piggery. If the former were the case then the pipe may indicate that Pugmill 2 went out of use before the brickworks closed, and only Pugmill 1 remained in use thereafter.

5.3 Pugmill 1 (Fig. 98)

5.3.1 Pugmill 1 (group number 2892) was located at the south-east end of Shed 1 and the north-west end of the workshop extension (Fig. 98; Plate 327). The entire structure had a diameter of about 7.3m and like Pugmill 2 it consisted of an outer ring, an inner ring and a central mechanism.

5.3.2 Pugmill 1 was partly cut into, and partly laid on top of, a layer of redeposited clay (Fig. 93, section 1448, layer 4229). Unlike Pugmill 2, the built ground upon which the structure was built was not the earliest layer of redeposited clay, but overlay at least three further layers (4234, 4242/4235, and 4231/4227, see section 1448 in Sheds description), meaning that Pugmill 1 was only constructed after there had been a total of four layers of redeposited natural laid down in this area of the site (Plate 328), which places it in the same stratigraphic phase as the workshop extension and the construction of Drying Shed 1. This phase might be seen as the first expansion of the Castle Hill brickworks following the earlier foundations of

Sheds 3, 0 then 2, the workshop building and Pugmill 2, and it perhaps coincided with the expansion of production seen with the building of Sheds 1, 4 and 5, the extension of the workshop and the construction of Kiln 2.

5.3.3 Like the outer ring of Pugmill 2, the outer ring of Pugmill 1 (4064) was built on top of a soakaway drain for channelling away waste from a draught animal which also acted as a foundation for the track. Annular ditch 4246 was cut into the uppermost layer of redeposited clay (4229) to a depth of about 0.3m and a width of just under 1m. It was backfilled with a deposit of CBM (4241) to provide a free-draining area beneath the outer ring. Finally, the backfill was sealed with a layer of pure sand (4230) to provide a bedding for the outer ring surface.

5.3.4 The surface of the outer ring of Pugmill 1 was constructed from pinkish grey bricks, bonded with a lime mortar and laid on their sides in a highly regular fashion compared to the many repairs to the cobbles of Pugmill 2 (Plate 329). The brick surface of the outer ring had been constructed in eight unevenly sized sections that were not keyed-in to each other. The consistency of the brick types and the manner in which they were laid suggests that they represented a single phase of work rather than episodic repairs, though it is still feasible that whole sections could have been replaced. However, it appears that this technique of laying rectangular strips of brickwork rather than concentric bands represented a means of filling in a curved surface area using rectangular bricks, similar to the inner ring of Pugmill 2 which was filled using four quadrants of brickwork. The external edge of the outer ring comprised a ring of bricks laid on their bases though this was largely robbed out on the north and west sides. At three locations on the north-east edge of this outer ring there were bricks laid diagonally rather than flat (4167), potentially to help channel away any waste from the draught animal. A groove had been worn down the centre of the outer ring (Plate 330), presumably worn by the hooves of the horse powering the mixing mechanism.

5.3.5 The surface of the inner ring of Pugmill 1 (group number 4065) was constructed from orangey red bricks, quite distinct from those used on the outer ring, bonded with lime mortar and laid on their sides, running in neat lines from north-west to south-east, and laid on the same bedding of sand (4230) as the outer ring (Plates 330 and 331). It stood at a very slightly higher level than the outer ring. The external edge of the inner ring comprised a circle of bricks laid on their ends (4166) and inserted through the sand bedding into the redeposited clay layer beneath, which had two concrete repairs on its north-west and south-west edges. The inner ring of the mill had a large number of substantial repairs, though they were all executed with similar orangey red bricks laid in a neat pattern with clay bonding and occasional traces of mortar. The oldest parts of the surviving surface appeared to lie in the south-east half (4160 and 4165), and the bricks in this area were slightly darker, as well as somewhat pitted and worn. The first repair (4161) lay in the western quadrant and appeared to have gaps in its surface filled in by a second repair 4162 which lay to its north. A third repair (4164) patched up the gaps in 4160. A fourth repair 4072 near the centre of the mill had an unknown place in the sequence. A final fifth repair (4163) in the north-east quadrant appeared to be the latest in the sequence as it patched up gaps in the earlier repairs 4162 and 4164.

5.3.6 Unlike the robbed out central mechanism of Pugmill 2, Pugmill 1 retained part of its central barrel (group number 4071) *in situ*, complete with its final load of clay. Like Pugmill 2, the central mechanism lay at the end of a sunken area on the south-west that provided access to the barrel (Fig. 98). At the top of the steps, abutting the external edge of the inner ring

(4166), was a parallel pair of single-course brick edgings (4066), bonded with mortar that was strengthened with concrete at a later date (Plate 332). These edgings provided the sides of the first step. Beyond these supports the two walls of the recess (4067), laid in a stretcher bond with a lime mortar, gradually converged as they neared the centre of the mill to create a wedge-shaped space (Plates 217 and 218). The floor of the recess (4068) was lined with bricks bonded with a sandy mortar (Plate 335), with two further steps at its south-west end (4069), made from bricks bonded with mortar and clay (Plate 336). In the north-west corner, adjacent to the lowest step there was a drain (4070), which was not excavated (Plate 337).

5.3.7 The central barrel itself consisted of a penannular iron ring (4156) with a diameter of about 0.83m, set into an external edging of concrete (4073 and 4074) that may have been a later repair (Plate 338). This ring provided a rim to a cylindrical space with a brick base (4142) bonded with clay and lime mortar, tied into the walls of the wedge-shaped recess (4067) and overlying a layer of silty and sandy clay (4154). This space appears to have been lined with a wooden barrel, of which some pieces of the sides (4151) and base (4152) survived (Plate 339). Filling this space was a deposit of clay (4137) representing the final load of Pugmill 1, which included these fragments of wood, as well as an iron spindle for the paddle mechanism (Plates 467 and 468). Directly to the north of the central mechanism an upright timber post (4153) survived (Plate 340) and there was potentially a space for a corresponding post to the south.

5.3.8 Beyond the several brick repairs to the inner ring, the concrete repairs to the edging of the inner ring and the concrete repairs to the central mechanism, there is little evidence from Pugmill 1 to date any successive phases of use. A small amount of clay had built up around the outer ring (4245) overlying the redeposited natural the mill was built upon, and the wear and repair on the inner and outer surfaces indicated that the mill had been in use for some time. Moreover, the presence of a load of clay as well as the iron mill mechanism *in situ*, persuasively suggest that Pugmill 1 was in use until the Castle Hill brickworks were closed.

5.4 Summary of pugmills

5.4.1 The archaeological evidence suggests that Pugmill 2 was the earlier of the two, as its outer ring was built from cobbles rather than brick, and its soakaway drain was filled with naturally occurring shale, while the soakaway for Pugmill 1 was filled with broken up bricks and tile. Both of these facts may indicate that this reflects a lower volume of production at the brickworks, ie an earlier date. The stratigraphic evidence indicates that it was damaged, if not put out of use, by the rebuilding of part of the south-east wall of the Making Shed, so was certainly constructed some time before this. The historical maps do not show Pugmill 2 at all, the first occurrence of a pugmill on the Ordnance Survey maps being Pugmill 1 on the 4th edition map of 1938, by which time the brickworks had probably gone out of use. This is probably simply due to what different surveyors felt was worth including, as the pugmills were not roofed structures. As mills are mentioned down the track south-west of the excavated site in the Tithe Apportionment of 1836, it is probable that Pugmill 2 was not built until after this, so a construction date in the mid- or later 19th century seems most likely.

5.4.2 The stratigraphic evidence is consistent with the likelihood that Pugmill 2 was built during the expansion of the brickworks with a second kiln, the extension of the workshop and the building of three further drying sheds (Sheds 1, 4 and 5). In contrast, Pugmill 1 was built when at least four layers of redeposited clay had accumulated, and the survival of the mill mechanism and a final load of clay in Pugmill 1 may suggest that it was in use right up to the

point the brickworks were closed. The possibility that an iron pipe was laid over the top of Pugmill 2 while the brickworks were still in use might also suggest that Pugmill 2 was abandoned before this. Whether both pugmills ever operated in unison remains an important question. If they were both ever in use simultaneously, it would suggest a rise and then a fall in the productive capabilities of the brickworks, with Pugmill 1 being built to meet a growing demand, and then Pugmill 2 being abandoned as demand ebbed. Alternatively, if Pugmill 1 simply replaced Pugmill 2 then no necessary growth or decline in production needs to be posited.

5.5 Castle Hill Wood pond

5.5.1 The historic maps of the Castle Hill brickworks show their south-east a large pond adjacent to the A21 and directly east of the cottage. On the tithe map of 1830 the pond is depicted as a large rectangle, roughly 25m long and around 10m across, oriented approximately SW-SE. On the first edition Ordnance Survey map of 1871 the same pond is seen, now of a slightly trapezoidal shape, though of about the same size. On the second edition OS map of 1898 the same pond is shown but was by this stage joined by a circular pond to its south-east, with a diameter of about 10m. By the time the third edition OS map was published in 1910, these two ponds had been joined with a narrow channel to create an elongated figure-of-eight shape, and this remained the case in the fourth edition OS map of 1938.

5.5.2 The area of this pond was surveyed and summarily recorded during the A21 dualling scheme excavations, when some additional features to those seen on the historical maps were recorded. At the time of excavation, the pond was dry and silted up, but was visible as a depression in the ground surface in a lightly wooded area. The size and shape of the pond (group number 2345) was rapidly surveyed and found to be relatively accurately recorded on the maps, but had the additional feature of a ditch (3356, recorded as part of the Castle Hill report) running into (or out of) its south-east end (Fig. 104). As such, the pond consisted of a larger sub-rectangular section to the northwest, with a constriction at its south-east end which then expanded into a more irregular sub-rectangular shape, though the historical maps show this part as circular.

5.5.3 The major additional feature that was recorded was an extant and intact brick wall (2346) on the north-west side of the pond. The wall was 6.30m long and 2.10m high down to the base of the pond, though only about two or three courses of brick protrude above the ground surface. The wall was 0.23m thick and made of reddish orange unfrosted bricks (230mm x 68mm x 110mm) in an English bond, though there was some random variation. The bonding agent appeared to be a grey cement mortar. At each end of the wall there was a small return protruding at a perpendicular angle to the north-west, just under 0.9m long. At the base of the wall on the south-east side (within the pond), there was a three-tiered brick plinth protruding 0.40m from the wall, and about 0.75m wide. Set into this plinth was a cast iron pipe fitted with a stopcock (2348) which presumably could have been controlled remotely from the surface. It is this pipe that probably terminates over Pugmill 2 to the north-east, as it appears to be on a relatively precise trajectory for that location. At the top of the wall to the immediate north-east of the plinth there were two circular extruded ceramic drain pipes, one on top of the other, which probably would have been just about above the ground surface.

These pipes were probably for controlling the water levels of the pond or were perhaps a form of overflow.

5.5.4 At the waist of this pond, approximately 25m to the south-east of the wall described above there was a second much smaller section of brick wall (2346). The wall was set on a perpendicular angle to the pond on the north-east side at the base and was made of hard and purplish frogged bricks (224 x 66 x 108mm) set randomly with a hard, white cement. The exposed wall was about less than 1m long, 0.46m high and 0.22m thick. Its purpose was a little unclear as its extent height was considerably lower than that of 2346, though mortar on the top of the uppermost course of bricks indicated that it had once been more substantial. This short section of wall was probably part of a sluice gate that controlled the flow of water through the constructed part of the pond and into the larger rectangular part.

5.6 WC2 Brickworks—Pugmills context inventory

Contexts associated with Pugmill 1 (2892)		
Context no	Brief description	Slot
2892	Group number for pug mill 1	-
2895	Clay overlying 2892	-
4064	Brick surface for animal traction	-
4065	Main circular brick floor	-
4066	Supports for internal stairs	-
4067	Internal walls of mill	-
4068	Brick floor of internal structure	-
4069	Brick steps	-
4070	Brick drain inside internal structure	-
4071	Unexcavated internal mechanism	-
4072	Brick repair mill floor	-
4073	Concrete addition to central mechanism	-
4074	Concrete additions to main circle 4065	-
4137	Fill at centre of pugmill barrel	
4142	Brick wall of central mechanism 4071	
4151	Wood from central barrel	
4152	Wood from central barrel	
4153	Wooden post N of 4071	
4154	Layer from central barrel	
4156	Iron mechanism in central barrel	
4160	Worn bricks part of 4065	
4161	Outer part of inner ring	
4162	Part of 4065	
4163	Part of 4065	
4164	Repair to central mechanism	
4165	Part of 4065	
4166	Ring of upright bricks	
4167	Possible drain for donkey urine	
4227	Same as 4231	
4229	Final levelling layer before pugmill construction	
4230	Sand bedding layer beneath ring	
4231	Ground surface pre-dating the construction of 4088, contemporary with pipe 4232	
4232	Cut of trench for drainage pipe	
4233	Fill of 4232, providing draining for Pugmill 1	
4234	Redeposited clay on natural, first layer	

Contexts associated with Pugmill 1 (2892)		
4235	Levelling layer overlain by 4231	
4236	Same as 4229	
4241	Recycled kiln mats for drainage	
4242	Same as 4275	
4243	Same as 4227 and 4231	
4244	Same as 4235 and 4242	
4245	Layer from use of Pugmill 1, overlying 4229	
4246	Cut for drainage beneath outer ring of Pugmill 1	

Contexts associated with Pugmill 2 (2893)		
Context no	Brief description	Slot
2893	Group number for pug mill 2	-
2996	Clay overlying 2893	-
4091	E wall of internal structure	-
4092	W wall of internal structure	-
4093	S wall of internal structure	-
4094	Steps down into internal structure	-
4095	Brick floor of internal structure	-
4096	Brick plinth supporting metal pipe overlying mill	-
4097	Brick-framed whole in floor 4095	-
4098	Main brick floor	-
4099	Outer brick ring of mill	-
4100	Stone paving linking mill to workshop	-
4101	Repair to outer ring	-
4102	Brick repair to pugmill outer ring	-
4103	Repair to 4099	-
4104	Cobble repair to 4099	-
4105	Cobble repair to 4099	-
4106	Brick repair to 4099	-
4108	Brick repair to 4099	-
4109	Cobble repair	-
4110	Repair to 4099	-
4111	Wear to 4098	-
4114	Wear on E side of mill	-
4115	Part of mill border on edge of 4110	-
4182	Floor of pugmill	
4183	Floor of pugmill on inner ring	
4184	Posthole in mechanism of mill	
4186	Brick edging of outer ring	
4187	Brick edging of inner ring	
4197	Sand bedding for outer ring and inner brick surface	
4198	Fill of foundation of mule track 4199	
4199	Circular foundation cut for drainage beneath mule track	
4200	Trampled or redeposited clay overlying 4201	
4201	Natural deposit of clay overlain by 4200	
4202	Lower natural overlain by 4201	

6 WC2–T1: BRICKWORKS COTTAGE

By Toby Martin

6.1 Introduction

6.1.1 Excavations just 10m to the south-east of Pugmill 2 revealed the partially demolished remains of a cottage and an associated yard (Fig. 58), which was presumably the residence of the owners of Castle Hill Brickworks. The features uncovered included the south-east structural remains of the building itself, including a part of the interior probably used as a scullery or kitchen, and to its north-east the remains of a chimney breast (Fig. 99). The greater part of the excavated area, however, comprised a garden that probably lay to the rear of the cottage including a large area of concrete, two garden paths and the remains of other surfaces.

6.2 Historical maps

6.2.1 The cottage was depicted on various maps from the 19th and 20th centuries. The earliest of these, which is a tithe map from 1830 shows a rectangular building aligned NE-SW divided into three main rooms. To the north-east what appears to be a pathway, or a boundary extended up to the A21 road. On the south-east corner of the building there was a small L-shaped annex, perhaps indicating the presence of a lavatory or other outbuilding. To the north-west is the main brickworks complex of sheds and kilns, and to the south-east is a large rectangular enclosure and a rectangular pond. By the time the 1st edition Ordnance Survey map was drawn up in 1871, the small L-shaped annex appears to have been replaced by a larger square room, while at the north-east end of the building two small projections are visible on the south-east and north-west walls, the former of which excavation revealed to be a chimney breast. The garden is clearly depicted as a rectangular enclosure containing trees. The 2nd edition OS map from 1898 shows the addition of another small outbuilding to the south-east with three very small divisions at its south-east end. Additionally, this map shows the removal of the boundaries that had previously defined the garden. A second pond had also been built on the south-east of the rectangular one first shown in 1830. The only change from the 3rd edition OS map of 1910 is the joining together of these two ponds. The 4th edition OS map from 1938 shows much the same, with the addition of a fourth tiny division on the south-east annex.

6.3 Structural remains of the cottage and garden

6.3.1 The excavated area captured just the north-east extent of the original building, with the two successive annexes on its south-west end being outside the limits of investigation. Underlying the entirety of the complex was a layer of yellow clay. It was not established with any certainty whether this was natural or redeposited, but exploration in the long NE-SW extension of the trench (Slot 4121) revealed a more sterile layer of clay beneath it. In this area, above the probably the redeposited clay (4120) there was a thin mantle of buried topsoil (4119), sealed by another substantial layer of redeposited clay (4118), finally sealed by the present-day topsoil. In all likelihood, therefore, the area of the cottage had witnessed the same stripping of the topsoil and subsoil that was seen in the sheds complex, and the laying down of a levelling deposit of clay (4120) previous to the building work. The second deposit of redeposited clay (4118) followed the demolition of the cottage (see below). Whether the

initial levelling deposit (4120) occurred at the same time in both areas, however, is impossible to establish as no sections were dug between the area of the cottage and the sheds complex.

6.3.2 Among the earliest features built onto this redeposited clay was a brick pathway (2872) aligned NW-SE running between the north-east corner of the cottage and the ponds area to the west. The bricks were arranged in at least 7 rows of headers aligned with the orientation of the path with only some small areas of variation and no evidence of a bonding agent (Plate 341). Another brick surface (2883) seems to have been built in the garden at this early stage, the remains of which lay in the south-west corner of the excavated area, edged by a neat line of bricks laid on end (2884; Plate 342). Though badly disturbed this surface consisted of a small number of bricks, laid in a row with no apparent bonding agent. Butting up to both the pathway (4172) and probably therefore also following the building of brick surface 2883 were two discrete dumps of broken up brick and tile: 2873 in the north-east corner (Plate 343) and 2885 in the south-west. These deposits indicate that the garden was not entirely levelled by the redeposited clay (4120), but still required some levelling.

6.3.3 Probably contemporary with these early garden features were the original components of the cottage itself (group number 2965), comprising a chimney breast (2875), the external south-east wall of the building (2876 and 2878) and an internal supporting wall or buttress (2880). The various segments of the original wall (Plate 344) were made from unfrosted red bricks, laid in an English with a pale greyish yellow lime mortar, containing sand, except the internal buttress (2880) which was constructed from bricks with a shallow but wide frog. The chimney (2875) projected 0.94m from the wall and had an external width of 2.66m (Plate 345). A slate hearth was *in situ* within the chimney as well as various other structural remains of the fire surrounds. Subsequent additions to these structural features included an internal brick floor (2879) of unfrosted bricks with no visible bonding but a sandy grouting that had been swept into the spaces between the bricks. Crucially, embedded into this floor were elements of what appeared to be the base of a Belfast sink, suggesting that this internal space was utilised as a kitchen or scullery. Subsequently added to this space was a roof support or internal wall (2877), running perpendicular to the main NE-SW wall of the cottage but not tied into it. The only other visible subsequent addition to the cottage structure was a section or repaired or replaced wall (4116) which lined up with the main NE-SW wall but was also not tied into it but butted 2878.

6.3.4 Further changes were also made to the garden area. Overlying the dump of broken bricks and tiles (2885) was a new brick pathway, built of thin bricks laid on end, in a manner reminiscent of the outer circles of the pugmills, was a curved pathway (2882; Plate 342). Only a short segment of this survived, and it appeared to terminate in a line of brick headers, perhaps representing a step up or down on the path. Probably later than these features, as it appears to truncate the neat edging of surface 2883 was a large pathway of concrete (2874) that ran along the external edge of the NE-SW cottage wall and butted up to it (Plate 346). A manhole (2881) was also installed probably at the same time as this concrete surface as it lay directly at its south-west terminal, between the curved brick pathway (2882) and the cottage wall (2878).

6.3.5 The demolition and subsequent use of the area of the cottage and its garden are indicated by a number of layers already outlined above that were observed during the digging of Slot 4121 to the north-east. Lying on top of the cluster of brick surfaces in the south-west corner of the garden was a thin mantle (0.3m) of buried topsoil (4119), and above this there

was a substantial spread of redeposited clay (4118), about 0.75m thick in some places. Overlying lying this were various layers of demolition rubble (2963.1–4), some of which was also found beneath the layer of redeposited clay, most likely representing the demolished fabric of the cottage itself. The demolition therefore took place either side of an effort to level this ground. This demolition layer also covered the extant remains of the cottage itself. Directly lying on top of this debris was the present-day topsoil (4117).

6.4 WC2–T1 Brickworks Cottage context inventory

Summary of relevant contexts	
Contexts	Description
2872	Brick path running NW-SE from cottage towards ponds, abutted by 2974 and 2873
2873	Small spread of broken brick debris next to path, probable levelling layer, butts 2872 and overlies 4120
2874	Large spread of concrete outside cottage, butts 2875
2875	Step leading down into possible cellar or chimney base, abutted by 2974 and same as 2876
2876	E-W wall, same as 2875, abutted by 2877
2877	Roof support, buttress or wall repair butting 2876 and butting or overlying 2879
2878	Wall with drain running alongside or underneath it, abutted by 2879 and 4116, possibly same as 2880
2879	Internal brick flooring with footings for large feature, fragments of Belfast sink indicate presence of scullery or lavatory
2880	Brick wall or buttress for a brick wall, tied in to 2878, and abutted by 2879
2881	Manhole for drain overlain by 2963.2, part of concrete path 2974 and cuts 2882 and 2883
2882	Brick pathway, probably a garden pathway, speculatively identified as a pugmill. Overlain by 2963.2 and overlies 2885
2883	Brick surface of yard to rear of cottage. Cut by 2874 and probably overlies redeposited clay
2884	CBM edging of garden border respecting path 2882, with surface 2883 set within it. Cut by concrete path 2874 and drain 2874 and sealed by backfilled clay 2963.4. Abutted by buried topsoil 4119 and butts 2883 and 2882
2885	Deposit of broken-up cbm, same as 2873, sealed by buried topsoil, which was sealed by redeposited silty clay 4120 covering whole site. Circular shape may be base or bedding for 2882 pathway
2963.1–4	Various successive layers of rubble overlying cottage
2965	Group number for cottage structure and associated features largely confined to the cottage garden. Probably the 'service area' of the cottage due to presence of scullery or kitchen
4116	Wall on same alignment as 2878, abutted by 2874, possibly part of 2878, overlies 4120 and butts 2878
4117	Topsoil
4118	Redeposited clay
4119	Buried topsoil
4120	Yellow clay beneath cottage features of redeposited natural, or possibly natural
4121	Group number for slot dug by machine 6m E of cottage

7 WC2: CLAY PITS

7.1 Introduction

7.1.1 OA monitored the removal of contaminated soils from clay pits found north-west of the former brickworks in WC2. This section describes the archaeological features that were exposed between and beneath them within the impact depth of construction for the scheme. No significant archaeology was known on this site prior to the commencement of the scheme. Several field boundaries were identified in a walkover survey and geophysical survey over much of the area had identified possible discrete features (OA 2009). The geophysical survey highlighted the need for strip, map and sample excavation (hereafter SMS). The location of the area is shown in Figure 100 and is centred at NGR TQ 60350 44420.

7.1.2 A walkover survey was carried out by OA during the early part of the archaeological mitigation programme in November and December 2014. This involved a review of the historic map evidence, which identified the site of the former Castle Hill brickworks at the south-east end of WC2 (OA 2015b). That part of WC2 north-west of the brickworks kilns is shown on historic maps as largely open land, but did also include one or two buildings adjacent to historic boundaries that were probably associated with the brickworks.

7.1.3 Stripping of the Non-Motorised User route (NMU) along the south-west side of WC2 in January 2015 showed that some of the structures of the brickworks survived in part below ground and revealed a complex of infilled clay pits north-west of this (OA 2015c). Within the area of clay pits structural evidence was also preserved at one point, showing the potential for further survival of evidence in the main part of WC2 (OA 2015d, section 4.2.7).

7.1.4 The Further Archaeological Mitigation Design for the former Castle Hill brickworks at WC2, which described and interpreted the historic map evidence for the brickworks, included the area of the clay pits, and so this area was also included in the mitigation set out for the brickworks as a whole (*ibid.*, sections 4.1.3 and 6.2.7).

7.1.5 The infill of the clay pits found in the haul route was of 20th century date, and it rapidly became clear that this included contaminants, including asbestos. Work was therefore halted until testing could be carried out and a strategy for safe removal of the contaminated soils agreed. Testing took place in March, June and November 2015, and some of the test pits were monitored archaeologically.

7.1.6 Stripping of the main part of WC2 north-west of the revealed limits of the clay pits was carried out in June and July 2015, and continued southwards until the limits of the contaminated soils were reached. This area, which identified a scatter of archaeological features, most of those that contained finds of post-medieval date, was archaeologically mitigated (OA 2015e) and released for construction in September 2015.

7.2 Scope of the work

7.2.1 At the north-west end of the area (immediately south-east of WC2 north already reported upon (OA 2015e), the depth of contaminated soils was slight, and here it was possible to expose and record archaeological features cut into the natural that were only slightly truncated. Beyond this, the presence of former clay quarries filled with contaminated soils (ie of the recent organic fills) was established firstly by the excavation of the haul route along the south-west side of WC2 (OA 2015c). In these areas, quarrying had already removed

almost all trace of any earlier archaeological remains, but there remained the possibility of finding features associated with the extraction of the clay.

7.2.2 The presence of these quarries, and their later infilling with humic soils mixed with contaminants, has necessitated the removal of the fills of these 'soft spots' prior to construction of the road. The quarries emptied during preparation of the haul road provided sections across some of them, and this was followed by the excavation of a series of test pits dug along the entire area north-west of the brickworks kilns to establish the depth and severity of contamination (see Fig. 100).

7.2.3 OA monitored the excavation of the two southernmost test-pits (those closest to the kilns) and carried out intermittent monitoring of the remainder. The test-pit logs have been reviewed to assist in establishing the depth and extent of quarrying, and whether the earlier fills might indicate different phases of extraction.

7.2.4 Because some archaeological features were found at depth in test-pits close to the brick kilns, and because it was clear that the depth of quarrying varied, OA also monitored the removal of the contaminated soils to record any surviving pre-quarrying features or features associated with the extraction process.

7.2.5 Testing of the recovered soil samples was the basis for determining the severity of contamination in different parts of the area, and thus the sites to which the material would need to be transported for safe disposal. The removal of the contaminated materials was dictated by the different destinations required for disposal of materials, and the availability of lorries from each, so was not able to be carried out in one rapid operation.

7.2.6 Archaeological monitoring of the removal of contaminated soils was possible over most of the area, but in limited areas where friable asbestos had been identified, archaeological access to monitor removal was not allowed on health and safety grounds.

7.2.7 Not all of the clay pit fills were however removed. Where testing indicated that the fills were firm, the depth of excavation was largely restricted to the level of impact for construction. Some of the clay quarries were therefore not fully excavated, and the fills that were left *in situ* have generally been some of the earlier ones, as the soft contaminated fills have proven to be uniformly of later 20th-century date.

7.2.8 In one or two places, archaeological features observed during test-pitting or at the base of the soft soils necessitated further investigation to ensure that there were not localised 'soft spots' at greater depth, for instance buried tanks for collecting rainwater. These investigations were carried out under archaeological supervision, and were recorded as far as Health and Safety considerations allowed.

7.2.9 Finally, as a result of the method of removal of the contaminated materials, the soils below this were often exposed for some time, and as these were often clayey, rainwater collected in pools, and the resulting water-softened surface had to be restripped to firm ground before construction could begin. OA therefore monitored this additional cleaning up and recorded any features exposed by it.

7.3 Results

General soil and ground conditions

7.3.1 Topsoil was a friable dark greyish brown slightly clayey silt, and as in the adjacent haul route averaged 0.2m deep. The removal of topsoil was monitored only in part as it was clear that over most of the area it overlay extensive contamination, and the remediation of the contaminated ground had already started when the formal archaeological Watching Brief commenced.

General distribution of archaeological deposits

7.3.2 A scatter of features and deposits of various dates was found across the area. Features possibly earlier than the brickworks were only located at the north-west end beyond the limits of the clay pits; those found over the rest of the area were of post-medieval date, and either associated with the brickworks or later than it.

Quarry pits

7.3.3 Except at the very north-west end, the area was extensively covered by large pits. The latest upper fills of these pits comprised late 19th and earlier 20th-century landfill. As described in the report on the adjacent haul route (OA 2015c), these fills were a mixture of domestic rubbish, building material and black decayed humic material with ash, and contained modern finds (*ibid.*, plates 1–4). These fills were soft, and so were removed by machine from WC2 to reach firm ground for construction.

7.3.4 The organic fills overlay deposits of comminuted fired clay and brick fragments and further ash, very similar to the fills found between the kiln and outer walls around Kiln 1 that probably derived from earlier use of Kiln 3 (see also 7.3.16 below).

7.3.5 These pits are interpreted as clay extraction quarries for the brickworks to the south-east, and the lower fills of comminuted fired clay, brick fragments and ash as materials raked out from the brick kilns during the life of the brickworks and used to partially infill exhausted clay pits. The organic fills, in contrast, constitute landfill after the disuse of the brickworks.

7.3.6 Due to the manner in which the contaminated soils were removed, and the fact that in some areas firm fills were left *in situ*, it was not possible to obtain a clear plan of all of the clay pits, or their relationships to one another. Some limits were planned, and small areas that had not been quarried away were also evident from the survival of archaeological features (see Fig. 100).

Hard standing and ceramic drains to the south

7.3.7 In the southern corner of the area an area of broken sandstones was found beneath the contaminated soils, adjacent to the area at the edge of the haul route in which a brick surface had been found (OA 2015d). No continuation of the brick surface was found within WC2 at the level of impact, and due to the preservation of a baulk between the haul route and WC2, no relationship between the sandstone layer and the brick floor was established.

7.3.8 The layer of crushed sandstone was 0.30m thick, and was numbered 2366. The full extent of this deposit was unclear due to the baulk, but an area measuring 5.58m east-west by 6.74m north-south was recorded.

7.3.9 Beneath the broken sandstone layer a vertical ceramic drain pipe was identified, set within a large pit 2388 (Plate 347). It was feared by the construction team that the pipe might lead into a buried tank that would constitute a potential threat to the long-term stability of the road, so a trench was excavated by machine under archaeological supervision to

investigate the pipe. This resulted in a stepped trench 9.20m long north-east to south-west, 8.20m wide and 2.0m deep (see Fig. 101).

7.3.10 The earliest deposits encountered in the trench, 2386 and 2387, were rich in organic material. The earlier of these 2387 consisted of a plastic light greenish-blue slightly silty clay with moderate organic flecks and fragments. This deposit, which covered the entire base of the trench, was exposed over an area 2.77m north-west to south-east by 2.24m wide. Overlapping this was deposit 2386, which consisted of a soft to plastic light greyish-green slightly silty clay with moderate organic flecks. Neither deposit was bottomed.

7.3.11 Both these layers were cut by linear feature 2389, which ran from north-west to south-east, and was traced for 2.70m. It was 0.69m wide, but was not bottomed. This cut contained a large collared ceramic drainpipe 0.22m in diameter. The pipe continued beyond the trench in both directions, but was not traced any further.

7.3.12 The top of cut 2389 was truncated by a large circular pit 2388, 4.77m in diameter and 2.00m deep, which contained a vertical collared ceramic drain pipe 0.12m in diameter that connected to the horizontal drain pipe below (Fig. 101). A sequence of clay deposits: 2383, then 2382 and last 2368, had been placed to backfill the pit around the pipe.

7.3.13 Due to the depth of the excavation, which lay below the impact depth for the road, the trench was only wide enough to expose most of pit 2388, and so the layers cut by the pit and exposed in its sides were not directly related stratigraphically to layers 2386 and 2387 exposed in its base. Above the level of 2386 in the southern pit edge was a thick deposit of soft, light yellowish-brown silty clay 2385, at least 1m deep. This is equivalent to 2374 recorded in the upper stepped section, where it was yellowish-grey rather than yellowish-brown.

7.3.14 Layer 2385 was abutted by layer 2384, a mottled greyish-green and orange silty clay, which did overlie 2386, but it is unclear whether this was another dump cut by pit 2388, or a slump of material in its base. The northern edge of pit 2388 was not fully exposed, and the lowest layer exposed here was at the same level as 2374 on the south. This layer, which was numbered 2379, was a light yellowish-grey silty clay, and this was probably a continuation of layer 2374=2385 on the south.

7.3.15 Above 2374 and 2379 was a series of reddish deposits containing fired clay, charcoal and other burnt materials. To the north, these deposits (2378, 2377, 2376 and 2375) were collectively 0.8m thick, but tailed off to the south, where corresponding layers 2373, 2372 and 2371 were only 0.2m thick.

7.3.16 The lowest deposit (2373=2378) was a light brownish-red silty clay with charcoal and burnt pebbles. This was overlain by 2372=2377, a light grey clay with small pebbles, and on the north, this was in turn overlain by 2376, identical in composition to 2373. The last of these layers, 2371=2375, was a friable, reddish-brown burnt clay with much burnt and fire-cracked stone, similar to deposits observed surrounding the brick kilns.

7.3.17 On the south side these burnt deposits were overlain by 2370 and then 2369, successive layers of yellowish-brown and light yellowish-brown clay with rounded gravel inclusions. Layer 2370 was 0.18m thick, 2369 was 0.44m thick. No finds were recovered from any of these deposits, though the ceramic pipes were photographed and recorded in detail.

7.3.18 The ceramic pipes are believed to be associated with the drainage of the brickworks kilns to the south, although no direct link between these pipes and those in the forecourt of the kilns was established.

7.3.19 Another feature containing a pipe or possibly a wall was found at a similar depth in the base of Test Pit 289 to the horizontal pipe in cut 2389, but was running at right angles to it.

Sandstone surface or road adjacent to the A21

7.3.20 A second area of crushed and broken sandstone, numbered 2359, was located some 50m to the north-east alongside the A21 carriageway. It ran parallel to the existing A21, and was 4.75m wide and at least 10.40m in length.

7.3.21 A section was cut by machine at its north-west end to establish its depth, character and stratigraphic position relative to the clay pits (Plate 348). The sequence revealed in the section was as follows.

7.3.22 The earliest deposit 2365 encountered consisted of a firm light brownish-yellow sandy clay with fragments of decayed sandstone. This deposit was over 0.54m thick and probably represents a primary fill of a clay extraction pit, the full extent and depth of which were not established. Its top was fairly level, perhaps suggesting that it had been allowed to settle before further infilling took place.

7.3.23 This was overlain by 2364, a dump of greyish-yellow clay some 0.12m thick and 1.08m wide. Above this, and directly overlying layer 2365 beyond its limits, was 2363, a mixed deposit of mid-dark brownish grey silty clay and small stones up to 0.34m thick, but shallowing slightly to the west.

7.3.24 This layer was followed by a series of dumped deposits deposited from the west side. The earliest were 2362 overlain by 2361, which was respectively a firm light brown sandy clay and a soft dark grey clay.

7.3.25 Overlying 2361 and 2363 east of this was a light green clay deposit 2360, with yellow and grey mottles. This was 0.3m thick, and was overlain by the sandstone layer 2359, which also sat directly upon layer 2363 east of 2360.

7.3.26 The sandstone rubble layer 2359 consisted of compacted irregular sandstones up to 0.2m across, and was 0.32m thick. The surface of the layer was not however particularly flat, nor was there any evidence of use in the form of wheel-ruts or cart-tracks.

7.3.27 On the east side 2359 was itself overlain by a mixed clay and sandstone layer 2358, which was mottled light greyish-brown and yellow in colour, and was 0.28m thick. Beyond the limits of layer 2359 this layer sat directly upon 2363, and continued eastwards beyond the edge of the cut.

7.3.28 No finds were recovered from any of these deposits.

Cut features in the natural at the north-west end

7.3.29 Towards the north-western edge of the site and close to the area characterised in the WC2 North report (OA 2015e), two cut features were identified and investigated.

7.3.30 The more northerly, which was numbered 2326, had a reddened base, indicating burning *in situ*. This feature was circular, measuring 1.45m east-west by 1.42m north-south,

and was 0.23m deep. The edges were vertical to steep and slightly concave, with a sharp transition to a flat base (Plate 349).

7.3.31 This feature was filled by a firm mottled yellow and pinkish-red sandy silty clay 2325, with occasional patches of charcoal, mainly around the edges of the feature. No finds were recovered from this deposit.

7.3.32 The more southerly feature was ditch 2328, which was orientated south-west to north-east and was traced for 17.72m between the western edge of site and the edge of a clay extraction pit on the east. The ditch may have been dug away by the pit, or may originally have drained into it. A 1m hand-dug intervention across this feature showed that it was 1.16m wide and 0.31m deep, with sloping concave sides and a dished base cut into the natural clay (Plate 350). This feature was filled by 2327, a soft, light yellowish-brown silty clay with occasional charcoal flecks and fragments of mudstone (Ashdown Beds) and very occasional flecks of burnt clay. No finds were recovered from this deposit.

Ceramic drain 2391 containing wooden structures

7.3.33 East and south-east of these features, and respecting the most north-westerly of the clay extraction pits, was a broadly right-angled linear feature 2391 orientated north-west and SSW-NNE (Fig. 100). The north-westerly arm was straight, and was 24.5m long and 0.5m wide. In contrast, the SSW length changed direction frequently, so that it enclosed two sub-rectangular areas on the ESE side measuring 3.65m by 1.71 and 3.6m by 2.19m respectively (see Fig. 101). The more westerly of these areas contained three postholes (Plate 351). Two hand-dug interventions were excavated across feature 2391.

7.3.34 The first of these (2337) revealed a vertical-sided cut 0.62m wide and at least 0.48m deep. This cut contained a ceramic land drain that was overlain by a wooden structure (Plate 352). The cut was filled by a soft greyish-brown clayey silt with frequent organic inclusions numbered 2335.

7.3.35 The ceramic drain was 0.10m in diameter and was overlain by timber structure 2336 which measured 1m by 0.24m wide. It was formed of two horizontal roundwood 'sails' 0.06m in diameter running parallel to the drainpipe, one either side, with thinner and shorter rods laid over the drainpipe and both 'sails' at right angles. The rods were up to 0.03m in diameter and 0.44m long.

7.3.36 There was no clear evidence of interweaving, though towards the west end the rods were dipping at the north side of the northern 'sail', and were wider and flatter at the north ends, possibly due to their originally having been bent over around the sail. It is therefore possible that the rods were first laid across the trench below the ceramic pipe, the 'sails' and pipe laid, and then the rods bent over on top to cover them. The westernmost rods were however overlain by the northern sail. In the absence of clear evidence of interweaving, the wooden structure may have been tied together with an organic material that has since rotted away, or alternatively may simply have consisted of layers of separate lengths of wood.

7.3.37 The second intervention measured 2.2m by 2.0m, and was excavated along one of the dog-legs, where the trench turned south-eastwards before continuing west-east (Plate 353). Here the cut 2334 was vertical-sided, at least 0.40m deep and varied in width, being 0.78m to 0.82m wide along the southern west-east length, 0.6–0.7m along the south-east kink, and only 0.4m wide on the north, where it formed a continuation of cut 2338 farther west (Fig.

100; see also Plate 354). The west end of the southern arm had a very squared end that finished beyond the dog-leg junction, perhaps suggesting that the two, parallel east-west cuts were dug first, and the dog-leg then cut across to join them afterwards.

7.3.38 Again, the cut contained a ceramic land drain pipe 0.10m in diameter in the centre. Here the drain pipe was angled downwards towards the south-east. The pipe was clearly visible curving around the dog-leg and in places running east along the southern part of the drain cut, but was not present on the north, presumably having been removed by later disturbance here. Along the north edge of the cut just before it turned south-eastwards a line of vertical wooden stakes 2330 was found, and directly associated with the ceramic drainpipe were further timber structures, numbered 2333, 2332 and 2331.

7.3.39 Structure 2333 lay within the southern length of drain, and comprised a series of roundwood rods laid north-south across the drain, and across the top of the drainpipe. These rods were up to 0.03m in diameter and up to 0.80m in length. Below them at the east end of the cut was a fine lattice work of thin brushwood up to 15mm in diameter running perpendicularly (east-west) along the length of the drain (Plate 355). At the west end, there were three larger rods running west-east below the north-south series (Plate 356), but these may have been part of structure 6332 in the dog-leg rather than more of the brushwood.

7.3.40 Structure 2332 consisted of a series of parallel roundwood rods 0.03m in diameter and 0.7m in length, running east-west across the width of the dog-leg and overlying the ceramic drainpipe (Plate 357). Unlike 2333 no evidence was observed for latticework backing to these rods. At the southern end three rods of the same diameter below structure 2333 may have been part of 2332, perhaps suggesting that structure 2332 was laid first.

7.3.41 At the north end of structure 2332 it was overlain by structure 2331. Structure 2331 comprised two roundwood 'sails' or runners 0.04m in diameter and 0.72m in length laid along the line of the drain some 0.28m apart, with six thinner rods laid parallel between them (Plate 358). Overlying all these, and perpendicular (ie across the width of the drain), were 16 roundwood rods up to 0.04m in diameter and 0.38m in length. This structure appears to have underlain the drainpipe, which sat at a higher level in the dog-leg adjacent.

7.3.42 To the north of 2331 structure 2330 consisted of a line of 11 vertical roundwood rods running along the northern edge of cut 2334, whose diameter varied from 0.03m to 0.06m (Plate 359). One of these was found at the very north-west end of the cut, suggesting that this had continued farther to the west. These were separate from the system of sails and rods found adjacent, structure 2331. A few of these protruded slightly above the level of the adjacent structure 2331; most had splintered ends, and had been caught by the machine during removal of the contaminated soils overlying the drain here.

7.3.43 It was suggested by the excavator that these vertical rods and those of 2331 adjacent might belong together, 2331 representing a fallen wooden fence. Alternatively, they may represent the ends of an upper layer of wood that formerly overlay the ceramic pipe.

7.3.44 Within the area enclosed by the first dog leg of the drain structure toward the west of the area near intervention 2337, a group of three potential postholes was identified and excavated (Plate 360). These were numbered 2340, 2342 and 2344. Postholes 2342 and 2344 were central to the enclosed area, and were aligned parallel to the sides of the enclosed area

(Plate 361). Posthole 2340 was offset in the south corner. Each had single fills, none of which contained any finds.

7.3.45 Posthole 2340 consisted of a slightly ovoid cut with vertical and sloping slightly concave sides on the south northern edges respectively with flat bottom (Plate 362). This feature measured 0.40m by 0.45m and was 0.30m deep. This feature was filled with a plastic mottled light grey and yellowish red silty clay.

7.3.46 Posthole 2342 consisted of a circular vertically sided cut with flat bottom 0.60m in diameter and 0.30m deep (see Plate 361). This was filled with a soft greyish-brown silty clay with occasional charcoal flecking (2341).

7.3.47 Posthole 2344 comprised a circular vertical sided flat bottomed cut 0.64m in diameter and 0.30m deep (Plate 363). This was filled a plastic grey silty clay.

7.3.48 Soilmarks farther to the north-west were at first thought to represent further postholes, but upon testing they proved to be shallow soil patches. The purpose of the structure supported by these postholes is unclear, but was presumably contemporary with, and perhaps related to, that of the drainage channel adjacent.

7.3.49 The north-west arm of the drain was traced as an unexcavated soilmark (Plates 364 and 365), its fill changing, reflecting the variety of soils through which it was cut. It appears to have dived below the stripped level just short of the base of another clay pit, and may originally have drained into this.

7.4 Finds summary

7.4.1 No finds other than the ceramic drains were observed, and these were recorded and left *in situ*.

7.4.2 No deposits suitable for environmental sampling were found. The wooden structures were recorded in detail, but were not sampled.

7.5 Discussion

Reliability of field investigation

7.5.1 Due to the need for removal of soils with differing levels of contamination at different times, observations took place over an extended period with breaks, and due to the different levels to which excavation was carried out, the investigated areas tended to be isolated from one another, making it impossible to obtain an overall stratigraphic sequence.

7.5.2 Despite this, some additional detail has been added to the operation of the brickworks and ancillary activities carried out in relation to it.

Review of evaluation objectives and results

7.5.3 The overall character and date of the archaeological features found across this area was established, even though finds were few.

Interpretation

7.5.4 A 'firepit' was located at the north-west end cut into the natural, and although there were no accompanying finds, this may be of the same date as others radiocarbon-dated to the late prehistoric period.

7.5.5 Ditch 2328 adjacent does not appear to be a continuation of ditch 705 found farther south-west, but is on the same alignment, and although undated is probably another phase of post-medieval field boundary at right angles to the A21.

7.5.6 The vertical and horizontal drainage pipes found at the southern corner of the area are of post-medieval date, and stratigraphically clearly relate to the use of the brickworks.

7.5.7 The trench dug to chase the vertical pipe went below the level of impact for the road, and so the extent of this trench was deliberately limited. The length of horizontal drainage trench exposed did not extend beyond pit 2388, and so its relationship to the brickworks backfill layers cut by the pit was not established. It is therefore possible that the horizontal trench was also inserted when the vertical pit was dug, ie after the backfilling of this clay quarry. The fact that the horizontal trench continues south-westwards beyond the vertical pipe however strongly suggests otherwise, and the absence of any linear cut visible at the level of pit 2388 also supports the view that the horizontal drain cut was earlier.

7.5.8 The evidence is therefore currently interpreted as representing two phases of drainage, the horizontal drainage pipe relating to the system established contemporary with either Kiln 3 or Kiln 1, when the clay pit into which 2389 was dug was still largely open.

7.5.9 A system of ceramic pipes was identified draining the stokehole areas immediately north-west of the kilns, and pipe trench 2389 appears to have been related to this. The somewhat organic deposits into which the drainage trench was dug indicate a similar level to the base of the stokeholes, north-west of which there was organic preservation of brushwood stored as fuel.

7.5.10 The clay pit containing 2389 was subsequently backfilled with brickworks waste, and at a later date, a vertical pit was dug to link a vertical pipe into the still existing drain. The vertical pipe was situated close to the brick floor found in the WC2 haul road, and this was overlain by a succession of occupation deposits, so this appears to have been an activity area related to the later use of the brickworks. The pipe was sealed by a sandstone spread, which may therefore post-date the brickworks. No stratigraphic relationship between the sandstone spread and the occupation deposits was established, but the lack of finds associated with the sandstone spread suggests that they were not contemporary.

7.5.11 A similarly late date is suggested for the stone 'road' found overlying clay pit fill alongside the A21 to the north. The linear character of this stone may indicate that it was used as a roadway for vehicles coming off the A21 into the stokehole area of the brickworks, though the spread has not been traced as far south-west as this. It is possible that both areas of stone were related, perhaps belonging to a later track that led from the A21 around the disused kilns to the cottage and drying sheds that continued in use up until the Second World War.

7.5.12 The drain at the north-west is unusual both for its rapidly changing line and its method of construction. The fact that the timber both overlies and underlies the ceramic pipe indicates that this is not the replacement of a form of brushwood drain with a ceramic one. Various types of drain, including those covered with transverse timbers are described in the Edinburgh encyclopaedia (Brewster 1832, 688–9), but the combination of a ceramic pipe and a framework of narrow rods seems to be a local variant. The pipes that were observed *in situ* were not closely joined, indicating that water would have escaped into the drain trench, and suggesting that both the pipes and rods had a role in assisting drainage.

7.5.13 The course of the drain strongly suggests either that it was dug respecting two small foci of already existing activity, or (more likely) was constructed with these activities in mind, and was intended to assist in their functions. What these functions were is still unclear, but documentary research into clay extraction may shed further light on this.

Significance

7.5.14 The work carried out in this area had several purposes: to chart any areas not affected by clay extraction, and record any earlier features that might have survived within them. This was successful where the impact of the widening of the A21 reached the natural.

7.5.15 The discovery of a ‘firepit’ adds to the distribution of these features, two of which have been radiocarbon-dated to the later Iron Age, contemporary with the scheduled hillfort at Castle Hill. This class of features has therefore tentatively been interpreted as evidence of the character of activity in the later prehistoric landscape around Castle Hill. If further radiocarbon dating supports this hypothesis, then study of the charcoal may illuminate the nature of exploitation of the area surrounding the hillfort. Individually, however, the features are of limited significance.

7.5.16 Brickworks structures were known from historic maps to have existed within this area, and it was hoped to understand the character and function of these structures during the archaeological mitigation as part of the wider workings of the Castle Hill brickworks, whose preservation is unusually good, and is of regional significance. Unfortunately, clay extraction appears to have removed all trace of these structures.

7.5.17 Unanticipated additional features connected to the use of the brickworks were discovered, adding to our understanding of the working of the brickworks outside the area of the core buildings.

7.6 WC2 Clay pits context inventory

WC2 Clay Pit area					
Context	Feature	Width (m)	Length (m)	Depth (m)	Description
2325	Fill of 2326	1.45m E-W	1.42m N-S	0.23m	Firm mottled yellowish brown/ pinkish red sandy silty clay with occ. Charcoal and burnt clay inclusions
2326	Burnt pit	1.45m E-W	1.42m N-S	0.23m	Circular steep-sided and flat- bottomed pit with <i>in situ</i> scorching
2327	Fill of 2328	1.16m wide	1m excavated	0.31m	Soft light yellowish brown silty clay with occ charcoal flecks and v. occ. Burnt clay and mudstone
2328	Linear	1.16m wide	1m excavated	0.31m	North-east to south-west ditch with concave and convex sloping sides and dished base.
2329	Void				
2330	Timber stakes		0.95m E-W		11 upright stakes on northern edge of cut 2334
2331	Timber lattice work	0.44m N-S	0.94m E-W		timber lattice work panel – collapsed?
2332	Timber Lattice work	0.60m E-W	1.05m N-S		Area of timber lattice work overlying ceramic Drain pipe

2333	Timber Lattice work	0.90m E-W	1.44m N-S		Area of timber lattice work overlying ceramic Drain pipe
2334	Linear Drain cut	Up to 1.8m E-W	2.00m N-S excavated	0.40m + deep	Cut for timber and ceramic drain
2335	Fill of 2337	0.70m	1m excavated	0.50m	Soft greyish-brown clayey silt with frequent organic flecks
2336	Timber Lattice work	0.60m	1m excavated		Area of timber lattice work overlying ceramic Drain pipe
2337	Linear Drain cut	0.70m	1m excavated		Vertical-sided drain cut
2338	Void				
2339	Fill of 2340	0.40m E-W	0.45m N-S	0.30m	Plastic mottled light blue and yellowish-red silty clay with occ. Mudstone frags
2340	posthole	0.40m E-W	0.45m N-S	0.30m	Ovoid vertical-sided flat bottomed cut
2341	Fill of 2342	0.58m	0.60m	0.30m	Soft greyish-brown silty clay with occ. charcoal flecks
2342	posthole	0.58m	0.60m	0.30m	Circular vertical-sided and flat- bottomed cut
2343	Fill of 2344			0.28m	Plastic grey silty clay
2344	posthole	0.64m	0.72m	0.28m	Circular vertical-sided and flat- bottomed cut
2349	void				
2350	void				
2351	void				
2352	void				
2353	void				
2354	void				
2355	void				
2356	void				
2357	void				
2358	Layer	2.20m	-	0.20m	Levelling deposit Mottled light grey-brown/greyish-yellow clay with moderate crushed sandstone frags < 0.05m
2359	Layer	3.40m E-W		0.32m	Levelling deposit, Compact pale yellow sandy clay matrix for large irregular sandstone blocks >0.20m
2360	Layer	0.68m		0.30m	Friable light yellow and greenish-grey clay with pebble inclusions
2361	Layer	1.60m		0.20m	Friable dark grey clay levelling deposit
2362	Layer	1.60m		0.30m	Friable light brownish-yellow sandy clay with occ. pebbles
2363	Layer	4.40m		0.34m	Friable mid to dark grey clay moderate sandstone gravel
2364	Layer	1.08m		0.12m	Friable greyish-brown clay, some sandstone fragments
2365	Layer	4.40m		0.54m	Friable light brownish-yellow clay mod sandstone fragments
2366	Layer	1.62m		0.30m	Friable light yellowish-white sandy clay with moderate sandstone frags

2367	Layer	0.78m		0.40m	Friable mottled light/mid greyish brown/yellow sandy clay. occ manganese flecks
2368	Fill of 2381	3.10m		0.80m	Firm light yellow grey clay. occ sandstone gravel
2369	Layer	1.20m		0.44m	Friable light yellowish-brown clay
2370	Layer	1.90m		0.18m	Friable mottled reddish-yellow, and brownish-grey clay occ. Pebbles
2371	Layer	0.90m		0.06m	Reddish-brown clay, moderate broken burnt sandstone
2372	Layer	0.90m		0.10m	Light grey clay with brown streaks, mod sandstone flecks
2373	Layer	1.20m		0.10m	Friable light brownish-red silty clay occ. Stone frags
2374	Layer	1.24m		0.08m	Friable light yellowish-green and grey clay occ. pebbles
2375	Layer	2.40m		0.40m	Friable mixed light grey and reddish-brown clay frequent cracked sandstone.
2376	Layer	1.80m		0.12m	Friable light reddish-brown silty clay mod charcoal flecks and burnt stone
2377	Layer	2.60m		0.08m	Friable light greenish- grey clay mod pebbles
2378	Layer	3.0m		0.12m	Friable light brownish-red silty clay. moderate charcoal flecks and burnt stone
2379	Layer	1.70m		0.16m	Friable yellowish-green and grey silty clay occ. Pebbles
2380	Layer	0.20m		0.04m	Friable light reddish-yellow and brown clay occ. Pebbles
2381	Pit	3.10m		0.80m	Circular sloping sides(probably same as 2388)
2382	Fill of 2388	3.50m		0.64m	Soft greyish-brown clayey silt with occ. subangular flint gravel
2383	Layer	4.16m		0.70m	Light greyish blue-green silty clay occ. organic flecks
2384	Layer	0.76m		0.18m	Plastic greyish-green clay with orange mottling, slightly silty
2385	Layer	1.0m		0.18m	Soft light yellowish-brown sandy silty clay
2386	Layer	1.32m		0.16m	Soft to plastic light greyish- green slightly silty clay
2387	Layer	1.28m		0.12m	Plastic light greenish-blue slightly silty clay moderate organic flecking
2388	Pit	3.50m		1.65m	Circular with gently sloping concave sides and irregular base
2389	Drain cut	2.50m	0.40m	Plan only	Linear cut for ceramic drain
2390	Fill of 2389	2.50m	0.40m	Plan only	Friable brownish blue-grey clay
2391	Drain cut		0.50m	Plan only	Linear zig zagging cut for lattice work drain same as 2334 and 2337

8 CASTLE HILL WOOD

8.1 Introduction

8.1.1 Oxford Archaeology monitored groundworks and conducted archaeological investigation at the site of the former Castle Hill Wood, on the lower slopes of Castle Hill. This section deals with deposits and features uncovered by these activities.

8.1.2 The investigated area was designated for further archaeological evaluation to establish the appropriate mitigation in the Environmental Statement (HA 2013).

8.1.3 This was however also an area designated as a donor site for woodland translocation, and as such evaluation trenching prior to woodland translocation was not possible, due to the fragile nature of the woodland soils.

8.1.4 In the WSI (OA 2015a), a methodology for archaeological recording during woodland translocation was proposed, but when woodland translocation began elsewhere along the scheme, it rapidly became clear that the translocation of the woodland soils was only rarely removing all the subsoil, and so was not exposing any underlying archaeological features that might be present.

8.1.5 As a result, an Addendum to the WSI for Archaeological Mitigation was written (OA 2015b) and was approved by Tony Hanna of WSP, Principal Archaeologist to the scheme, Wendy Rogers, Senior Archaeological Officer of KCC and Jenny Wylie of Hyder Halcrow JV (HHJV) acting on behalf of Highways England (henceforth referred to as the Monitoring Archaeologists). This proposed evaluation of woodland donor sites after woodland translocation. Two sites were, however, excepted from evaluation due to their proximity to the scheduled Castle Hill hillfort, and Castle Hill Wood was one of these. Here, SMS excavation of the area was adopted instead.

8.1.6 Soil stripping and archaeological work in the area was carried out in several phases, comprising: Watching brief on stripping of woodland soils for construction of a temporary haul route, watching brief on translocation of woodland soils, archaeological investigation of earthworks features, further watching brief on soil strip for the haul route, watching brief on test/trial pits, supervision of soil strip of the remaining parts of the area and archaeological characterisation by excavating and recording interventions of exposed features.

8.1.7 The topsoil strip for the Castle Hill Wood haul-route to enable tree-clearance took place from 15th–18th March 2015. Following tree-clearance the earthwork features in this area became much easier to see, and the resulting survey in May 2015 was incorporated into the WSI for archaeological Mitigation of the WC2 Brickworks (OA 2015d, fig. 13).

8.1.8 Woodland translocation was delayed by problems of access and then bad weather until autumn 2015, and finally started in November, working from south-east to north-west. As sections of the site were completed (from the 1st to the 8th of December 2015), they were re-stripped to the base of the subsoil and any archaeological features were recorded. After bad weather led to damage to the haul route surface, the route was re-stripped and widened from 14th–17th December, and excavation and recording continued sporadically throughout January and February (including monitoring the last area of woodland translocation) until 3rd March 2016.

8.1.9 A large flat area identified as containing asbestos and other contaminants could not be stripped and sampled at this time, but was investigated by test-pits in late April and early May 2016, which were monitored archaeologically. Investigation of the haul route adjacent had indicated that the contamination had resulted from the recent infilling of former clay pits, supplemented by fly tipping.

8.1.10 Once it became clear that no buried structures were likely to be found below the infill, further archaeological monitoring in this area was abandoned with the agreement of the Monitoring Archaeologists.

8.2 Location, topography and geology

8.2.1 The location of Castle Hill Wood is shown in Figure 102 and is centred at NGR TQ 60692 44236. Castle Hill is a prominent eminence in the local area (Plate 366), and the top of the hill is surrounded by the earthworks of Castle Hill hillfort.

8.2.2 The area is located just south-west of the current A21 carriageway, south-west of Area WC2, and north-west of Burgess Rough. The A21 marks its north-eastern boundary, its south-eastern boundary is the access road to the Castle Hill telecommunication mast, and the north-western boundary is an existing pond (called Castle Hill Wood pond in this report) and the edge of Area WC2, marked by an existing service on a bund. The south-western boundary is not defined by any topographic boundary, but simply represents the limit of impact of construction work for the new A21 carriageway.

8.2.3 The investigated area is 25m wide (at its broadest part) and 347m long (north-west south-east). It covers 3810 square metres. A modern track divides the Castle Hill Wood site into two, a lower and upper area (Fig. 103). The lower part rises from 77m aOD at the edge of WC2 south-westwards to a maximum height of 106m aOD, before levelling and dropping again to 93m aOD. The upper part of Castle Hill Wood slopes up more steeply to a height of 108.1m aOD (Plate 377). Beyond the limits of the site, Castle Hill continues to slope steeply up to the south-west.

8.2.4 The steepest part of Castle Hill Wood is the slope adjacent to the A21 carriageway in the upper part, which was not investigated archaeologically due to the steep angle of slope (c 45 degrees) and the very low probability of archaeological activity upon it. This strip was up to 20m wide.

8.2.5 The area is shown on historic maps since 1872 as wooded, but the presence of sweet chestnut indicates that it has been replanted since 1810 (OA 2015e).

8.2.6 The underlying geology of the site is Wadhurst Clay, overlaid, just south of the investigated area, ie on and around the Iron Age hillforts, by Tunbridge Wells Sand Formation (BGS nd).

8.3 Previous Archaeological Investigation

8.3.1 The slopes of Castle Hill below Castle Hill hillfort, bounded on the north by a track up to the television mast, were the subject of detailed topographical survey and limited trenching prior to the Public Enquiry, to record and characterise a series of earthworks noted there (OA 2004). These did not conclusively indicate whether the earthworks were connected to the hillfort, as no finds were recovered to date them, but were considered likely to be associated with it, and so this area was excluded from the scheme. One trench was dug north of the

track, but did not find anything of interest, and this marked the limit of the obvious earthworks, so Castle Hill Wood north-west of the track was included in the scheme.

8.3.2 A walkover survey was carried out prior to the Public Enquiry, and noted a group of earthworks in the northern half of Castle Hill Wood, which were interpreted as of recent origin, probably resulting from previous phases of construction of the A21 and fly tipping (OA 2009, 11, fig. 3). The track at the south end of this area was also highlighted as possibly of some antiquity.

8.3.3 Geophysical survey of the A21 construction area extended only into the northern edge of Castle Hill, as the research could not be conducted in woodland and in overgrown areas (OA 2009).

8.3.4 A further walkover survey was carried out by OA following scrub clearance as one of the first tasks of archaeological mitigation for the scheme, and noted the presence of further earthworks and other visible features in Castle Hill Wood (OA 2015c, fig. 8). These were:

- OA14 – an area of substantial early 20th-century rubble material, south-east of the WC2 brickworks. This area included asbestos and other contaminants (see 6.1.9–10 above).
- OA38 – a modern trackway dividing upper and lower Castle Hill Wood.
- OA15 – a possible narrow track of a former field boundary, parallel to OA 38 to the south, marked by a sinusoidal ditch;
- OA 13 – an area of substantial old quarrying, with large irregular faces against the road and seemingly stepped faces against the northern slope of the hill, forming small terraces;
- OA22 – a bank, apparently curving in a semicircle, which was tentatively interpreted as a possible charcoal burners' platform.

8.3.5 Apart from OA15, which was not subsequently confirmed by excavation, all these are marked on Fig. 104. The existing figure-of-eight Castle Hill Wood pond, which is clearly marked on the modern OS map, was included as part of OA13, but was not separately catalogued in the OA gazetteer.

8.3.6 Following scrub clearance, a second walkover survey was carried out in May 2015, identified and recorded five features in the lower part of Castle Hill Wood. These were illustrated in figure 13 in the WSI for Mitigation of the WC2 brickworks (OA 2015d), and are shown in Fig. 105:

- Nos 7 and 15 – a regular sub-rectangular flat bottomed depression enclosed on three sides by a steep bank, open (or truncated) on the east, and with an L-shaped bank further south.
- No. 11 – a raised irregular mound on the western side of Castle Hill Pond.
- No. 13 – a north-south aligned linear depression connecting to the pond.
- No. 14 – a platform and an L-shaped bank.

8.3.7 A detailed topographic survey of earthwork OA22 in upper Castle Hill Wood was carried out and reported upon early in 2016. This demonstrated that the earthwork consisted of a series of parallel banks and ditches (OA 2016).

8.4 Project aims and scope of works

8.4.1 The main aims of the characterisation were to:

- expose and plan any potential archaeological features;
- investigate the revealed soilmarks to establish whether these were archaeological, geological or of other origin;
- where these were archaeological, to establish their dimensions, date and the character of their fills, and if possible, clarify information on their potential and significance in the wider landscape;
- investigate the earthwork features of possibly ancient origin to characterise them further and, if possible, to date them.

8.4.2 This section of A21 Dualling Scheme is within an area designated as requiring archaeological SMS investigation (HA 2013). Therefore, the soil strip reached either the depth of the natural geology or man-made deposits (if encountered first).

8.4.3 The intention was to examine all the site archaeologically, but several constraints limited the scope of the works.

8.4.4 The steep slope adjacent to the A21 carriageway in the upper part of Castle Hill Wood was not investigated archaeologically for Health and Safety reasons. Due to the steep angle of slope (*c* 45 degrees), it was agreed with the Monitoring Archaeologists that there was a very low probability of archaeological activity, other than the visible quarries of post-medieval date. This strip was up to 20m wide.

8.4.5 The very south-eastern tip of the area was occupied by an earthwork feature comprising a steep edge and a flat bottom. This had been investigated in the 2004 trenching of features below Castle Hill hillfort (OA 2004), without finding anything of significance. This feature was interpreted as a former quarry, and so by agreement with the Monitoring Archaeologists was excluded from further investigation.

8.4.6 A small area on the south-western edge of the site was not able to be investigated due to the root-protection zone for a large yew tree.

8.4.7 A large portion of the lower part of Castle Hill Wood was also excluded from the archaeological work due to its contamination with fills of large and deep modern rubbish pits including a large amount of asbestos (Fig. 103). A thin strip all along the edge of the current A21 in the lower part of Castle Hill Wood was also excluded from investigation due to modern underground services and an overhead live power cable (Plate 371).

8.5 Methodology

8.5.1 The methodology followed the guidance laid out in the WSI (OA 2014a). The soil strip was carried out by a machine using a toothless bucket under archaeological supervision. No machines were allowed to track over the exposed surface. The stripped surface and the spoils were monitored for finds. The edges of revealed potential features were cleaned as necessary

by hand and marked on the ground. All the marked features were surveyed using GPS survey equipment and plotted on CAD plan.

8.5.2 Following the machine excavation selected features (sample) were investigated by excavation of interventions and recorded by means of descriptions on relevant recording sheets, digital and black-and-white photographs, section and plan hand-made drawings, and plotted on CAD plan. Features that were considered to be of natural origin were noted but were not generally investigated by hand.

8.5.3 Existing banks and platforms were characterised by sondages/slots on average 1.8m wide, excavated by thin spits using a machine, which were then cleaned up by hand and recorded. Feature that appeared to be man-made and not modern were then extended, excavated stratigraphically by hand and recorded.

8.6 Results

Topsoils

8.6.1 The topsoil was a loose, dark brown or dark brownish-grey silt with a large amount of organic material, 0.1 to 0.2m thick. This was a woodland soil (recorded as contexts 3310, 3320, and 3346). It covered the whole of the investigated area, overlying subsoil 3375, a friable, brownish-yellow silty clay (B-horizon). The subsoil overlay the natural geology, a firm, dark yellow clay recorded as contexts 3323, 3345, and 3374. A deeper section through the natural revealed that the clay is c 0.5m thick, overlying a firm, light grey shaley clay (3324) which in the recorded section was 0.7m thick and overlay a layer of mudstone (3325). The presence and location of shaley clay was important for the brickworks uncovered in Area WC2, as this type of clay provided good raw material.

8.6.2 The thickness of the topsoil and subsoil layers increased in the lower part of Castle Hill Wood, due to colluvial processes. No archaeological finds were recorded from the topsoil and subsoil layers.

Features in Castle Hill Wood – lower part (Fig. 104)

8.6.3 South-east of the WC2 cottage and south-west of Castle Hill Wood Pond, a machine-cut section was excavated through an upstanding feature listed in the topographical survey as feature No. 7. The north-east side (including the bank at the south-east end) was damaged during the translocation of woodland soils by extensive use of a temporary haul route leading to the upper part of Castle Hill Wood. The exposed section was hand-cleaned and recorded and was then deepened by machine under close archaeological supervision.

8.6.4 Earthwork feature 7 was recorded as structure 3318, and comprised an embanked trapezoidal depression measuring 14m wide (north-west to south-east) and 1.2m deep, with a very steep south-eastern side and a moderately steep, stepped north-western side (Fig. 104; Plate 367). The surface exposed by machine and planned showed that the base contained several hollows with thin ridges of undisturbed natural between them, probably indicating that it was cut in several phases. These cuts were bottomed by hand.

8.6.5 Cut 3322 was representative of all three hollows and was dug through both the dark yellow clay 3323 and the underlying light grey shaley clay (numbered 3319 and 3324). Cut 3322 bottomed on the yellowish-grey mudstone 3325 beneath the shaley clay. The single fill of the pit (3321) was a friable, brown silty clay with occasional ashy flecking, sealed by

woodland soil (topsoil) 3320. The fill had a couple of sherds of late 19th–early 20th-century pottery and a few pieces of CBM (hereafter CBM), probably of the same date.

8.6.6 At the south-eastern end of Structure 3318 was a bank (numbered 3319) that was 1.5m wide and 0.3m high, and was composed of redeposited firm, dark yellow clay (ie redeposited natural), overlaid by a thin layer of fill 3321 (0.1m deep). Structure 3318 is interpreted as a quarry pit for the WC2 brickworks, with low banks thrown up to prevent flooding from runoff from the slopes of Castle Hill.

8.6.7 About 10m farther south-west another machine-cut section was recorded across feature 3302 (Fig. 104; Plate 368). In the topographical survey, this was recorded as No. 15, an L-shaped bank. In the excavated sections, the bank appeared to be 0.6m high from the top of the natural geology. It consisted of four irregularly placed layers (contexts 3000, 3001, 3303, and 3304), which together formed a dump of redeposited natural clay sealing an east/west land drain containing ceramic pipes. The lowest layer from the structure contained a couple of fragments of CBM of modern date. The feature is interpreted as a dump of material from a quarrying pit, related to the WC2 brickworks.

8.6.8 Farther south-west, but still west of Castle Hill Wood Pond, surveyed platform No. 14 was investigated by means a machine-cut section across it and was recorded as feature 3312. The section showed a steep cut where the ground dropped away at the north-west end, filled to the north by layers of redeposited natural interleaved with a black soil containing modern rubbish. This last fill is characteristic of the infill of clay pits. The cut was in line with the south-east end of Castle Hill Pond, and probably indicates another clay pit south of the pond.

8.6.9 The platform itself appeared to consist of natural clay overlain directly by woodland topsoil, except at one point, where a layer of grey clayey silt 0.3m thick was visible in between. It was thought at the time that the grey layer was a subsoil disturbed on both sides by tree-holes, rather than a dumped deposit; if the latter, it was presumably material upcast when quarrying the clay just to the north-west. The generally level surface of the platform is clearly man-made, and was probably due to cutting terraces into the side of Castle Hill as part of the extraction of clay for the brickworks.

8.6.10 South-west of Castle Hill Wood Pond was a linear depression connecting to the pond, aligned north-east/south-west. This is marked on the modern OS map and was recorded in the 2015 survey as No. 13. This was excavated and recorded as feature 3377.

8.6.11 Two interventions were dug across the feature. Cut 3354 was located towards the upper end of the ditch, in the central-south-part of lower Castle Hill Wood. This was 0.64m wide and 0.52m deep, with very steep, irregular sides and a concave base, and was filled with a friable, dark greyish-brown (almost black), slightly clayey silt containing much organic material. The second cut was dug only a couple of metres from the junction with Castle Hill Pond. This was numbered 3356 and was 0.45m wide and 0.52m deep, with steep sides and a flat base. It had two fills, a yellowish-grey slightly silty clay containing occasional small angular mudstone fragments overlaid by an organic clayey silt similar to that in 3354, but firmer. In neither cut were there any finds.

8.6.12 Above cut 3354 the ditch shallowed very gently south-westwards. Below cut 3356 the ditch widened out before it ran into the pond. This was clearly a drainage ditch to channel water running down the slope of Castle Hill into the pond.

8.6.13 Feature 3363, aligned NE–SW and parallel to 3377 on the north-east side, was investigated with a hand-dug slot across it (Plate 374). It proved to be a bank 4.0m wide and 1m high, with a steep eastern side, a gently sloping western side, and a slightly convex top. It was composed of a friable, brown silty clay with very occasional small angular pieces of siltstone (deposit 3364) and overlaid by woodland soil 3310.

8.6.14 The bank was cut at its north-eastern end by feature 3365. This was a large cut, 2.6m wide and 1.1m deep, with stepped sides (the eastern steeper than the west) and a flat base. The feature was filled with deposit 3366, a friable, mottled yellowish-brown, brown, and grey silty clay with very occasional, small sandstones, and was overlaid by the woodland soil 3310. Within cut 3365 there was an upright iron sign 1.06m tall (Plate 375).

8.6.15 The sign was facing the A21 carriageway. Deposit 3366 covered *c* 2/3 of its height, while its upper part was covered by woodland soil 3310. The part not covered by fill 3366 had a rounded semi-circular top with an inscription 'TONBRIDGE TURNPIKE TRUST'. The edges on the front on the upper part of the sign were moulded onto an extending thin border-frame.

8.6.16 Feature 3363 is interpreted as a man-made bank, running alongside the pre-existing A21 carriageway, into which cut 3365 was dug for placing the Tonbridge Turnpike Trust carriageway sign alongside the road.

8.6.17 Turnpike trusts, were in operation from the 17th century to the year 1888, and show how the A21 was maintained during this period, prior to government taking responsibility for highways. Records for the Tonbridge Turnpike Trust survive for the years 1820–1843.

8.6.18 In between bank 3363 and the current A21, and *c* 20m north-east of cut 3365, another linear feature was characterised by two interventions. The first cut, at the northern end of the feature, was numbered 3372, and was 0.88m wide and up to 0.23m deep, shallowing to the north-western terminus. The south-east side was steeper than the north-west side, and the base was cupped. Its fill was a friable, yellowish brown silty clay with occasional, small angular and sub-angular mudstone fragments. The second intervention was numbered 3370, and was 2.04m wide and 0.23m deep, with moderately steep sides curving to a flat base. The single fill was a friable, greyish-brown silty clay with occasional mudstone fragments (Plate 376).

8.6.19 Feature 3363 is interpreted as a roadside ditch between the pre-existing A21 carriageway and bank 3365. The ground to the north-east of ditch 3363 was not accessible for detailed archaeological examination, and been heavily disturbed by recent service trenches, but frequent stones were seen at the level of the top of the roadside ditch immediately to the east, which may well have derived from an earlier road surface.

8.6.20 The southern part of lower Castle Hill was not accessible for archaeological investigation, as under the woodland soil there were layers of modern rubbish and building material that included a large quantity of blue and white asbestos (Fig. 104; Plate 371). Stripping along the Castle Hill Wood haul-route, which cut into the edge of these deposits before the asbestos had been identified, revealed that the fills were more than 0.5m thick, and were filling several intercutting pits that were cut into the natural clay. These features are interpreted as further clay quarries for the WC2 brickworks, and no earlier archaeology is likely to have survived beneath them.

8.6.21 Trial pits dug through the modern fills confirmed that the deposits were deep, and no trace of any surviving archaeology was found beneath them. In consequence, it was agreed

with the Monitoring Archaeologists that further monitoring of the removal of the contaminated fills was not required.

8.6.22 At the south-western end the ground slopes down towards a roughly north/south trackway (OA 38) running from the current A21 carriageway. This trackway was cleaned up and recorded as feature 3367. It proved to be 6.0m wide, and c 0.2m deep, made of crushed brick and pieces of concrete laid on the natural clay. No trace of any earlier phase of use was found.

Features in Castle Hill Wood – upper part (Fig. 105)

8.6.23 Beyond trackway 3367 to the south-east, the ground slopes up again. The machine cutting the haul-route had to cut through a steep slope here, and the opportunity was taken to observe a section, in order to determine whether the slope was natural or partly man-made. The revealed section showed that the slope was entirely natural.

8.6.24 Less than a metre south of the modern trackway, feature 3360 was exposed cut into the surface of the natural clay. It was circular, 1.5m in diameter and survived 0.15m deep, with gently sloping sides and a concave, but slightly irregular, base. The upper part of pit 3360 had been truncated, probably during construction of trackway 3367. The single fill was a friable, dark brownish-grey silt with much charcoal (context 3361), but there were no finds. Around and below the edges of 3360, the natural clay was reddened by burning to a depth of 0.1m, indicating burning *in situ*.

8.6.25 Some 15m farther south-east a narrow linear feature aligned north-west/south-east and continuing westwards beyond the investigated area was found (Fig. 105). Its cut 3359 was 0.2m wide and 0.12m deep, with vertical sides and a flat base, and it was filled with a firm, mottled light grey and light brownish-yellow clay with manganese flecking, but no finds. This is interpreted as a land-drain.

8.6.26 Some 50m farther to the south-east a similarly narrow linear feature was exposed, aligned north-east/south-west and continuing westwards beyond the soil stripped area. Unlike 3359, however, this was irregular in width and plan, so was interpreted as the fill of a natural erosion gully running downslope, and so was not further investigated by hand.

8.6.27 Some 22m south-east of the natural gully, and on the south-west side of area, was feature OA 22, which topographic survey suggested consisted of a series of parallel banks divided by ditches (OA 2016). The interpretation of these earthworks was uncertain, but included the possibility that they might be related to Castle Hill hillfort located higher up the hill.

8.6.28 These banks did not appear to extend right to the edge of the steep slope adjacent to the A21, but to end south of this. It was decided to excavate a machine cut section across the north end of the earthworks to determine the complexity of the stratigraphy, and then to excavate a further length by hand if required. The earthworks were collectively numbered as 3311 (Fig. 105; Plate 372).

8.6.29 The section indicated that the stratigraphy of the 'banks' consisted simply of woodland topsoil overlying weathered over undisturbed natural clay. Between the 'banks', two wide depressions (cut 3306 2.5m wide, cut 3308 2.3m wide and both 0.4m deep) ran north-eastwards, and were filled with silty clay eroded from the natural overlain by organic woodland soil. Neither fill contained any finds.

8.6.30 The depressions, which petered out to the north as the topographic survey had suggested, are interpreted as due to erosion of the natural clay by runoff from the higher slope of Castle Hill. This interpretation was supported by the Kent County Council curatorial archaeologists when they visited site.

8.6.31 When the area north of OA was stripped, a group of narrow linear features was revealed (Fig. 105).

8.6.32 The westernmost was gully 3378, which was aligned NNE-SSW. It only survived 4m long, but was shallowing up gradually at either end, suggesting that the feature had originally been longer. Two interventions were excavated.

8.6.33 Cut 3327 was 0.9m wide and 0.26m deep, with steep sides and an undulating base, and had two fills. The lower fill 3328 was a friable, yellowish-brown sandy clay with occasional small pieces of mudstone, and was 0.15m thick. The upper fill 3329, was a firm, brownish-grey silty clay with occasional small, mudstone pebbles, and was 0.11m thick.

8.6.34 Cut 3332 was 0.68m wide, with steep sides and an almost pointed base, and also had two fills. The lower fill was a firm, dark yellowish-brown silty clay with occasional manganese flecks; the upper fill consisted of a friable, brownish-grey clayey silt.

8.6.35 None of the excavated deposits of this linear feature contained artefactual material.

8.6.36 South-east of this, and on a similar alignment, was 3368, a second short linear feature c 6m long. This was 0.6m wide and 0.24m deep, with steep sides and a flat base. It was filled with a friable, light grey clayey silt with no inclusions or finds.

8.6.37 East of the north end of 3368 was another gully 3338 on a different, NNW-SSE alignment. It was 0.6m wide, had steep, symmetric sides and a slightly concave base. The single fill was friable, brown sandy clay 0.18m thick, with patches of light brownish-yellow and light grey sandy clay but no inclusions or finds. The ditch shallowed and petered out on the south but continued over the edge of the steep slope adjacent to the A21 on the north.

8.6.38 Cutting through 3378 was linear feature 3379 aligned north-west to south-east. Cuts 3335 and 3336 were 0.9m and 0.8 wide and 0.45 and 0.35m deep respectively, and they each had two fills (Plate 369). Cut 3336 had a ceramic land drain at its base.

8.6.39 South-west of this group of features the natural slope of Castle Hill had been cut into by a large and deep quarry pit. This measured 37m across and had very steep sides, bottoming at the level of the existing A21 roadway.

8.6.40 Beyond the quarry, and at the highest point of upper Castle Hill Wood, three further linear features were exposed and characterised.

8.6.41 Linear feature 3380 was aligned north-west to south-east. At the north-west end, it was cut by, or ran into, the large quarry, while its south-eastern end was truncated by linear feature 3351. Two interventions were excavated across it.

8.6.42 Cut 3347 was 0.7m wide and 0.42m deep, with steep sides (the south-western was stepped) and an irregularly concave base. It contained two fills, the lower of which was a friable, almost loose, yellowish-brown silty clay mottled with grey patches. The upper fill was a friable, greyish-brown silty clay. Neither fill contained any finds.

8.6.43 Cut 3343 was 0.39 wide and 0.2m deep, with steep sides and a flat base. It too was filled with a yellowish-brown silty clay, but this was firm with very occasional flecks of CBM. A piece of modern tile was also recovered from the surface of ditch 3380 between these cuts during cleaning, and was ascribed to context 3350, equivalent to the fill of 3343.

8.6.44 At the south-east end 3380 was cut across by a gully 3351 on a broadly north-east to south-west alignment, although this curved westward towards the terminus at the south end. It was 0.67m wide and 0.18m deep, with steep sides (steeper on the north-west) and a slightly concave base. There were two fills: the lower (3352) was a firm, light yellowish grey, silty clay with very occasional charcoal flecks. The upper fill 3353 was a friable, almost loose, dark greyish brown silt with organic material (woodland soil).

8.6.45 Halfway along 3380 was cut by an east-west linear 3342 that survived c 12m long. Where sectioned this was 0.4m wide and 0.3m deep, with irregular but steep sides and a flat base and was filled with woodland topsoil.

8.6.46 The earliest of these features, 3380, had a piece of modern CBM in the top, and other flecks in fill 3344. The other two linear features cut this, so were also probably of recent date. They may have been land-drains or natural erosion gullies.

8.7 Interpretation and summary

8.7.1 Archaeological monitoring of the A21 Scheme groundwork and SMS characterisation, even though conducted in several stages over a long span of time, did meet all the requirements and goals set out in the WSI. Twenty excavated interventions resulted in the distinguishing and recording in detail of eighty contexts.

8.7.2 Four features described in the OA topographical surveys were investigated by a combination of machine-cut sondages and hand excavation, followed by recording. Two of the upstanding features, at lower Castle Hill Wood, appeared to represent banks and quarry pits related to the WC2 brickworks. A third, described as a platform, lay adjacent to a further quarry, and was probably a terrace created using a different form of clay extraction. Infilled quarry pits were also found further upslope, showing that quarrying for the brickworks on the lower slopes of Castle Hill had been extensive. The discovery of the grey shaley clay provided evidence for a particularly suitable source of raw material for the brickworks.

8.7.3 The linear depression running towards Castle Hill Pond was confirmed as a ditch draining into the pond, demonstrating the management of the surrounding area in relation to the brickworks.

8.7.4 The upstanding bank and the shallow ditch east of this on lower Castle Hill, running parallel to the existing A21 carriageway, were shown to be parts of an earlier phase of the road, and directly confirmed by the discovery of the Tonbridge Turnpike Trust metal sign found and recorded still *in situ*.

8.7.5 In upper Castle Hill Wood, a set of apparently parallel banks at OA22 were shown to be natural, created by the negative linear 'ditches' in between. These were aligned down the slope of Castle Hill, and were probably the result of natural erosion through runoff rather than deliberately dug. Their regular spacing and alignment may, however, indicate that they had originated as shallow planting trenches of post-medieval date; such trenches, dug both to aid drainage and to provide slightly deeper topsoil ridges on which the trees were planted, are a

feature of 18th-century plantations, for instance at the Clumps at Little Wittenham, Oxfordshire (Allen *et al.* 2010, 43–4). It has also been suggested that they were used to help transport felled timbers down the hill between the standing trees.

8.7.6 Eight linear features, aligned in various directions, but mostly running down the slopes of the hill, were characterised as relatively modern drainage ditches. One of them contained CBM fragments and another had clay drainage pipes. Others were probably natural erosion gullies, particularly those just downslope of OA22.

8.7.7 Land drainage within the woodland area is another indication of the managed nature of the woodland in the post-medieval period, and its importance for local industries such as the adjacent brickworks.

8.7.8 The dip in the slope between the upper and lower parts, where the modern track cut through, did not provide clear evidence of earlier use as a trackway, nor was clear evidence found of OA15 (the supposed line of an earlier track), although it is likely that a track farther south continued through to meet the A21 at this point. The dip may perhaps have resulted from, or had been enhanced by, terracing of the slope of Castle Hill for clay extraction.

8.7.9 Only one potentially prehistoric feature was found, a shallow circular ‘fire-pit’ with *in situ* burning and charcoal fill. As usual with such features along the A21 scheme, there were no finds to assist in dating this feature, although radiocarbon dating carried out on other examples of the type along the scheme has indicated either a later prehistoric date, broadly contemporary with the nearby hillfort, or a medieval date (see volume 1).

8.7.10 Other than this, no evidence of activity linked to the Iron Age hillfort only 100m to the south-east was discovered, possibly due to the steep angle of slope of Castle Hill and the poorly-draining clay geology.

8.7.11 Parts of Castle Hill Wood designated for SMS characterisation were not accessible for archaeological work, due to several reasons including the very steep slopes of the hill, overhead and underground power cables and water mains. Other parts had been truncated by large quarry pits with modern fills contaminated with asbestos.

8.7.12 Considering the results from the areas that were investigated, however, it is unlikely that the areas not examined contain archaeological information that would significantly affect the interpretation of this area.

8.8 Castle Hill Wood context and finds inventory

Castle Hill						
Area description				Total	3810m ²	
Area located alongside the current A21 carriageway, south-east of WC2 brickworks site, north-west of Burgess Rough, and west of Top Lodge building.				Avg. depth (m)	0.3	
				Width (m)	20	
				Length (m)	347	
Contexts						
Context no	Type	Width x length (m)	Depth (m)	Description	Finds	Date
3300	Layer – lower Castle Hill 'earthworks'	+ 3.06	0.62	Compact, friable, mottled medium brown and brownish yellow, silty clay with occasional charcoal flecks (well sorted), overlaid by 3301, and by topsoil	CBM	Post-medieval /modern

Castle Hill						
Area description				Total	3810m ²	
Area located alongside the current A21 carriageway, south-east of WC2 brickworks site, north-west of Burgess Rough, and west of Top Lodge building.				Avg. depth (m)	0.3	
				Width (m)	20	
				Length (m)	347	
Contexts						
				3346, overlying natural geology 3345, a dumped deposit – a bank, part of structure 3302		
3301	Layer – lower Castle Hill 'earthworks'	+2.62	0.5	Firm, medium brownish grey with patches of orangey brown silty clay, overlying natural geology 3345, overlaid by topsoil 3346, not a regular spread of material but strongly undulating deposit – either badly disturbed by bioturbation, or an uneven dump of material for a bank, part of structure 3302	-	-
3302	Structure - lower Castle Hill earthworks			Bank at the lower part of Castle Hill – in between Castle Hill and WC2 Brickworks, west of Castle Hill Pond – includes contexts 3300, 3301, 3303, 3304, and a land-drain with ceramic pipes running E-W	-	Post medieval/modern
3303	Layer – lower Castle Hill earthworks	1.08	0.17	Friable, light and medium greyish brown, with occasional manganese inclusions, sealed by 3304, overlying natural geology 3345, bank-like appearance in section, part of structure 3302	-	-
3304	Layer – lower Castle Hill earthworks	3.6	0.55	Firm, medium greyish brown with patches of orangey brown silty clay, with well sorted manganese flecks. overlying 3303 and natural geology 3345, sealing a land-drain with ceramic pipe, part of structure 3302	-	-
3305	Layer – alluvial deposit, upper Castle Hill 'earthworks'	+1.4		Firm, light greyish (white) silt with yellowish brown sandy silt – bands and patches – with occasional angular sandstone pebbles - natural geology, equal to 3345	-	-
3306	Cut – linear, upper Castle Hill earthworks	2.5	0.4	Linear, aligned NW-SE, curving at its SE part southwards, with undulating, slightly concave base, moderately steep sides, cutting 3305, alongside a bank, filled with 3307, part of structure 3311	-	-
3307	Fill – linear, upper Castle Hill 'earthworks'	2.5	0.4	Friable, soft, light greyish brown, silt with small sized, subangular pieces of sandstone, sealed by topsoil 3310, fill of 3306, part of structure 3311	-	-
3308	Cut – linear, upper Castle Hill earthworks	2.3	0.4	Linear, aligned NW-SE, curving at its SE part southwards, with undulating, slightly concave base, moderately steep sides, cutting 3305, south of 3306, alongside a bank, filled with 3309, part of structure 3311	-	-
3309	Fill - linear, upper Castle Hill earthworks	2.3	0.3	Friable, light yellowish brown slightly sandy silt with occasional, small sized subangular pieces of sandstone, sealed by topsoil 3310, fill of 3308, part of structure 3311	-	-
3310	Fill – topsoil/ woodland soil	-	0.1	Loose, very dark brown(or blackish) slightly sandy silt with large amount of organic material (pieces of wood, leaves), sealing subsoil 3375 and fills of some of the exposed features, equal to 3346 and to 3320, whole of Castle Hill, part of structure 3311	-	-

Castle Hill						
Area description				Total	3810m ²	
Area located alongside the current A21 carriageway, south-east of WC2 brickworks site, north-west of Burgess Rough, and west of Top Lodge building.				Avg. depth (m)	0.3	
				Width (m)	20	
				Length (m)	347	
Contexts						
3311	Structure		0.6	Structure of banks and parallel shallow ditches that appeared to represent ridges and shallow linear depressions (three and three respectively) most likely associated with forest management, no dating evidence, upper Castle Hill, comprises contexts 3305–3310	-	-
3312	Structure – lower Castle Hill 'earthworks'	8.0	1.2	A risen flat area on the slope on Castle Hill – investigated as possible remains of earthworks, but proved as most likely a natural structure, comprises contexts 3312–3317	-	-
3313	Layer – lower Castle Hill 'earthworks'	+5.43	0.8	Firm, medium yellowish grey slightly sandy silt with occasional subangular pieces of sandstone, colluvial layer – overlying natural geology 3345, overlaid by 3314, 3317, and 3315	-	-
3314	Layer – lower Castle Hill 'earthworks'	1.7	0.28	Loose, dark brownish grey, silt with some sand and clay, tree-throw fill, sealed by 3317, overlying 4414	-	-
3315	Layer – lower Castle Hill 'earthworks'	1.44	0.4	Firm, medium yellowish grey clay – redeposited material on the slope of the 'earthwork' structure 3312, overlying 3313	-	-
3316	Layer – lower Castle Hill 'earthworks'	1.52	0.47	Firm, medium yellowish grey slightly sandy silt with occasional subangular pieces of sandstone, overlying natural geology 3345, subsoil south of the 3312 earthworks structure, identical to 3313	-	-
3317	Layer – lower Castle Hill 'earthworks'	-	0.1	Loose, very dark brownish grey slightly sandy silt with large quantity of organic material, the same as 3310, overlying 3314 and 3313 – woodland soil	-	-
3318	Structure – embanked quarry pit	18.0	1.5	Embanked rectangular depression, east of Castle Hill pond – clay quarrying pits - comprises contexts 3319, 3320, 3321, 3322, 3323, 3324, 3325 (Castle Hill Survey Feature 7), lower Castle Hill	-	Modern
3319	Banks around quarry pit		0.3	Firm, dark yellow clay – redeposited natural geology 3345, overlaid by 3321, lower Castle Hill	-	-
3320	Topsoil – woodland soils		0.1	Loose, very dark brownish grey slightly sandy silt with large amount of organic material, sealing 3321, equal to 3346 and to 3310, lower Castle Hill	-	-
3321	Fill – backfill of quarrying pit		1.2	Friable, medium brown silty clay with occasional ashy flecking, fill of quarry in structure 3318, sealed by 3320, lower Castle Hill	Pottery, CBM	Modern late 19th-early 20th century
3322	Cut – quarry pit	14.0	1.2	Rectangular, with vertical southern side and moderately steep northern side (other not exposed), undulating base (series of pits) filled with 3321, cutting 3323 and 3324, lower Castle Hill	-	-
3323	Layer – natural geology		0.5	Firm, dark yellow clay, overlaid by 3319, overlying 3324, cut by 3322, equal to 3345 and to 3374, lower Castle Hill	-	-
3324	Layer – natural geology		+ 0.7	Firm, light grey shaley clay, overlaid by 3323, cut by 3322, lower Castle Hill	-	-

Castle Hill						
Area description				Total	3810m ²	
Area located alongside the current A21 carriageway, south-east of WC2 brickworks site, north-west of Burgess Rough, and west of Top Lodge building.				Avg. depth (m)	0.3	
				Width (m)	20	
				Length (m)	347	
Contexts						
3325	Layer – natural geology		+ 0.1	Firm, hard, yellowish grey weak mudstone, underlying shaley clay 3324, lower Castle Hill	-	-
3326				Blank Context Number	-	-
3327	Cut – ditch	0.9	0.18	Linear, aligned E-W, moderately steep sides, an undulating base, cutting natural geology 3345, filled with 3328 and 3329. A part of the same linear as 3332, group 3378, upper Castle Hill	-	
3328	Fill – ditch	0.9	0.15	Friable, medium yellowish brown sandy clay with occasional small sized pieces of mudstone, overlaid by 3329, lower fill of 3327	-	
3329	Fill – ditch	0.54	0.11	Firm, medium brownish grey silty clay with occasional small-sized, mostly rounded mudstone pebbles, overlying 3328, overlaid by subsoil 3375, upper fill of 3327 – natural silting up	-	-
3330				Blank context number	-	-
3331				Blank context number	-	-
3332	Cut – ditch	0.68 x 0.76	0.36	Linear, aligned E-W, moderately steep sides, gradual break of slope, a concave and pointed base, cuts natural geology 3345 and fill 3341 (land-drain), filled with 3333 and 3334, group 3378 – part of the same feature as 3327, upper Castle Hill		
3333	Fill – ditch	0.68 x 0.76	0.09	Firm, dark yellowish brown silty clay with occasional manganese flecks, overlaid by 3334, lower fill of 3332	-	
3334	Fill – ditch	0.24 x 0.7	0.21	Friable, medium brownish grey clayey silt, overlying 3333, sealed by subsoil 3375, upper fill of 3332		
3335	Cut – land-drain	0.9	0.45	Linear, aligned NE-SW, steep, slightly asymmetric sides, a pointed base, filled two fills – upper: friable, medium greyish brown silty clay, 0.3m thick; lower: firm, yellowish grey, slightly silty clay with very occasional charcoal flecks, 0.3m thick – ceramic clay pipe at the base, cutting natural geology 3345, part of the same land-drain as 3335, group 3379, upper Castle Hill		Modern
3336	Cut – land-drain	0.8	0.3	Linear, aligned NE-SW, moderately steep, symmetric sides, ceramic pipe at the base, cutting natural geology 3345 and fill 3339, filled with 3337. A part of the same land-drain as 3335, group 3379, upper Castle Hill		Modern
3337	Fill – land-drain	0.8	0.3	Friable, mottled - medium brown and light yellowish brown with light grey sandy clay, no inclusions, ceramic drain pipe at the base – two parts of the deposit (upper and lower), but since it is a modern feature the deposits are not recorded in detail, fill of 3336.		Modern
3338	Cut – ditch	0.6	0.18	Linear., aligned NW-SE, steep, symmetric sides, gradual breaks of slope, a very slightly concave base, cutting natural geology 3345, filled with 3339		

Castle Hill						
Area description					Total	3810m ²
Area located alongside the current A21 carriageway, south-east of WC2 brickworks site, north-west of Burgess Rough, and west of Top Lodge building.					Avg. depth (m)	0.3
					Width (m)	20
					Length (m)	347
Contexts						
3339	Fill – ditch	0.6 x 0.9	0.18	Friable, medium brown sandy clay with patches of light brownish yellow and light grey sandy clay, no inclusions, cut by 3336, fill of 3338		
3340	Cut – land-drain	0.4 x 0.32	-	Linear, vertical sides, base not exposed, it may be that 3340 and 3332 are the same feature, cutting natural geology 3345, filled with 3341		Modern
3341	Fill – land-drain	0.4 x 0.32	-	Friable, dark brownish grey silty clay, no inclusions except ceramic pipe, cut by 3332, single fill of 3340		
3342	Cut - gully	0.4	0.3	Linear, aligned N-S, sides gently sloping, steep and moderately steep, a flat base, filled with topsoil (woodland soils) – very recent/modern feature, upper Castle Hill		Modern
3343	Cut – gully	0.39 x 1.0	0.2	Linear, aligned NE-SW, steep sides, sharp breaks of slope, a flat base, cutting 3345, filled with 3344, part of the same linear as intervention with cut 3347 and 3352, group 3380, upper Castle Hill		
3344	Fill – gully	0.39 x 1.0	0.2	Firm, medium yellowish brown silty clay with very occasional CBM flecks, single fill of 3343	CBM flecks	
3345	Layer – natural geology			Firm, compact, medium brownish yellow clay, covering whole of Castle Hill Area, equal to 3323 and to 3374		
3346	Layer – topsoil / woodland soil		0.2	Loose, very dark brown silt with organic matter, overlying subsoil 3375, equal to 3310 and to 3320		
3347	Cut – gully	0.7 x 1.0	0.42	Linear, aligned NE-SW, asymmetric sides (NW – steep, SE – stepped; gently sloping and steep, an irregularly concave base, cutting 3345, filled with 3348 and 3349; part of the same linear as cut 3343 and 3352, group 3350, upper Castle Hill		
3348	Fill – gully	0.6 x 1.0	0.25	Friable, almost loose, medium yellowish brown with grey patches silty clay, no inclusions, overlaid by 3348, lower fill of 3347		
3349	Fill – gully	0.7 x 1.0	0.17	Friable, medium greyish brown clayey silt, overlying 3348, upper fill of 3347		
3350	Fill – gully		0.6	Fill of the same ditch as cuts 3347 and 3343, not excavated, one piece of CBM recorded on its surface, group 3380	CBM	Post medieval / modern
3351	Cut – gully terminus	0.67 x 0.88	0.18	Linear with rounded northern end, aligned NW-SE (southwards from the terminal part, the feature curves ESE), asymmetric sides – northern steep, southern moderately steep, sharp breaks of slopes, a slightly concave base, cutting natural geology 3345, filled with 3352 and 3353, upper Castle Hill		
3352	Fill – gully terminus	0.62 x 0.88	0.15	Firm, light yellowish grey, silty clay with very occasional charcoal flecks, overlaid by 3353, lower/main fill of 3351		

Castle Hill						
Area description				Total	3810m ²	
Area located alongside the current A21 carriageway, south-east of WC2 brickworks site, north-west of Burgess Rough, and west of Top Lodge building.				Avg. depth (m)	0.3	
				Width (m)	20	
				Length (m)	347	
Contexts						
3353	Fill – gully terminus	0.55	0.05	Friable, almost loose, dark greyish brown silt with organic material (woodland soil), overlying 3352, upper fill of 3351		
3354	Cut – ditch	0.64	0.52	Linear, aligned NE-SW, very steep, irregular sides, imperceptible break of slope, a concave base, cutting natural geology 3345, filled with 3355, part of the same linear as 3356, part of group 3377, lower Castle Hill		
3355	Fill – ditch	0.64	0.52	Friable, dark greyish brown (blackish), slightly clayey silt with organic material, single fill of 3354		
3356	Cut – ditch	0.45 x 2.2	0.5	Linear, aligned NE-SW, with slightly asymmetric, steep sides, gradual breaks of slopes, a flat base, cutting natural geology 3345, filled with 3357 and 3358, part of the same linear feature as 3354, leading to Castle Hill Pond (located SW-wards from 3356), part of group 3377, lower Castle Hill		
3357	Fill – ditch	2.2 x 2.2	0.5	Firm, medium yellowish grey slightly silty clay, with occasional small sized, angular siltstone pebbles, overlaid by 3358, lower/main fill of 3356		
3358	Fill – ditch	1.5	0.3	Firm, very dark grey (blackish) clayey silt with organic material, overlying 3357, upper fill of 3356, may represent a recut (moderately steep sides, gradual breaks of slope, a concave base)		
3359	Cut – drainage gully	0.2 x 0.8	0.12	Linear, aligned NW-SE (extending NW-wards beyond the investigated area), vertical sides, gradual breaks of slopes, a flat base; filled with firm, mottled light greyish and light brown yellow clay with moderate amount of manganese flecks, upper Castle Hill		Modern
3360	Cut – fire pit	1.15	0.13	Circular, with gently sloping sides, imperceptible breaks of slopes, an irregularly concave base, cutting 3362, filled with 3361, central Castle Hill		
3361	Fill – fire pit	1.15	0.13	Friable, dark brownish grey silt with large amount of charcoal, single fill of 3360		
3362	Heat affected Layer - natural geology	1.5	0.1	Firm, dark red clay, cut by and around 3360		
3363	Structure – bank	4.0 x 25	1.0 high	Linear, aligned NE-SW, steep eastern side, gently sloping western side, very slightly convex top, composed of 3364, constructed on 3305, on the eastern end vertical cut 3365 for metal sign SF241, lower Castle Hill		
3364	Fill – bank	4.0 x 25	1.0	Friable, medium brown silty clay with very occasional small sized angular pieces of siltstone pebbles, cut by 3365, fill of 3363 bank		
3365	Cut – for road sign	0.6 x 2.6	1.1	Not clear in plan, NE side asymmetrically stepped (steep and flat), base flat, gradual breaks of slope, SW side stepped (vertical and moderately steep),		Modern

Castle Hill						
Area description				Total	3810m ²	
Area located alongside the current A21 carriageway, south-east of WC2 brickworks site, north-west of Burgess Rough, and west of Top Lodge building.				Avg. depth (m)	0.3	
				Width (m)	20	
				Length (m)	347	
Contexts						
				cutting 3364 and 3305, probably belongs to group 3376, lower Castle Hill		
3366	Fill – of road sign cut	0.6 x 2.6	1.1	Friable, mottled yellowish brown, medium brown, and medium grey silty clay with very occasional, small sized pieces of sandstone, overlaid by 3310, backfill of 3365		
3367	Structure – trackway	6.0	-	Crushed brick and concrete surface of N-S aligned trackway – running from A21 road, central Castle Hill		Modern
3368	Cut – gully	0.6 x 0.5	0.24	Linear, aligned NW-SE, moderately steep sides, gradual breaks of slopes, a flat base, cutting natural geology 3345, filled with 3369, drainage ditch – continuation of ditch in the upper Castle Hill 'earthworks'		
3369	Fill – gully	0.6 x 0.5	0.24	Friable, light grey clayey silt, single fill of 3368		
3370	Cut – ditch	2.04 x 1.0	0.23	Linear, aligned NE-SW, with symmetric, moderately steep sides, gradual breaks of slopes, a flat base, cutting natural geology 3345, filled with 3371, part of the same feature as cut 3372 and perhaps as 3365, group 3376, lower Castle Hill		
3371	Fill – ditch	2.04 x 1.0	0.23	Friable, medium greyish brown silty clay with very occasional small sized sub and angular sandstone, single fill of 3370	Iron objects	Modern
3372	Cut - ditch	0.88 x 0.96	0.23	Linear, aligned NE-SW, with slightly asymmetric sides – NE moderately steep, SW steep, gradual breaks of slope, shallows up NE-wards, a flattish base, cutting natural geology 3374, filled with 3373, group 3376, lower Castle Hill		
3373	Fill – ditch	0.88 x 0.96	0.23	Friable, medium yellowish brown silty clay with occasional, small-sized angular and subangular sandstone pebbles, single fill of 3372		
3374	Layer – natural geology	-	-	Friable, medium brownish yellow with dark grey mottling sandy clay with occasional pieces of sandstone gravel, natural geology below 3373. equal to 3345 and to 3323		
3375	Layer – subsoil/B-Horizon	0.2		Medium brownish yellow silty clay, overlaid by 3346, overlying 3345 and fills of some of the archaeological and natural features. Present only in the lower parts of Castle Hill – partly colluvial material, partly B-Horizon (interaction due to natural processes in between woodland soil and natural geology).		
3376	Group – ditch			Linear, alongside bank 3663, running parallel to the A21 carriageway – ie aligned NE-SW – comprises cuts 3372, 3370, and probably also 3365		
3377	Group – ditch			Linear, aligned NE-SW, NE-wards from bank 3363, terminal part not clear (it gently shallows up), runs into Castle Hill Pond, comprises cuts 3356 and 3354, Lower Castle Hill.		

Castle Hill			
Area description		Total	3810m ²
Area located alongside the current A21 carriageway, south-east of WC2 brickworks site, north-west of Burgess Rough, and west of Top Lodge building.		Avg. depth (m)	0.3
		Width (m)	20
		Length (m)	347
Contexts			
3378	Group – ditch		Linear, aligned E-W, extending to the steep-eastern slope of Castle Hill, comprises cuts 3332 and 3327, upper Castle Hill
3379	Group – land-drain		Linear, with ceramic pipes, comprises cuts 3335 and 3336, upper Castle Hill
3380	Group – ditch		Slightly curving linear, aligned NE-SW, comprises cuts 3343, 3347, 33500, upper Castle Hill

SF Number	Context Number	Description	Date
241	3366	Iron sign, located at the SE edge of bank 3363, in cut 3365, partly covered with deposit 3366	18th/19th century

9 BURGESS ROUGH PLATFORM

9.1 Introduction

9.1.1 Burgess Rough is located east of the existing A21 in the northern half of the scheme and on the lower slopes of Castle Hill (Fig. 106). It was identified as a Woodland Translocation Donor site in the Environmental Statement (HA 2013), and due to the presence of woodland including scrub was not able to be evaluated by geophysical survey or trenching prior to the commencement of the dualling scheme. As a result, it was identified as a site requiring further evaluation.

9.1.2 The platform (OA 12) was identified as an archaeological feature during the OA walkover survey (OA 2015c). There was no available Lidar data for the site, and a detailed topographic survey was therefore carried out (OA 2014), in line with the recommendations of the DAMD (WSP and OA 2015, section 3.5) and the WSI (OA 2015a, sections 5.2 and 5.3).

9.1.3 In accordance with the provisions of the DAMD (WSP and OA 2015, sections 4.4.6–7) and the WSI (OA 2015a, sections 6.2.25–31), part of the woodland soil was stripped from the surface of the platform under close archaeological supervision, and a trench was then excavated by machine across the centre of the platform from east to west to establish the character and complexity of the deposit sequence (Plate 378).

9.1.4 This revealed several linear features crossing the trench, and other shallower similar features in the sections on either side. The only find was a single fragment of slag. The remainder of the woodland soils was therefore removed under close archaeological supervision, and the area south of the machine-dug slot cleaned and planned prior to investigating these features by hand. Cleaning and hand-excavation confirmed that the features visible in section were linear, but the only finds were a few fragments of slag and a horseshoe of probable post-medieval date from one of the ditches. The presence of slag suggested the possibility that this might be an industrial site, particularly as charcoal and traces of possible burning were also visible in the stripped surface (OA 2015e), but there was insufficient evidence to confirm or deny this. This initial investigation had, therefore, failed to characterise and interpret the features and sequence with confidence.

9.1.5 In accordance with the DAMD (WSP and OA 2015, sections 3.3.3–5, 4.47 and 4.8.5–7), a programme of further archaeological mitigation involving the further extension of Slot 1 and the excavation of three further slots was therefore agreed in order to understand the archaeological sequence and functions of the platform through a combination of hand- and machine-excavation (OA 2015a, sections 6.30–32; OA 2015e).

9.1.6 Subsequent excavation demonstrated two main phases of activity, the earlier undated, the later a post-medieval trackway. Once the trackway had been identified, dated and recorded, the remainder of the platform was excavated by machine down to natural clay under SMS conditions (Plate 379).

9.1.7 Following translocation of the remainder of Burgess Rough, an area was cleared at the very north end for access. This did not contain any archaeological features. A long trench (Slot 6) was excavated northwards from the north end of the platform down the slope to examine the stratigraphic sequence and look for further evidence of archaeological features, but none was found. When the water main was disconnected Slots 7 and 8 were monitored, and once

it had been removed, Slot 9 was stripped under archaeological supervision and planned, linking the trackway to the A21.

9.1.8 Archaeological work in the area began on the 9th of February 2015 and the investigation of Slots 1–5 was completed on the 17th of April 2015. Excavation of Slots 6–9 took place from 10th–14th August 2015, 21st–25th September 2015. Removal of tree stumps between 26th and 30th October allowed final recording of the early ditch.

9.2 Location, topography and geology

9.2.1 Burgess Rough Platform (OA 12) is centred on NGR TQ 60886 44156, and is located on the east side of the A21, south of Top Lodge within the northern half of the A21 Dualling scheme (Fig. 106).

9.2.2 The platform was 62m long N-S and up to 13m wide, covering an area of approximately 250 square metres (Fig. 107). The underlying geology of the site is Wadhurst Clay (BGS nd).

9.3 Project aims and scope of works

9.3.1 The main aims of the characterisation were to attempt to establish the function and date or dates of activity on the platform, and its relation to Castle Hill hillfort. This was to be achieved through:

- exposing and planning any potential archaeological features;
- and, where these were archaeological, to establish their dimensions, date and the character of their fill, recover finds and if possible, clarify their information potential and significance in the wider landscape.

9.3.2 OA 12 was identified within a Woodland Translocation Donor site, for which geophysical survey was not deemed appropriate, and evaluation by trenching was not possible due to the fragile woodland soils.

9.3.3 There was no Lidar coverage for this part of the scheme, and so the first indication of this site was the walkover survey carried out by OA late in 2014 following the removal of scrub from the site. The report (OA 2015c) identified this as a potentially significant earthwork site, and thus worthy of detailed topographic survey.

9.3.4 Topographic survey was carried out by a combination of OA and Balfour Beatty staff, under the overall direction of the OA Project Officer. Although the topographic variation was slight, changes in local vegetation suggested the presence of a central sunken area, possibly of rectangular shape, and thus possibly representing a building (OA 2014).

9.3.5 Following the cutting down of the trees, and due to its apparent archaeological potential, it was decided to remove the woodland soil from part of the platform under close archaeological supervision in advance of the main programme of translocation, and then to excavate a trench by machine across the middle. This revealed one substantial ditch and other linear features crossing the base of the trench, with many more features in section (Plate 361).

9.3.6 Excavation and recording produced only one fragment of slag, so it was decided to widen this trench to investigate the features in section by hand. This confirmed that the features observed in section were also linear, but the only further dating evidence other than slag was a horseshoe of probable post-medieval date from one of the later ditches.

9.3.7 This work did not adequately characterise the date and functions of the platform, so following recording and on-site consultation with the Wendy Rogers (KCC), a characterisation report and Further Archaeological Mitigation Design was submitted (OA 2015c) and agreed by the Monitoring Archaeologists.

9.3.8 The presence of slag suggested a possible industrial function, and the horseshoe indicated a post-medieval date for one phase of activity.

9.3.9 Phase 1 of the Further Archaeological Mitigation (FAM) comprised the excavation of three further slots across the platform using a combination of hand and machine excavation, making four in all (Fig. 107). A fifth slot was dug by machine downslope of the platform to clarify whether material from the use of the terrace had been dumped over the edge, and to investigate the soil sequence on the east-facing slope of Castle Hill and how this might have been affected by use of the terrace.

9.3.10 Once these investigations had been completed, it was clear that two main phases of activity were present, the earlier being a ditch of unknown date just inside the edge of the platform, and a later curving trackway with two phases of metalling of post-medieval date. A thick sequence of colluvial soils was found in Slot 5, but no artefactual material was recovered.

9.3.11 A slot was subsequently excavated from the north end of the platform down the slope to the north to investigate the colluvial sequence there, and to see if the early ditch continued (Fig. 107, Slot 6). The ditch was not seen.

9.3.12 Phase 2 of the FAM involved the excavation of the remainder of the top of the platform to natural both to confirm the route of the trackway and to trace the line of the earlier ditch and look for finds (OA 2015e). The platform was therefore excavated by machine down to natural clay under archaeological supervision and recorded.

9.3.13 This did not however provide a clear link to the existing A21, so when holes were dug to locate the water main, these were monitored archaeologically (Fig. 107, Slots 7 and 8). Once the water main had been removed, Slot 9, a final area adjacent to the A21 at the north end of the platform, was stripped under archaeological supervision, and located further ruts leading from the A21 onto the platform.

9.4 Methodology

9.4.1 Stripping was carried out by a machine using a toothless bucket under close archaeological supervision.

9.4.2 The stripped surface and the spoil were monitored for finds.

9.4.3 Any potential archaeological features were cleaned and hand-excavated, were drawn by hand and their drawing points surveyed in three dimensions.

9.4.4 The marked features were surveyed using GPS survey equipment and plotted on the site CAD plan, according to the guidance provided in the WSI (OA 2014, 6.5.19).

9.4.5 All interventions were photographed and sections of the deposits drawn at an appropriate scale.

9.4.6 All finds were initially kept, but when it became clear that the slag was redeposited, and did not relate to industrial activity on the platform, only a sample of the material was thereafter retrieved. All other artefacts were recovered.

9.4.7 The excavations were demarcated using metal fencing. Any excavation over 1m in depth was stepped for safety reasons.

9.5 Results

General soil sequence and presentation of results

9.5.1 Across the platform the topsoil and most of the underlying subsoil were removed by machine under close archaeological supervision. The topsoil (1121) was a dark greyish brown sandy clay woodland soil and litter. The subsoil (1122) was a friable, light reddish brown sandy clay, present in thin patches only. The topsoil was slightly deeper over the central part of the platform, where the topographic survey had indicated a slight depression, and a very slight hollow was visible after machining marking the top of the archaeological sequence.

9.5.2 These layers overlay either archaeological horizons or colluvial deposits overlying the Wadhurst Clay. Two distinct types of natural clay were noted, the first (1119) comprised a firm light bluish grey clay, with rare laminated fragments of angular mudstone or sandstone, while the second (1120) comprised a firm light greyish yellow clay, with rare laminated fragments of angular mudstone or sandstone.

9.5.3 In places across the platform tree boles had partially truncated archaeological horizons and some of the larger tree stumps had to be retained *in situ* due to ecological constraints. These features were recorded but are not included in the slot descriptions, below.

9.5.4 The archaeological descriptions of the stratigraphy below the subsoil are presented for each slot in turn (Slots 1 to 5). Slots 1–4 were all oriented south-west to north-east, at right angles to the length of the platform. Slot 1 was located across the centre of the platform. Slot 2 was located to the south-east of Slot 1 and Slot 3 to the north-west. Slot 4 was located beyond Slot 2 farther to the south-east. Slot 5 lay between Slots 2 and 4, and was excavated by machine west to east down the E-facing slope of the terrace. Slots 6–9 lay at the north end of the platform. Slots 6 and 9 were excavated under close archaeological supervision and were recorded in detail, Slots 7 and 8 were monitored during removal of the water main.

Slot 1

9.5.5 Slot 1 was excavated in several stages, first as a machine slot across the platform, and was then subsequently extended by hand on the south-east side twice. The machine slot measured 9m in length, including the edge of the roadside bank on the south-west and extending to the platform edge on the north-east, and was 2m wide. It was not possible to dig this right across the bank alongside the A21, due to the presence of a live water pipe.

9.5.6 Three linear features crossed the base of the trench on a north-west to south-east orientation, but two of these were very shallow, and did not cross the complete width of the trench in plan, although they were visible in the sections on either side, as were several other shallower features (Plate 380). The third linear feature was a substantial ditch farther north-east. This had two fills, but no finds were recovered from either. The only finds recovered during the machining were one piece of 'forest glass' or slag and a lump of Kentish Ragstone. These contexts are cross-referenced to the final records of Slot 1 in the context descriptions listed in section 9.7 below.

9.5.7 The first stage in the hand excavation of Slot 1 measured 7m in length and 0.7m wide, and was dug to investigate the profiles of what were then interpreted as a series of ditches

(Fig. 108, section 709/711). The initial hand-dug investigation proved not to be wide enough to interpret these features confidently, so the hand-dug slot was then extended again for a farther 2.5m to the south-east. This exposed a series of wheel ruts and a large ditch cut into the natural clay 1119 (Fig. 108, section 717; Plate 381). The following description of the sequence in Slot 1 combines the evidence from both sections.

9.5.8 The earliest archaeological feature was located towards the east end of Slot 1. This was a curvilinear ditch (numbered 1134=1227) with sloping sides and a flat base, aligned broadly north-west to south-east. The ditch was up to 1.68m wide and 0.88m deep. It had two fills, 1136=1228 and 1137=1229. This ditch was seen over the entire 5m width of Slot 1 and the adjacent machine cut slot. It bowed out slightly to the north-east, mirroring the line of the eastern edge of the platform (Fig. 107; Plate 382).

9.5.9 The primary fill of ditch 1227 was a firm light yellowish-brown sandy clay with rare small angular pieces of laminated sandstone, numbered 1228. There were no finds. This compacted sterile fill was 0.05m in depth.

9.5.10 The later fill 1229 was a friable light greyish-brown silty sand that was up to 0.46m deep. Frequent manganese mottling within this deposit was indicative that it was probably formed gradually in wet conditions. There were no finds. This deposit was sealed by 1249 and was cut by the trackside ditch 1146.

9.5.11 East of the ditch a series of up to 12 wheel ruts (1232) penetrated the natural clay 1119, and varied in size from 0.1m to 0.5m wide and from 0.12m to 0.45m deep. The ruts follow a general north-west to south-east alignment and extended over an area up to 4.5m wide, occurring between 105.10 and 105.55m aOD (Plate 383).

9.5.12 The soil infilling these ruts, numbered 1233, was a firm dark greyish-brown silty clay, containing frequent small fragments of slag, concentrated towards the base of the ruts in particular but also mixed throughout the layer. This layer was 4.5m wide and was generally 0.25m deep, but up to 0.45m deep in the ruts. The slag suggests that what had originally probably been a metallised surface had been so disturbed by rutting that nothing of the original surface remained.

9.5.13 West of the ruts an extension to Slot 1, measuring 2m by 2m, was later dug by machine into the roadside bank of the A21 to the W up to the service exclusion zone here. The natural clay was overlain by a brownish-yellow sandy clay 1247, interpreted as a colluvial deposit. This was 0.34m deep under the roadside bank next to the A21, but less deep east of the bank. Layer 1233 is interpreted as a continuation of colluvial material 1247, originally surfaced with slag, but later mixed by cart wheels creating ruts, and introducing slag and silt into the soil matrix.

9.5.14 At the eastern edge 1233 filled a wider and deeper feature that was probably a trackside ditch. This was numbered 1146, and its fill was separately numbered 1147 in the edge of the original machine-dug slot, where it cut the fills of earlier ditch 1134.

9.5.15 Layer 1233 was cut by a recut of the trackside ditch numbered 1148=1230. This recut varied from as little as 0.4m to 1m wide, and was slightly deeper than the earlier ditch. The profile of the ditch sides varied from sloping to steep, and the base from flat to cupped.

9.5.16 There was a fine line of silt down the east edge of ditch 1230, and a thin compacted deposit of fine particles of slag across the base, presumably derived from wear on the slag

forming the metallised surface to the west. The main primary fill of ditch 1230 was 1149=1231, a firm dark greyish brown sandy clay with frequent small pieces of furnace waste, stones and manganese inclusions. This was 0.21m in depth. One complete and one fragmentary horseshoe came from 1149, and are dated as post-medieval, and probably no later than the 18th century (Plate 384).

9.5.17 Trackway deposit 1233 was overlain by a firm yellowish brown sandy clay containing frequent stones and rare furnace waste pieces 1234. This layer extended in width for up to 5m, and was up to 0.2m deep. The slag metallising was concentrated in places at the base of the layer directly overlying 1233, although this may have been in part a post-depositional effect. As the inclusions were now mainly stone, it is probable that it represents a distinct further phase of the trackway, perhaps laid as a levelling make-up layer. A fragment of iron was recovered from 1158, probably part of 1234.

9.5.18 Overlying 1149 within the recut trackside ditch was 1150=1249, a yellowish-brown sandy clay containing moderately frequent stone and furnace waste pieces, the latter forming a relatively compact lens towards the base of this layer. This layer was up to 2.4 wide and 0.35m deep. A fragment of post-medieval glass was recovered from 1150. This layer was very similar in composition to 1234, and the interface between 1249 and 1234 was indistinct, so it is likely that the make-up was extended over the partly infilled trackside ditch. The subsequent degree of use of different parts of the trackway will have been responsible both for variations in the character of the deposit, and for the merging of trackway deposits, reflecting the tendency of trackways to meander over time in an era before tarmacadam and kerbs fixed road lines.

9.5.19 The last significant archaeological deposits consisted of two parallel compact stony spreads each about 1m in width and up to 0.25m in depth, the east one numbered 1235, the west one 1236 (Plate 385). These stony spreads were aligned north-west to south-east, and consisted of angular stones up to 0.2m in size and rare pieces of furnace waste in a light greyish brown sandy clay matrix. They represented the edges of the final surfacing of the track. The stones in these spreads were of similar type to those found in layers 1234 and 1249, and so it is likely that the stony layer was originally continuous, but had been mixed by use of the trackway into the underlying make-up layer.

9.5.20 The stones continued south of Slot 1 where they became more concentrated and merged together in places towards Slot 2, while to the north they petered out towards Slot 3. This pattern of truncation was observed across the platform with the preservation of archaeological deposits generally being better towards its higher, south-west end.

Slot 2

9.5.21 Slot 2 was initially hand excavated as a 1m wide slot across a concentration of the stony spread observed after machining. This was subsequently extended by hand into an area measuring 6.5m long and 3m wide. The stratigraphic sequence was similar to that seen in Slot 1, consisting of an early undated ditch to the east, followed by a series of trackway surfaces and ruts and a trackside ditch (Fig. 108, section 718).

9.5.22 As in Slot 1, the earliest archaeological feature was located at the east end. This was ditch 1193, aligned NNW-SSE and with moderate straight sides and a flat base. Only the west side of the ditch was exposed in Slot 2, as a large tree stump precluded excavation farther to

the east. Here the ditch appeared to be at least 2m wide and 0.35m deep (the base being located at 105.2m aOD). There was evidence of some collapse of this side of the ditch compromising a slump of re-deposited natural (1246), which may account for the greater width of the ditch here compared to that in Slots 1 and 3. The west side of the ditch had been truncated by the cutting of the later track-side ditch 1241.

9.5.23 This ditch was cut into the natural clay 1119 and was filled by 1245, a bluish-brown silty clay with rare small angular stones up to 0.25m deep. No finds were recovered from it.

9.5.24 Ditch fill 1245 was sealed by layer 1244, a compact dark reddish-brown horizontal band of metalling consisting of small slag fragments (Fig. 108, section 718; Plate 386). The reddish-brown colour was probably due to natural iron panning accumulating at this compact horizon. The horizontal interface between ditch fill 1245 and this metalling suggests that the ditch fill had been truncated and levelled when the metalling was laid down. Metalling 1244 may have been laid in order to consolidate the softer ground here.

9.5.25 Ditch 1193 was seen over the entire 3m width of Slot 2. It was traced between Slots 1 and 2 during the final stage of machine excavation of the platform after the removal of tree-stumps, but only a short possible extension was seen south of Slot 2 (Fig. 107). It may have been truncated by the track-side ditch and later trackway, the disruption of both penetrating more deeply into the softer layers of colluvium than the trackway cut through in this part of the platform. Alternatively, the ditch may have been removed by erosion of the platform beyond this point.

9.5.26 At the west end of the trench, the natural was overlain by 1187, a colluvial soil consisting of firm brownish-yellow sandy clay. Six cart ruts (1189) were found in the natural clay east of this in the middle of Slot 2. These had penetrated into the natural clay 1119 to a depth of up to 0.12m (or between 105.69m and 105.88m aOD). The rutted area was up to 3m wide and had a generally north-west to south-east alignment (Plate 387).

9.5.27 The ruts were filled by layer 1188, a firm yellowish-brown sandy clay with common slag fragments and rare small stones that also overlay the natural, and was equivalent to 1233 in Slot 1, the result of the mixing of an initial metallised surface 1242 into colluvial layer 1187 that overlay the natural clay to the west. Layer 1188 was 3m wide and up to 0.22m in depth. No direct relationship was recorded between layer 1188 and the early ditch, as this had been removed by a trackside ditch 1241, but as already suggested (see 9.5.24), the ditch fill was probably truncated prior to the laying of the metallised surface of the trackway.

9.5.28 On the surface of layer 1188 were linear bands of metallised track surface 1242 up to 0.05m deep, covering an area 2.2m wide. It was apparent in the N-facing section as a series of lenses, but was much better defined when seen in plan.

9.5.29 Some of the metalling appeared to overlie parts of some of the ruts below, and this could indicate that the track was not initially metallised, but as all of the ruts contained slag, this is more likely the result of the movement of the metalling by subsequent use, the wheels of carts pushing the metalling aside as well as mixing it into the layer below.

9.5.30 To the east of this, and overlying metalling 1244, was a firm bluish-brown silty clay 1191 with moderate iron panning that was up to 0.35m thick. This was either cut by, or ended adjacent to, ditch 1241. It contained two complete horseshoes and three fragments, plus glassy slag. The horseshoes are post-medieval, and probably no later than the 18th century.

9.5.31 At the east end of 1242 was a track-side ditch 1241 aligned NNW-SSE. This was cut from the level of surface 1242 on the west, and had steeply sloping sides and a cupped base. It measured up to 0.6m wide and was up to 0.4m deep (Fig. 108, section 718; Plate 388). Like ditch 1147=1230 in Slot 1, this ditch was lined by a dense band of small stones and glassy slag only 0.05m thick, here numbered 1240. On the east this fill appeared to merge into the flat band of metalling (1244) that overlay early ditch fill 1245, but this was probably simply the origin of layer 1240 eroded into the ditch bottom. The profile of the western edge of layer 1191 east of the ditch matches its western profile cutting layer 1188, and the simplest interpretation of the evidence is that layer 1191 represents material accumulating during the first phase of use of the trackway, and was then truncated by later trackside ditch 1241, which was probably equivalent to cut 1230 in Slot 1.

9.5.32 Layer 1239 was the second fill of ditch 1241 and was a firm greyish-brown clay silt with small angular grit inclusions some 0.11m deep. There were no finds.

9.5.33 Overlying layer 1239 the uppermost fill of ditch 1241 was layer 1190, a friable reddish-brown sandy silt with gritty stone inclusions and some iron-panning. This was up to 0.68m deep, as it spread eastwards beyond the edge of the ditch over layer 1191 and continued beyond the end of Slot 2. Like 1249 in Slot 1, 1190 was probably part of a second phase of make-up of the trackway. A narrow band of the stony track surface, here numbered 1237, overlay 1190 at the very east end of the slot, and although the interface between 1190 and the stony track surface 1192 to the west was indistinct, 1190 probably had the same relationship to 1192 as 1249 did to 1234 in Slot 1, ie that they were parts of one make-up layer with different patterns of subsequent wear from use.

9.5.34 West of 1190 and overlying metallised surface 1242 was make-up layer 1192, a firm yellowish-brown sandy clay containing frequent stones and rare slag pieces that was up to 3m wide and 0.16m in depth. This is equivalent to layer 1234 in Slot 1. At the west end it was overlain by 1238, a compact stony spread consisting of frequent angular stones up to 0.2m across. The stony surface was quite tightly packed, but at the east edge it merged into layer 1192 below, clear evidence of disturbance by use. Layer 1192 was also disturbed by 1186, a three-throw hole filled by layer 1183, which included stones previously thought to indicate a posthole.

9.5.35 As in Slot 1, the stony spreads 1237 and 1238 were the latest deposits exposed below the patchy subsoil, and formed linear parallel N-S alignments running north-west to south-east (see Plate 385). Both 1237 and 1238 consisted of angular flattish stones.

9.5.36 The charcoal noted following the initial machining of the topsoil and subsoil proved to be only a light scatter of fragments in the very surface of the later make-up layer, as did the possible traces of burning. Both may have been intrusive, brought down by root-action from tree-throw hole 1186 or the topsoil and subsoil above.

Slot 3

9.5.37 Slot 3 was initially excavated by hand as a 1m wide slot to investigate the N end of the platform where the stony spread appeared to fade out. This was subsequently extended by a combination of hand- and machine-excavation into an area measuring 7m long and 3m wide, within which any features exposed were excavated by hand.

9.5.38 Again, the stratigraphic sequence in this slot was similar to that seen in Slots 1 and 2, consisting of a series of track surfaces, a trackside ditch and an earlier undated ditch to the east. However, because of the greater truncation at this end of the platform evidence of the later phases of use of the trackway was more ephemeral here, and the section is not illustrated.

9.5.39 The earliest archaeological feature was ditch 1204 which lay towards the east end of Slot 3 and respected the edge of the platform (Fig. 107).

9.5.40 Ditch 1204 was aligned north-west to south-east and was 1.4m wide and nearly 0.4m deep. It was cut into the natural clay (1119), bottoming at 104.35m aOD. The sides were sloping, but with a distinct step on both sides halfway down, and the base was flat. The ditch was filled by 1203 and 1216 and was a continuation of the ditch observed in Slots 1 and 2 following the curve of the eastern edge of the platform. It was clearer in the south than the north section of the slot, but was confirmed continuing NNW towards the end of the platform in the final machine clearance.

9.5.41 The primary ditch fill 1216 was a firm yellowish-grey silty clay with rare small angular stone inclusions, and was 0.05m thick. The upper fill (1203) was a firm dark yellowish-brown silty clay with frequent small angular stones, and this layer was 0.3m thick. A thin band of iron panning ran over the top of fill 1203. No finds came from either fill.

9.5.42 Overlying fill 1203 was layer 1202, a friable yellowish-brown silty clay up to 0.35m deep with frequent horizontal bands of manganese and iron staining. This layer extended for the easternmost 5m of Slot 3, and during the final machine excavation of the platform it was observed to fade out towards the break of slope marking the edge of the platform. To the west, it appeared to end just east of the area of cart ruts marking the trackway. Layer 1202 was interpreted as a colluvial deposit, and the manganese banding was taken as evidence that it had accumulated as a series of horizons over a considerable length of time (Plate 389).

9.5.43 To the west of ditch 1204 four wheel ruts were found cutting into the natural clay 1119. These wheel ruts, which were parallel, and were all aligned WNW to ESE, were numbered collectively 1226. This area of rutting was 3.25m wide. The ruts were not excavated in Slot 3 but were seen in the surface of the clay at a height of 104.85m aOD. Two horseshoes were recovered from the top fill of the wheel ruts, and have been dated as post-medieval, and of late 17th or 18th-century date. The fill of the wheel ruts was also the layer that sealed them, and this was layer 1200.

9.5.44 Layer 1200, which was 3m wide and up to 0.25 m deep, was similar to 1202 farther west, and at the same level as it. It overlay most of the band where ruts were evident in the natural beneath. This was a firm light yellowish-brown silty clay with moderate manganese and iron-panning, but unlike 1202 it contained large quantities of slag. It was partly overlain by a metallised surface 1201, and is interpreted as the colluvial soil 1202 churned and mixed with metallising from surface 1201 by the series of cart ruts 1226, in whose fill slag was also visible.

9.5.45 Metallising 1201 was a band of grit and glassy slag 3m wide and 0.10m deep, partly covering layer 1200, and at its east edge also overlying colluvial layer 1202. A complete horseshoe was recovered from the metallised surface, and is dated as post-medieval.

9.5.46 Just beyond the east end of layer 1201, and cut from the same horizon into the west end of layer 1202 was a trackside ditch 1214, which was aligned WNW to ESE. The ditch had steep sides and a flattish bottom, and was 0.5m wide and 0.3m deep. It was not as well-defined in the north-west section of the slot as in the south-east, but was confirmed as extending both north-westwards and south-eastwards during the SMS machine excavation of the platform.

9.5.47 The fill of trackside ditch 1214, which was numbered 1215, was a firm reddish-brown silty clay with frequent inclusions of slag. It was 0.3m deep and was clearly the result of a mixture of metalling disturbed by carts using the track, and by silting.

9.5.48 Overlying the metalled track surface 1201, fill 1215 of track-side ditch 1214 and layer 1202 east of that was layer 1205, a layer of friable light yellowish-brown silty clay with rare grit inclusions that was up to 0.15m thick. It extended over 5.5m of Slot 3, continuing eastwards beyond it. On the west this deposit thinned and faded out. A fragment of iron was recovered from this layer.

9.5.49 Nearly 2m farther west, and sealing layer 1200, was a linear stony spread (1199) aligned WNW to ESE, made of smaller angular stones up to 0.15m across. The stony spread was 0.3m wide and 0.15m deep where it crossed Slot 3, but faded out a little farther to the north.

9.5.50 Despite the few inclusions it contained, layer 1205 is probably equivalent to deposit 1192, the make-up layer for the stony surface in Slot 2, and layer 1199 is the truncated remnants of the stony track surface.

Slot 4

9.5.51 Slot 4 was excavated by machine to investigate the character of the S end of the platform. The slot was dug with a toothless ditching bucket down to the level of the cart ruts and was 6.5m long from south-west to north-east and was 2.2m wide.

9.5.52 The earliest deposit observed was 1250, a soft light grey silty sand with moderate chemical mottling. This was seen in the base of Slot 4 and during the final machine-clearance of the platform, and was a discrete lens of sand within the colluvial layer overlying the natural clay at the south end of the platform. It was sub-circular in shape and c.4m in diameter, but contained no finds, and was presumably of very early date.

9.5.53 Layer 1250 was cut by a series of wheel ruts that were aligned NNW-SSE, and covered a band around 4m wide. The ruts were numbered in groups 1217, 1219 and 1221, and individually the ruts were up to 0.45m wide and up to 0.15m deep, with steep sides and concave or flat bases (Fig. 107; Fig. 108, section 716). They were filled respectively with 1218, 1220 and 1222, all parts of a friable sandy clay with frequent glassy slag nodules, but varying in colour from reddish-brown to lighter greyish-brown. The tops of these cart ruts were located at a height of between 105.42m to 105.83m aOD. Fill 1218 contained a complete horseshoe dated to the post-medieval period, and probably no later than the 18th century.

9.5.54 Some 1.5m east of these ruts was 1223, a cut 0.6m wide and 0.3m deep, of similar width and depth to the westernmost rut group 1221, and similarly aligned, but with a more regular profile of steeply sloping sides and a flat bottom. It was filled with 1224, indistinguishable from the fills of the ruts to the west, except that it also included a few sandstone pieces. It was located very close to the edge of the platform and at a slightly lower

level than the ruts to the east. This may therefore have been a continuation of the trackside ditch, but is not in line with the alignment in Slot 2 to the north, and alternatively may simply have been another cart rut.

9.5.55 The fills of the ruts and the possible trackside ditch, and the colluvium in between them were covered by layer 1225, a friable, light brown sandy clay with variable concentrations of small angular stones and glassy slag that extended over the length of entire slot, and varied from 0.23 to 0.36m deep.

9.5.56 It was noticeable that the slag inclusions were concentrated towards the base of the layer, and these may represent the much-disturbed remains of the original metallised surface here, but there were no clear surviving patches. In the other slots the metallised surface overlay a colluvial soil, but the presence of stone fragments mixed with the glassy slag in layer 1225 suggests that this also incorporated material from the second phase surface, presumably during use of the trackway in this phase. 1225 is therefore a mixture of the soil underlying the original metallised surface and layer 1192, the later make-up layer for the stony spread in Slot 2.

9.5.57 Layer 1225 was directly overlain by stony spread 1248, made of small angular stones up to 0.15m across and including some glassy slag, including some larger fragments up to 0.1m in size. The stony spread covered part of 1225, but also extended farther westwards, and was about 2.5m wide from east to west, and was up to 0.15m deep. It continued to the north and south of Slot 4, and to the south it turned westwards into the bank next to A21 following the outline of the platform. 1248 was clearly a continuation of the later stony surfacing of the track.

Slot 5

9.5.58 Slot 5 was a machine cut trench measuring approximately 35m in length and 2.2m in width. It was cut on an approximately east-west alignment down the slope of the platform in order to characterise the archaeology here and to check the geological profile of the platform (Fig. 107; Plate 390).

9.5.59 No archaeology was present in this slot, but a cross-section of the superficial geology of the platform was obtained. Generally, three bands of colluvium were recorded in Slot 5 (1206–1212) and during the SMS machine clearance of the platform, with local variations (Plate 391). These can be broadly characterised as an upper layer of yellowish-red silty clay, a greyer sandier band containing weathered mudstone or sandstone with chemical staining, and a reddish-brown silty clay directly overlying the natural clay 1119. None of these deposits produced any finds.

9.5.60 Combining observations made in Slots 1–4 and in the machine clearance at the end of the excavation, the following general description of the natural soil sequence can be obtained. The natural clay (1119) was exposed closest to the modern ground level over the central section of the platform between Slot 1 and Slot 2 (at a height of around 106m aOD). The surface of the clay dropped northwards, being about 1m lower around Slot 3, and also to the east, generally being about half a metre lower at the east edge of the platform. To the south and east of the centre of the platform, the natural clay was overlain by a series of colluvial deposits up to 1m deep.

9.5.61 The footprint of the trackway cut into this colluvium in the north and south of the platform, and cut into the natural clay only in the centre of the platform.

Slots 6–9

9.5.62 Although woodland soils had been removed from all of Burgess Rough, the eastern part of the area was to be raised by fill, so no further investigation here was possible. Due to the limitations imposed by the existing water main on the roadside bank to the west, the fill area to the east, and the locally undulating topography, it was decided to investigate the narrow area north of the platform using a machine-cut trench initially (Fig. 107; Plate 392).

9.5.63 A machine-cut trench was excavated from the north end of the platform northwards downslope and across the low-lying ground to the north to look for further archaeological features and finds, but the only feature was a recent field boundary (see OA 2015a), and there were no finds. The early ditch seen in Slot 3 was not identified at the south end, indicating that it must have terminated between Slot 3 and Slot 6. A similar sequence of colluvial deposits overlying the natural clay was found as in Trench 5, all of which were sterile.

9.5.64 When the water main was disconnected and removed, two small excavations cut into the roadside bank to locate it were monitored archaeologically, both to check that the absence of the early ditch in Slot 6 was not due to a short gap, and to trace the trackway as close to the existing A21 as possible. No trace of either the early bank or of machine ruts was found in the natural (Fig. 107, Slots 7 and 8). The overlying stratigraphic sequence here had been truncated by the water main.

9.5.65 Following the removal of the main, the area between Slot 8 and the A21 was stripped under archaeological supervision (Fig. 107, slot 9) and any underlying soilmarks were plotted. These proved to be further ruts cut into the colluvium and showed that the trackway was turning slightly to align itself with the road.

9.6 Interpretation

The platform

9.6.1 Topographical feature OA 12 in Burgess Rough was identified as a platform of uncertain significance during the walkover survey (OA 2015c). The central and most pronounced area, which was that subjected to detailed topographic survey, was only some 25m long and 12m wide, but excavation established that the utilised area east of the roadside bank of the existing A21 was 62m long north-west to south-east, and up to 13m wide.

9.6.2 Excavation revealed that the surface of the natural clay on the platform sloped down from south to north by about 1m. The fall from west to east, was less, around 0.5m, and the north-eastern limit as plotted was approximate, as in Slot 1 the slope began to increase just east of the early ditch, as it also did in Slots 2 and 3. In Slot 4 one of the largest and deepest ruts of the trackway was found right on the edge of the platform, indication some erosion since the trackway had gone out of use. It is very unlikely that carts would have been repeatedly driven quite so close to the edge when the track was in use.

9.6.3 The natural clay was overlain by colluvium right across the platform, but no dating evidence was obtained from this. No certain evidence for deliberate levelling of the platform was obtained. The depth of colluvium under the roadside bank on the west edge of the platform was greater than on the platform to the east, perhaps indicating some degree of

artificial levelling at some point, but this may simply have been the result of use in the post-medieval period as a trackway.

The early ditch

9.6.4 The earliest, and most substantial, feature identified on the platform was a ditch close to its eastern edge (Fig. 107). This ditch did curve out slightly to the east, as if following the natural contour of the platform, but much less so than the later trackway. The fills of this ditch became less distinct as it ran northwards across Slot 3, and it was not traced on the surface beyond this. To the north, it was not observed in Slot 6, so had presumably ended before this. On the south it was not confidently seen beyond Slot 2, and it may have been lost due to subsequent erosion of the platform edge.

9.6.5 Unfortunately, no artefactual or other dating evidence was found in the ditch. This had however silted up and was overlain by some depth of colluviation, including horizons of iron panning, before the trackway came into being, so can plausibly be suggested to antedate the trackway by a considerable length of time, but at what date remains unknown. It is reasonable to suppose that colluviation from upslope would have slowed, or even stopped altogether, once the A21 was established, but the map evidence for this does not provide an earlier *terminus ante quem* than that of the trackway.

9.6.6 The ditch was perhaps dug to enclose or demarcate a natural platform, but if so, the natural platform may have been slightly larger, and less curved, on the south than the footprint of the platform examined during these investigations.

9.6.7 Given its location near to Castle Hill, it is conceivable that this ditch was an outwork, or intended to create a small Iron Age enclosure below the hillfort to the west. It does not, however, lie directly outside the east entrance of the hillfort, but some 150m farther to the north, and the ditch was not of defensive proportions, nor was there any evidence of an accompanying bank, though this last might have been removed by the later trackway. It is unclear why a natural platform such as this, which had a steep drop to the east, would have needed a ditch in any case. If the ditch was for drainage, then it is unclear why it did not continue to the north edge of the platform, as this was the downslope direction.

The post-medieval trackway

9.6.8 The trackway that followed is better dated, the provisional dating of the horseshoes (see Plate 464) suggesting a post-medieval date in the late 17th or 18th century for the earlier phase of metalled track. It is possible that there was an initial phase of use in which the trackway was not metalled, but the presence of slag in almost all the ruts suggests otherwise.

9.6.9 The trackside ditch was evident in Slots 1–3, though it did not always penetrate the base of the slots, but no trace was seen in Slot 6 farther north, so appears to have ended between them. To the south, a soilmark in line with the ditch in Slot 2 probably represents a terminal. It was not certainly identified in Slot 4, where the alignment of the wheel ruts is different. A wheel rut was also observed overlying this possible terminal, and this may have belonged to the second phase of trackway discussed below. It is possible that the trackside ditch changed course between Slots 2 and 4, but it is more likely that it was dug simply to drain the lower part of the platform, rather than to constitute a barrier at its edge.

9.6.10 The ruts in Slot 4 have shifted farther eastwards than the general curve indicated by those in Slots 3, 1 and 2. Between Slots 2 and 4 one of the ruts recorded was on a different

alignment to that of the rest. This may simply indicate that occasionally vehicles pulled over at the end of the platform, but as the rut overlying the trackside ditch is also on a different alignment, and is in line with the more easterly of those in Slot 4, it supports the view that in the later phase the trackway took a less curving course towards the south.

9.6.11 The second phase of track was surfaced with stone, and how long this remained in use is not clarified by the artefacts from it, as the clay pipe stems from it cannot be closely dated.

9.6.12 The historic-map evidence is equivocal as to how long the platform survived, as the OS draft of 1797 does not appear to include it, and it had certainly been incorporated into woodland by the time of the 1st edition OS map surveyed in 1865. There is, however, a bulge on the Tithe Map surveyed in 1846 and published in 1842 in approximately the right place, although this is not of the right shape. The woodland in Burgess Rough is characterised as pre-1810 woodland, but such designations are not exact, and probably did not distinguish between the trees on the platform and those in the rest of Burgess Rough. There were however certainly large trees growing on the platform, which may indicate that the woodland was indeed more than 200 years old. It may thus have lasted into the second half of the 19th century, but could have been abandoned as early as the end of the 18th century.

9.6.13 The trackway is clearly continuing both north and south, so follows the line of the A21, and the ruts discovered right on the edge of the present road on the north suggest that it ran straight into it, but it is not known whether it represents the former line of the A21 itself, or a passing place at a bend in the incline of the road. The steep slope to the east makes it unsuitable as a loading place for large timber from Burgess Rough, though smaller wood could have been hauled up.

9.6.14 Highways from the 1600s to the 1800s before the turnpike era of management and the use of tarmacadam tended to change alignment within limits over time, so may have drifted where fairly level areas such as the platform allowed, but of necessity did not stray onto steeper slopes, ie off the platform.

9.6.15 There would certainly have been need for passing places for carts coming up and down the road as it climbed Castle Hill, and perhaps also places on the climb where horses could rest, so this is probably the most likely interpretation, utilising the natural platform here.

Industrial working

9.6.16 It was originally thought that the slag found here might be the result of *in situ* industrial working, but this is clearly not the case, and the slag has been brought in from elsewhere. Documentary research may determine which was the most likely source in the local area. It was originally thought that the slag might be glass slag, but this may not be the case, as glassy slags are also created during iron production. The slag assessment (volume 6, section 9) was unable to identify the process from which this slag had derived. The use of slag as metalling for the earlier phase of track reflects a common practice in the Sussex Weald, where this was a large-scale industrial by-product (C. Johnson pers. comm.). Main roads did not receive tarmacadam surfaces until after 1820.

9.7 Burgess Rough Platform context inventory

Burgess Rough Platform							
Contexts							
context	type	W (m)	D (m)	Comment / description	Slot No.	finds	date
1119	Natural geology	-		Firm light bluish grey clay, rare laminated fragments of angular mud/sandstone	All		
1120	Natural geology	-	.	Firm light greyish yellow clay, rare laminated fragments of angular mud/sandstone	All		
1121	Topsoil	-	>0.20	Woodland soil and litter. Dark greyish - brown sandy clay. Removed by translocation.	All		
1122	B-Horizon (Subsoil)	-	> 0.16	Friable, light reddish-brown sandy clay. Present in thin patches only.	All		
1123 to 1127				Void numbers			
1128 and 1129				Allocated to WC 3 Translocation folder			
1130	Rut			Equals group of ruts 1232	1		
1131	Fill			Equals group 1233 (fill of the ruts)	1		
1132	Rut			Equals 1232	1		
1133	Fill			Equals 1233	1		
1134	Cut of ditch			Equals 1141 and 1227	1		
1135	Fill			Lower fill of ditch 1134. Equals 1137 and 1229	1		
1136	Fill			Lowest fill of ditch 1136. Equals 1228	1		
1137	Fill			Equals 1135 and 1229	1		
1138	Layer			Stony spread, late track. Equals 1235	1		
1139	Sub-cut			Root disturbance. Equals 1227	1		
1140	Fill			Fill of 1139. Equals 1229	1		
1141	Cut of ditch			Equals 1134 and 1227	1		
1142	Fill			Equals 1136 and 1228	1		
1143	Layer			Equals 1234 (or 1235)	1		
1144	Fill			Equals 1233	1		
1145	Rut			Equals 1232	1		
1146	Cut			Ditch cut. Equals trackside ditch 1230	1		
1147	Fill			Fill of 1146. Equals 1231	1		
1148	Rut			Equals 1232	1		
1149	Fill			Equals 1233	1		
1150	Layer			Equals 1234	1		
1151	Layer			Equals 1234	1		
1152	Fill			Equals 1233	1		
1153	Fill			Equals 1233	1		

Burgess Rough Platform							
Contexts							
context	type	W (m)	D (m)	Comment / description	Slot No.	finds	date
1154	Rut			Equals 1232	1		
1155	Fill			Equals 1233	1		
1156	Layer			Equals 1121 – a tree bole	1		
1157	Rut			Equals 1232	1		
1158	Rut			Equals 1232	1		
1159	Fill			Equals 1233	1		
1160	Cut			Equals trackside ditch 1230	1		
1161	Fill			Equals 1233	1		
1162	Cut			Equals 1232	1		
1163	Fill			Equals 1233	1		
1164	Cut			Equals 1232	1		
1165	Fill			Equals 1233	1		
1166– 1175				Void numbers			
1176	Fill			Equals 1233	1		
1177	Fill			Equals 1233	1		
1178	Layer			Equals 1121 – a tree bole	1		
1179	Layer			Equals 1236	1		
1180	Layer			Equals 1247	1		
1181	Layer			Equals 1247	1		
1182	Layer			Equals 1247	1		
1183	Fill	2	0.52	Firm greenish-brown silty clay. Moderate poorly sorted angular stone inclusions and roots. Sealed by topsoil and filling 1186.	2		Post-track
1184– 1185				Void numbers			
1186	Cut	2	0.25	Sub-oval shaped tree bole with irregular sides and base. Filled by 1183 and partially truncates stone surface 1192.	2		Post-track
1187	Layer	1.5	0.25	Firm brownish-orange sandy clay, with rare angular stones. A colluvial horizon sealed by 1121 and the roadside bank to the west, and truncated by track ruts 1188/1189 to the east. Exposed over 3m width of Slot 2.	2		
1188	Layer	3	0.2	Firm yellowish-brown sandy clay with rare small stones This layer is mixed into and fills the cart ruts. Exposed over 3m width of Slot 2.	2	Furnace waste	Post-med or Med.
1189	Ruts	2.5	0.1	A series of north-south aligned cart ruts truncating colluvium layer 1187 and filled by 1188. Exposed over 3m width of Slot 2.	2		

Burgess Rough Platform							
Contexts							
context	type	W (m)	D (m)	Comment / description	Slot No.	finds	date
1190	Layer	2	0.25	Friable reddish-brown sandy silt with gritty stone inclusions and some iron-panning. Overlain by stony spread 1237. Seals 1191. Exposed over 3m width of Slot 2.	2		Post-med or Med.
1191	Layer	1.4	0.3	Firm bluish-brown silty clay with moderate iron panning. Probably formed by runoff from metallised track 1242 and upcast from track-side ditch 1241. Sealed by 1190, and seals metallised horizon 1244. Exposed over 3m width of Slot 2.	2	Furnace waste, horse shoe	Post-med or Med.
1192	Layer	3	0.16	Compact stony spread consisting of frequent angular stones >0.2m quite tightly packed into a firm yellowish-brown sandy clay containing frequent stones and rare pieces of slag. Sealed by 1121 and cut by tree bole 1186, seals metallised track surface 1242. Exposed over 3m width of Slot 2.	2		Post-med
1193	Cut	2	0.35	Linear north-south aligned ditch cut defining E perimeter of platform. Not fully exposed in Slot 2. Truncated by track-side ditch 1241 and ruts 1189. Filled by 1245. Exposed over 3m width of Slot 2.	2		
1194–1195				Void numbers			
1196	Rut			Equals 1232	1		
1197	Fill			Equals 1233	1		
1198	Fill			Equals 1233	1		
1199	Layer	0.3	0.15	Linear stony spread comprising angular stones > 0.15m across, petering out at the N due to later truncation. Overlain by 1121, overlying mixed colluvial layer 1200. Exposed over 3m width of Slot 3.	3		Post-med
1200	Layer	3	0.25	Firm light yellowish-brown silty clay with moderate manganese and iron-panning. Partially sealed by 1201, a metallised track surface. Formed by mixture of subsoil and colluvium churned by and filling a series of cart ruts 1226. Exposed over 3m width of Slot 3.	3		
1201	Layer	3	0.1	Compact dark reddish-brown metallised track surface made of grit, glassy slag and iron-rich slag. Overlain by 1205 and sealing 1200, to the west and buried colluvium 1202 to the east. Exposed over 3m width of Slot 3.	3		Post-med or Med.

Burgess Rough Platform							
Contexts							
context	type	W (m)	D (m)	Comment / description	Slot No.	finds	date
1202	Layer	5	0.35	Friable yellowish-brown silty clay colluvium with frequent banded manganese and iron staining extending over the E end of Slot 3. Cut by ditch 1214, seals upper fill 1203 of outer ditch 1204. Exposed over 3m width of Slot 3.	3		
1203	Fill	1.4	0.3	Firm dark yellowish-brown silty clay with frequent small angular stones. Upper fill of outer ditch 1204. A thin band of iron panning overlies the top of this fill and continues into 1202. Sealed by 1202, overlies 1216 the primary fill of 1204. Exposed over 3m width of Slot 3.	3		
1204	Cut	1.4	0.4	Linear N/S aligned ditch with a slight curve to the NNW. Moderate concave profile filled by 1203 and 1216. Part of the outer perimeter ditch around the platform cut into the natural 1119. Exposed over 3m width of Slot 3.	3		
1205	Layer	5.5	>0.15	A thin band of friable light yellowish - brown silty clay with rare grit inclusions. Extended over most of Slot 3 where not truncated by machining. Sealed by 1121. Overlies metallised track surface 1201 and upper fill 1215 of track-side ditch 1214. Exposed over 3m width of Slot 3.	3		Post-med
1206	Layer	2	0.35	Friable light reddish-brown sandy clay colluvium. Exposed over 2m width of Slot 5.	5		
1207	Layer	2	0.4	Friable dark reddish-brown sandy clay colluvium. Exposed over 2m width of Slot 5.	5		
1208	Layer	2	0.4	Friable light reddish brown sandy clay colluvium. Exposed over 2m width of Slot 5.	5		
1209	Layer	2	0.3	Friable dark reddish-brown sandy clay colluvium. Exposed over 2m width of Slot 5.	5		
1210	Layer	2	0.35	Friable light reddish-brown sandy clay colluvium. Exposed over 2m width of Slot 5.	5		
1211	Layer	2	0.45	Friable light greyish-brown sandy clay mottled colluvium with frequent manganese lenses. Exposed over 2m width of Slot 5.	5		
1212	Layer	2	0.3	Friable reddish-grey sandy clay colluvium with moderate manganese lenses. Exposed over 2m width of Slot 5.	5		
1213	Layer	2	0.25	Friable reddish-brown silty sand colluvium. Exposed over 2m width of Slot 5.	5		

Burgess Rough Platform							
Contexts							
context	type	W (m)	D (m)	Comment / description	Slot No.	finds	date
1214	Cut	0.5	0.3	Linear NNW/SSE aligned ditch with a steep concave profile. A track-side ditch extending N and S of the slot. Filled by 1215, cutting 1202 and situated against the E side of metalled track 1201 with which it is contemporary. Exposed over 3m width of Slot 3.	3		
1215	Fill	0.5	0.3	Firm reddish-brown silty clay with frequent grit and glassy slag fragments. Formed by silting up of roadside ditch 1214. Sealed by 1205. Exposed over 3m width of Slot 3.	3		
1216	Fill	1.4	0.05	Firm yellowish-grey silty clay with rare small angular stone inclusions. Sealed by 1203. Primary silting of outer ditch 1204. Exposed over 3m width of Slot 3.	3		
1217	Cut	0.8	0.15	Linear N/S aligned irregularly-sided series of wheel ruts. Filled by 1218 and cutting natural sand deposit 1250.	4		
1218	Fill	0.8	0.15	Friable reddish-brown sandy clay with frequent lag nodules. Fill of rut 1217, sealed by 1225. Exposed over 2m width of Slot 4.	4	Furnace waste and horse shoe	Post-med or Med.
1219	Cut	0.45	>0.15	Linear N/S aligned irregularly-sided series of wheel ruts. Filled by 1220 and cutting natural sand deposit 1250. Exposed over 2m width of Slot 4.	4		
1220	Fill	0.45	>0.15	Friable reddish-brown sandy clay with frequent glassy slag nodules. Fill of rut 1219, sealed by 1225. Exposed over 2m width of Slot 4.	4	Furnace waste	Post-med or Med.
1221	Cut	0.45	>0.15	Linear N/S aligned series of wheel ruts. Filled by 1222 and cutting natural sand deposit 1250. Exposed over 2m width of Slot 4.	4		
1222	Fill	0.45	>0.15	Friable light greyish-brown sandy clay with moderate glassy slag nodules. Fill of rut 1221, sealed by 1225. Exposed over 2m width of Slot 4.	4	Furnace waste	Post-med or Med.
1223	Cut	0.6	0.3	Linear N/S aligned steep-sided concave profile cut. Root and animal disturbance. Situated E end of Slot 4 and at a lower level to the ruts above. Filled by 1224 and cut into natural sand deposit 1250. This may be a cart rut, or less probably a track-side ditch. Exposed over 2m width of Slot 4.	4		

Burgess Rough Platform							
Contexts							
context	type	W (m)	D (m)	Comment / description	Slot No.	finds	date
1224	Fill	0.6	0.3	Friable reddish-brown sandy clay fill of 1223 with moderate small angular stone inclusions. Sealed by 1225. Exposed over 2m width of Slot 4.	4	Larger pieces of furnace waste and charcoal	Post-med or Med.
1225	Layer	7	>0.45	Friable light brown sandy clay with variable concentrations of small angular stones and furnace waste. Overlain by stone track surface 1248 and sealing 1218, 1220, 1222 ad 1224. Exposed over 2m width of Slot 4.	4		
1226	Ruts	3.25	n/a	A series of NNW/SSE aligned wheel ruts seen in the west end of Slot 3. Filled by mixed soils 1200, cut into natural 1119. Not excavated. Exposed over 3m width of Slot 3.	3		
1227	Cut	1.68	>0.88	Curvilinear generally N/S aligned ditch with moderate straight sides, a flat base and U-shaped profile. Cuts natural 1119 and filled by 1228 and 1229. Seen over the entire 5m width of Slot 1 and the adjacent machine cut slot.	1		Iron Age?
1228	Fill	0.45	>0.05	Firm light yellowish-brown sandy clay with rare small angular pieces of laminated sandstone. A compacted sterile basal fill of ditch 1227. Overlain by 1229. Seen over 3m wide extent of Slot 1.	1		
1229	Fill	>1.15	>0.4	Friable light greyish-brown silty sand upper fill of ditch 1227. Frequent manganese mottling indicative that this deposit was formed by natural agency, possibly in wet conditions. Sealed by 1249 and overlying primary ditch fill 1228. Seen over the 3m width of Slot 1.	1		
1230	Cut	0.4	0.21	Linear ditch situated to the east of the metalled track surface 1234. This ditch forms a track-side ditch contemporary with the metalled road. Filled by 1231, this ditch is cut from 1233. Seen in 1.9m wide extension to Slot 1.	1		
1231	Fill	0.4	0.21	Firm dark greyish-brown sandy clay with frequent small pieces of glassy slag, stones and manganese inclusions. There is a fine line of silt lining the E side of the ditch. Sealed by 1249, fill of ditch 1230. Seen in 1.9m wide extension to Slot 1.	1	Furnace waste	

Burgess Rough Platform							
Contexts							
context	type	W (m)	D (m)	Comment / description	Slot No.	finds	date
1232	Ruts	3.7	>0.2	Irregular group of wheel ruts aligned N-S, some with a flat base and some concave in profile. The sides are generally steep but irregular. Filled by 1233 the ruts cut into the natural 1119. These ruts were fully excavated and seen to extend over the whole 3m width of Slot 1.	1		
1233	Layer	c.5.5	>0.4	A firm dark greyish brown silty clay containing frequent small pieces of glassy slag concentrated towards the base of the ruts. This layer fills the ruts 1232 but its upper part probably formed a metallised track surface. This metalling can also be seen in the base of 1249 to the E. It is overlain by 1234 a later stony track surface. This deposit covered the whole 3m width of Slot 1.	1	Furnace waste pieces and horse furniture	Post-med or Med.
1234	Layer	c.5m	>0.2	Firm mid-yellowish brown sandy clay containing moderately frequent stone and slag fragments. Overlain by 1235 to the E and 1236 to the W, this deposit seals 1233, and covered the whole 3m width of Slot 1. It was probably make-up for surface 1235.	1	Furnace waste	Post-med or Med.
1235	Layer	1.9	>0.15	Compact stony spread consisting of angular stones >0.2m, and rare pieces of slag in a light greyish-brown sandy clay matrix. This forms part of the final phase of use of the track. Overlain by 1179, 1235 overlies 1234 and seen across the entire 3m width of Slot 1.	1		Post-med.
1236	Layer	2.2	>0.25	Identical to 1235 above. This forms part of the final phase of use of the track. Overlain by 1178, 1236 seals 1249 and overlies 1234 and covered the entire 3m width of Slot 1.	1		
1237	Layer	0.5	0.1	Irregular linear N/S aligned stone spread to E of track. Made of angular flattish stones generally >0.15m. Sealed by 1121 and overlies 1190. Last phase of track. Exposed over 3m width of Slot 2.	2		Post-med.
1238	Layer	0.4	0.1	Second irregular linear N/S aligned spread of stones similar in character to 1237 but to W of track. Sealed by 1121 but overlies 1192. Last phase of track. Exposed over 3m width of Slot 2.	2		Post-med.
1239	Fill	0.3	0.15	Secondary silting fill of track-side ditch 1241. Firm greyish-brown clay silt with small angular grit inclusions. Originally dug as part of a larger ditch 1193.	2		Post-med or Med.

Burgess Rough Platform							
Contexts							
context	type	W (m)	D (m)	Comment / description	Slot No.	finds	date
				Sealed by 1190, overlies metallised fill 1240. Exposed over 3m width of Slot 2.			
1240	Fill	0.3	0.05	Compact dense band of small stones and glassy slag lining ditch 1241, and primary ditch fill. Overlain by 1239, fills 1241. Exposed over 3m width of Slot 2.	2		Post-med or Med.
1241	Cut	0.3	0.4	N/S U-profiled ditch situated to east of metallised track 1242. Filled by 1240, cuts 1188. Exposed over 3m width of Slot 2.	2		Post-med or Med.
1242	Layer	2.3	0.05	Linear N/S aligned compact layer of glassy slag and small stones. Metallised track surface associated with group 1243 consisting of 1242, 1241 and 1244. Overlain by stony track surface 1192. Overlies ruts 1188/1189. Exposed over 3m width of Slot 2.	2		Post-med or Med.
1243	Construct group	c.5	0.05	Grouping of metallised features 1242, 1241, and 1244 forming a distinct horizon associated with the earlier phase of use of the track. Exposed over 3m width of Slot 2.	2		Post-med or Med.
1244	Layer	c.2	0.05	A compact dark reddish-brown horizontal band of metallising apparently consisting of glassy slag. Seen in section. Sealed by 1191, seals softer fill 1245 of ditch 1193, over which it may have been laid in order to consolidate. Exposed over 3m width of Slot 2.	2		Post-med or Med.
1245	Fill	1.6	0.35	Firm bluish-brown silty clay with rare small angular stones. Fill of ditch 1193, sealed by 1244. Exposed over 3m width of Slot 2.	2		
1246	Lens	0.5	0.15	Firm yellowish-blue clay lens of re-deposited natural slumped from the eastern side of ditch 1193. Overlain by 1245, fills 1193. Exposed over 1m width in Slot 2.	2		
1247	Layer	2	>0.34	Friable light brownish-yellow sandy clay with rare angular sandstone fragments. Overlain by 1122 and sealing natural 1119. Colluvial deposit exposed in machine cut extension to Slot 1 into the bank by the A21 to check its profile. Also seen as 1181 and 1182.	1 (bank to west)		
1248	Layer	c.2.5	>0.15	A stony spread forming upper level of track composed of smaller angular stones >0.15m and much glassy slag. Overlain by 1121 and sealing 1225. Exposed over 2m width of Slot 4.	4		Post-med

Burgess Rough Platform							
Contexts							
context	type	W (m)	D (m)	Comment / description	Slot No.	finds	date
1249	Layer	2.4	>0.35	Firm yellowish-brown sandy clay containing moderately frequent pieces of stone and slag, the latter forming a relatively compact lens towards the base. This deposit was seen to extend over the 3m width of Slot 1.	1		Post-med.
1250	Deposit	4m	n/a	A soft light grey deposit of silty sand with moderate chemical mottles. Seen during SMS clearance. A discrete lens of sand set within colluvium in the area of Slot 4. Sub-circular in shape and c. 4m in diameter.	SMS		

10 BURGESS ROUGH: CATTLE LODGE

10.1 Introduction

10.1.1 Burgess Rough was one of the wooded areas on the east side of the existing A21 north of Burgess Hill Farm. It was nearly 200m long (NW–SE) and up to 55m wide (NE–SW), covering an area of 10,320m² (Fig. 106). It had not been possible to evaluate adequately prior to the publication of the Environmental Statement, and for this reason was designated as an area requiring further archaeological evaluation to determine the appropriate mitigation strategy.

10.1.2 Following tree-clearance and the translocation of tree-stumps and woodland soils to receptor sites, other wooded areas along the scheme were evaluated by trenching. Burgess Rough and Castle Hill Wood both lay just outside the east entrance of the hillfort immediately west of the A21 and were deemed to have higher potential to contain archaeological features of Iron Age date (HA 2013, 11/2; OA 2015a). Tree-clearance at Burgess Rough had also revealed an earthwork platform that had been surveyed topographically and excavated archaeologically, and this had included an undated curving ditch thought possibly to relate to the scheduled monument (OA 2015b). These two wooded areas were subsequently designated for SMS excavation, which was conducted in August 2015.

10.2 Location, topography and geology

10.2.1 Burgess Rough is centred at NGR TQ 60920 44080, just east of the A21 (Fig. 106). The site is part of the eastern slope of Castle Hill, and includes the north end of the plateau upon which Burgess Hill Farm sat, and a deep valley north of this. The plateau at its south end sloped down gently eastwards. The underlying geology of the site is Wadhurst Clay (BGS nd).

10.3 Archaeological and Historical Background

10.3.1 An earthwork survey of the slope outside the eastern entrance of Castle Hill hillfort identified slight earthworks on the slope, but no associated dating evidence was obtained. The subsequent report suggested that some of these might have been man-made, although it stated that there was no new evidence to associate these with the hillfort (OA 2004).

10.3.2 The earliest map of the area available is the OS draft of 1797. This shows only a single building on the site of Burgess Hill Farm, and it is not known which of the farm buildings this represents. From its position, it is likely to correspond either to the farmhouse or the barn and stables.

10.3.3 The Historic Building Proof of Evidence for the Environmental Statement (Lockett 2013, HA 9/2) suggests that Burgess Hill Farm is largely of 18th-century origin, and suggests that it originated as an estate farm belonging to Somerhill Park just to the north.

10.3.4 The Burgess Hill Farm Characterisation Study (HA 2013) also includes the Tithe map of 1838, which shows that by this time the farm consisted of four buildings: the farmhouse, barn and stable block that survived until construction for the Dualling scheme, and a fourth building to the north-east, now in the south-east corner of Burgess Rough.

10.3.5 In 1849, the Somerhill Estate was sold and the sale particulars included details of Burgess Hill Farm, listing a cattle lodge in addition to the other buildings above. It is therefore assumed that the fourth building to the north-east was the cattle lodge.

10.3.6 By the time of the 1st edition OS map of 1865 the cattle lodge is no longer present, so appears to have had a relatively brief period of use in the first three quarters of the 19th century.

10.3.7 The remains of a building are therefore evident from historic map evidence at the south end of Burgess Rough, although it was not mentioned as an asset likely to be affected by the scheme in the Historic Environment Proof of Evidence, nor in the Historic Building Proof of Evidence (Buss 2013, HA 11/2; Lockett 2013, HA 9/2).

10.4 Project aims and scope of works

10.4.1 The main aims of the archaeological mitigation were to:

- expose and plan any potential archaeological features;
- investigate sufficient of the revealed soilmarks to establish whether these were archaeological, geological or of other origin;
- and, where these were archaeological, to establish their dimensions, date and the character of their fill, and if possible, clarify their information potential and significance in the wider landscape.

10.4.2 The specific aims of the mitigation were to:

- look for evidence of Iron Age activity associated with the hillfort to the west;
- look for evidence of the cattle lodge, and establish its plan, means of construction, evidence of internal divisions and associated floors and other associated features;
- and, obtain further dating evidence from the cattle lodge to try and pin down its date of construction more closely.

10.4.3 Further consultation with the scheme engineers established that the eastern side of Burgess Rough would be embanked, so this part of the area was only stripped of topsoil.

10.4.4 After translocation but prior to the main subsoil strip, a series of large geotechnical test pits was dug in this area under archaeological supervision. These were unusually large, around 8m by 4m, and were monitored archaeologically. Generally, the pits were sterile, but the south-west edge of test-pit 309 included two of the postholes at the north edge of what proved to be the cattle lodge (Figs 106 and 109). Because the postholes were right next to the edge of the test-pit, and were widely spaced, one of the postholes was removed without being noticed, and a second was partly truncated before it was recognised in the section.

10.4.5 When the main stripping of Burgess Rough began under archaeological supervision, the area was stripped down to natural under archaeological supervision. The features revealed in the south were then surveyed, excavated and recorded. No archaeology was revealed on the steep slope beyond the edge of the plateau.

10.4.6 As what had been revealed was clearly a structure, all the elements of this were investigated by hand in line with the DAMD, section 4.3.6 (WSP and OA 2015) and the WSI, sections 6.3.15 and 6.5.23 (OA 2015c).

10.5 Methodology

10.5.1 Stripping of topsoil was carried out by a machine using a toothless bucket under close archaeological supervision. No machines were allowed to track over the exposed surface. The stripped surface and the spoil was monitored for finds. The edges of revealed potential features were cleaned as necessary by hand, and were then outlined with spray paint on the ground. Features have been surveyed in using a GPS and plotted in CAD. Archaeological interventions were dug according to the guidance provided in the WSI (OA 2015c, 6.5.19).

10.5.2 Once it was realised that two of the postholes contained preserved posts, a search was made for post-pipes in the other postholes, and these were then planned and half-sectioned first, before the surrounding packing soil was excavated. All interventions have been photographed and sections of the deposits drawn at an appropriate scale. The second halves of the post-pipes were then removed, to ensure that an accurate plan of the posts was recovered, and any brick or tile post-supports recovered.

10.6 Results

Introduction

10.6.1 The woodland topsoil here had been removed during translocation, as had the upper part of the subsoil 2613. This consisted of a firm, light whitish yellow silty clay, with patches of manganese. A brick dated 1820–1880 was recovered from subsoil 2613 during stripping. Below this was a further layer of soil 2614, which consisted of a friable, yellowish-brown silty clay 0.3m thick, with small stone inclusions throughout.

Investigation of the features

10.6.2 All the features found were clustered at the southern end of Burgess Rough. Nine of the features 2601–2609 were postholes laid out in a rectangle aligned north-west to south-west; the other features, 2616 and 2618, both lay to the north-east of this rectangle (Fig. 109).

10.6.3 The nine postholes formed a building (numbered 2600) that was 8.5m long and 6.5m wide (to the outsides of the postholes), with two rows of four posts on the long sides and a central post in the middle of the short sides at either end (Fig. 109). The posthole at the northern corner had unfortunately been removed during machining of test-pit 309 before the structure was noticed; part of the adjacent posthole on the north-west wall was also truncated, but this was noticed in section, and the second half more carefully excavated. Posts survived in two postholes at the south-west end, and post-pipes were visible in five others.

10.6.4 The south-east wall consisted of postholes 2601, 2608, 2607 and 2606. Posthole 2601 (Plate 393) was a square posthole with rounded corners, and measured 0.5m by 0.5m. When first revealed it clearly contained a post-pipe 2625 surrounded by a packing soil 2624. The post-pipe contained the broken remainder of the post still *in situ*, partly overlaid by a loose, greyish-brown silty clay. The post, numbered 2632, was straight-sided and measured 0.2m by 0.15m across; it had been broken off at ground level, and survived nearly 0.3m high. The packing fill 2624 was a firm, yellowish-brown silty clay with manganese flecks, very like layer 2614 into which the post had been dug. This was clearly redeposited natural.

10.6.5 Posthole 2608 was also a square feature with rounded corners, but larger than 2601 at 0.8m by 0.8m, with vertical sides and a broad flat base, and it survived 0.15m deep (Plate 394). It was located 2m to the north east of 2601, and also contained a single packing fill 2622

and a post pipe 2623. Post pipe 2623 was 0.2m wide and 0.15m deep, with vertical sides and a flat base. It had a firm, greyish-brown silty clay fill, with some degraded fragments of wood, and contained a piece of peg-tile of late 18th or 19th century date. The packing fill 2622 was a firm, silty clay, yellowish-brown with light grey patches and mottles, with both manganese flecks and chunks. This was also redeposited natural, presumably mixed with a little topsoil.

10.6.6 Posthole 2607 (Plate 395), which was located 2m to the north east of 2608, was very similar to it, measuring 0.8m by 0.8m square with rounded corners, and having vertical sides and a broad flat base. It too survived 0.15m deep, and it contained both a packing fill 2626 and a post pipe 2627. Post pipe 2627 was 0.28m by 0.2m, vertical-sided and 0.39m deep, the post-pipe being 0.24m deeper than the base of the surrounding posthole. It contained a firm, dark greyish brown silty clay, with frequent degraded timber fragments and a piece of peg-tile. The packing fill 2626 was a firm, orange-brown clay, with manganese chunks, another variant of redeposited natural. This too contained pieces of peg-tile. All the peg-tiles are of similar type, and date to the late 18th or 19th century.

10.6.7 Posthole 2606 (Plate 396) was 2m to the north-east of posthole 2607, and was the east corner of structure 2600. It was a rectangle with rounded corners measuring 0.8m by 0.6m, had vertical sides and a flat base and was 0.5m deep. Like the other postholes, it had a post-pipe and surrounding packing. Post pipe 2628 had near- vertical, slightly tapering sides and a concave base, and was filled by a firm, greyish- brown silty clay 2629 with some degraded fragments of wood and occasional stones and some manganese flecking. The packing fill 2630 was a firm, yellowish-brown silty clay with patches and lumps of white silty clay and occasional manganese flecks, and was clearly redeposited natural.

10.6.8 The north-west wall of structure 2600 was formed of three postholes 2603, 2604 and 2609 (Fig. 109). No posthole was recorded at the north-east end (ie the north corner of the building), as this had been removed by test pit 309.

10.6.9 The west corner posthole of structure 2600 was posthole 2603, which was rectangular, measuring 0.7m by 0.6m with rounded corners. It had vertical sides and a flat base, and survived 0.35m deep, containing a post pipe 2620 and post-packing 2619. The post pipe 2620 was square, 0.14m across, had vertical sides and a flat base and was 0.24m deep, the base of the post resting on a square tile above a layer of redeposited natural across the base of the posthole (Plate 397). Its fill was a firm, grey silty clay, with occasional manganese flecks. The packing fill 2619 was a mixture of firm, light greyish-brown silty clay with yellow clay mottles and lumps of white silty clay, some manganese chunks and small sub-angular stones. This was clearly redeposited natural mixed with topsoil.

10.6.10 Around 2m to the north-east of 2603 was posthole 2604, which was rectangular, measuring 0.75m by 0.5m, and had rounded corners. It survived 0.23m deep with vertical sides and flattish base, slightly sloping down to the south-west. Like 2603 it had both a post-pipe and a packing fill (Plate 398). The upper part of the post-pipe was a firm dark grey silty clay, but there was more mixing in the post-pipe than in the other postholes, and the profile was tapering from top to bottom, perhaps suggesting that the post here had been rocked and removed. The position of the base of the post was however clearly marked by two superimposed peg-tiles, the upper tile forming a post-pad. These were of late 18th or 19th century date. Two copper alloy collars, apparently around the post, were also found within the fill of the post-pipe. The packing fill 2615 was a firm, light greyish-brown silty clay with

mottles of yellow clay and patches and lumps of white silty clay and manganese flecking. This too was clearly redeposited natural.

10.6.11 The posthole 2m to the north-east of 2604 is posthole 2609 (Plate 399). This had been heavily truncated by machine. The outline of much of the base had been planned in test-pit 309, and the base of the posthole contained several bricks, presumably laid to form a post-pad. These had been disturbed, and the stripping of the adjacent area moved them again slightly, so that they had probably been shifted from their original positions (see Fig. 106). No clear trace of the cut survived on the south-east side. The clearer half of the posthole was 0.62m across, and this may have been a square posthole. The remaining bricks of the post-pad measured 0.3m by 0.2m, and comprised a broken whole brick and two half bricks. The whole brick was 0.24m by 0.11m by 0.07m in size.

10.6.12 Between the post-rows at the south-west end was posthole 2602 (Plate 400), situated half way between postholes 2603 and 2601. Posthole 2602 was a rectangular feature 0.5m by 0.64m across and with rounded corners. It had near-vertical sides and a largely flat base that sloped down in the northern half to a maximum 0.25m deep. This posthole contained an intact post 2611 sitting on a post-pad 2610, and a packing fill 2612. The post-pad 2610 was 0.15m by 0.15m square and made of crushed CBM, and post 2611 upon it measured 0.12m by 0.14m in cross section and survived 0.3m tall. The packing fill 2612 was a firm, greyish brown silty clay, with occasional manganese flecks.

10.6.13 The corresponding posthole at the north-east end of structure 2600 was posthole 2605 (Plate 401). Posthole 2605 was located 2.2m to the north west of posthole 2606. It was heavily truncated by machine, to the extent that none of the cut remains visible. Only a tile-built post pad 0.26m by 0.16m remained.

10.6.14 Beyond the north-west end of structure 2600, there were two other features. Pit 2616 (Fig. 109; Plate 402) was in alignment with the north-west wall of structure 2600. It was a 1m by 0.85m sub-circular pit, with a concave base, and asymmetrical sides, the east side being near-vertical and the west being very shallow and undulating. Its single fill 2617 was a firm, light greyish brown silty clay, with moderate manganese flecking, and it contained a fragment of late 18th or 19th-century peg-tile.

10.6.15 Feature 2618 was north-east of structure 2600, although not in alignment with anything. It was irregular in plan, 2m by 1m across, with irregular sloping sides and an undulating if level base. It was filled by a firm, dark yellowish-brown clay, with very high manganese concentrations. There were no finds.

10.7 Interpretation

10.7.1 No features earlier than the post-medieval period were found. Structure 2600 is clearly defined, consisting of a post-built structure of three bays. It is not proven that there was a tenth posthole at the north corner, but this is very likely. The survival of the post-pipes (and in some cases the posts themselves) shows that each bay was 2.6–7m wide, with an overall length of 8m. The width of the building varied from 5.2–5.5m wide.

10.7.2 It was built with squared timbers normally 120–180mm across, though in one case rather larger. The lack of regularity in the timbers suggests that this was not a building of high quality, and perhaps made use of reused timbers. This possibility is strengthened by copper

alloy collars found in one of the post-pipes; the purpose of these is not known, but they again suggest a reused timber.

10.7.3 The peg-tiles found in the postholes appear to support the historic map evidence for the 19th-century construction of this building. There are no other features such as stalls to indicate just how the cattle lodge functioned, nor any surviving floor surfaces that might have shown whether it was subdivided. It is therefore unclear whether the access was via the central bay with stalls on either side, or whether it was simply one open area, but probably the latter.

10.7.4 Pit 2616 is in alignment with the postholes of the north-west wall of structure 2600 and is equally spaced as if it was another posthole from that wall of the building. It also contained a piece of peg-tile of the same type and date as those in the postholes, so was probably contemporary. It was however round instead of square, and lay beyond the identified end wall of the building. It may possibly have been the remains of an addition to the north-east side of the barn, perhaps a support for an extension or lean-to. The only other feature revealed, 2618, had no obvious association with the other features, and appears to have been a large tree-throw hole.

10.8 Burgess Rough cattle lodge context inventory

Burgess Rough Barn						
Area description						
Southern end of Burgess Rough, at north end of plateau on which sat Burgess Hill Farm. Topsoil and upper subsoil removed for woodland translocation, lower subsoil stripped to reveal post-built building.						
Contexts						
Context	Type	W x L (m)	D (m)	Description	Finds	Date
2600	Group	8 x 6	-	Group number for barn structure. 2601 – 2609	-	19th C.
2601	Cut	0.5 x 0.5	-	Un-excavated square posthole with rounded corners. Post still visible in plan. Filled by 2624 and 2625. South west corner of barn 2600.	-	19th C.
2602	Cut	0.5 x 0.64	0.25	Posthole with square north west half and irregular south east half. Near vertical sides with sharp breaks of slope and a flat level base. Filled by 2612 and post 2611. Middle post of west wall.	-	19th C.
2603	Cut	0.7 x 0.6	0.35	Square posthole with rounded corners, vertical sides and a flat base. Filled by 2619 and 2620. Post pipe but no post visible. North west corner of barn 2600.	-	19th C.
2604	Cut	0.75 x 0.5	0.23	Square posthole with rounded corners, vertical sides and a stepped but flat base. Filled by 2615 and has post-pipe. Middle post of north west wall.	-	19th C.
2605	Structure	0.26 x 0.155	-	Heavily truncated posthole, cut is no longer visible only a tile built post pad. Middle post of east wall.	Metal	19th C.
2606	Cut	0.8 x 0.6	-	Rectangular posthole with rounded corners, vertical sides and a flat base. Contains post pipe 2628 with fill 2627 and packing 2630. South east corner of barn 2600.	-	19th C.
2607	Cut	0.8 x 0.8	0.42	A square post hole with rounded corners. It had vertical sides and a relatively flat base, except the	-	19th C.

Burgess Rough Barn						
Area description						
Southern end of Burgess Rough, at north end of plateau on which sat Burgess Hill Farm. Topsoil and upper subsoil removed for woodland translocation, lower subsoil stripped to reveal post-built building.						
Contexts						
				base of the post pipe which is deeper. Middle post of south east wall.		
2608	Cut	0.8 x 0.8	0.15	A square posthole with rounded corners. Filled by 2622 and 2623. It had steep sides and a broad flat base. Middle post of south west wall.		19th C.
2609	Structure	0.3 x 0.2	-	Heavily truncated posthole, no cut visible, only brick built post pad. Middle pad of the north-east wall.	-	19th C.
2610	Structure	0.15 x 0.15	-	Layer of broken CBM forming post pad at bottom of post pipe. Fill of 2602, and overlain by 2611.	-	19th C.
2611	Structure	0.14 x 0.12	0.3	Timber post standing vertically in posthole 2602. Its base sits upon post pad 2610, and it is overlain by 2612.	-	19th C.
2612	Fill	0.5 x 0.64	0.25	Fill of posthole 2002, surrounding post 2611. It was a firm, medium greyish brown silty clay, with very occasional manganese flecks throughout.	-	19th C.
2613	Layer	-	-	Subsoil. It was a firm, light whitish yellow silty clay, with manganese patches.	Brick	1820–1880
2614	Layer	-	0.3	Subsoil. A friable, medium yellowy brown silty clay with small stone inclusions.	-	19th C.
2615	Fill	0.75 x 0.23	0.23	Fill of posthole 2604. A firm, medium greyish brown silty clay, with moderate amounts of manganese flecking and occasional small chunks of coal.	Peg-tiles	L18th-19th C.
2616	Cut	1 x 0.85	0.16	A sub-circular pit with a concave base, a near vertical east side and a shallow and undulating west side.	-	19th C.
2617	Fill	1 x 0.85	0.16	Fill of pit 2616. A firm, light greyish brown silty clay, with moderate manganese flecks. CBM found within.	Peg-tile	L18th-19th C.
2618	Natural Feature	2 x 1	0.2	A large very irregularly shaped feature. It had irregularly sloping sides and an undulating if level base. Its single fill was a firm, dark yellowy brown clay, with very high manganese concentrations.	-	19th C.
2619	Fill	0.7 x 0.6	0.26	Fill of posthole 2603. It was a firm, light greyish brown silty clay, with manganese chunks and small sub-angular stones.	-	19th C.
2620	Fill	0.14	0.24	Fill of post pipe within posthole 2603. A firm, medium brown-grey silty clay, with occasional manganese flecks.	-	19th C.
2621	Fill	0.17 x 0.15	0.22	Fill of post pipe within posthole 2604. A firm, dark grey silty clay, with charcoal flecks. Some animal bone and a nail found within.	Animal bones, copper-alloy collars on wood, glass	?
2622	Fill	0.8 x 0.8	0.15	Fill of posthole 2608. A firm, light greyish, yellowy brown silty clay, with both manganese flecks and chunks.	Peg-tile -	L18th-19th C.

Burgess Rough Barn						
Area description						
Southern end of Burgess Rough, at north end of plateau on which sat Burgess Hill Farm. Topsoil and upper subsoil removed for woodland translocation, lower subsoil stripped to reveal post-built building.						
Contexts						
2623	Fill	0.2	0.15	Fill of post pipe in posthole 2608. A firm, medium greyish brown silty clay, with some degraded pieces of timber.	-	19th C.
2624	Fill	0.5 x 0.5	-	Unexcavated fill of posthole 2601. A firm, medium yellowy brown silty clay, with manganese flecks.	-	19th C.
2625	Fill	-	-	Unexcavated fill of post pipe, within posthole 2601. A loose, medium greyish brown silty clay, with a timber post still intact.	-	19th C.
2626	Fill	0.8 x 0.8	0.26	Fill of posthole 2607. A firm, medium orange-brown clay, with manganese chunks.	Peg-tile and brick -	L18th-19th C.
2627	Fill	0.28 x 0.2	0.39	Fill of post pipe within posthole 2607. A firm, dark greyish brown silty clay, with frequent degraded timber fragments.	Pottery	L18th-19th C.
2628	Cut	0.2	0.39	Cut of post pipe within posthole 2606. A sub-ovoid feature, with very steep sides tapering inwards to a concave base. Filled by 2627.	-	19th C.
2629	Fill	0.26 x 0.2	0.3	Post pipe fill with <i>in situ</i> post within posthole 2606. Made of a soft, medium greyish brown silty clay, with vertical post still standing up to a height of 0.5m.	-	19th C.
2630	Fill	0.8 x 0.6	0.5	Fill of posthole 2606. A firm, medium greyish brown silty clay, with occasional small stones and some manganese flecking.	-	19th C.
2631	Fill	0.5 x 0.5	0.35	Fill of posthole 2601. A firm, medium orangey brown clay, with some grey mottling, and inclusions of wood fragments.	-	19th C.
2632	Post	0.2 x 0.15 or 8" x 6"	0.33	Post in posthole 2601, broken off at original ground surface. A timber post with a rectangular cross section.	-	19th C.

11 BURGESS HILL FARM

11.1 Introduction

11.1.1 The A21 Tonbridge to Pembury Dualling scheme included the Listed Building complex of Burgess Hill Farm, comprising a barn and stables, a farmhouse and an oast house, the first of which was dismantled and recorded by the Weald and Downland Open Air Museum, who transported it to the museum in West Sussex for reconstruction. Planning consent for the removal of the buildings was granted by Tunbridge Wells Borough Council, and Listed Building Consent by the Secretary of State, with various conditions for the recording of the buildings prior to demolition.

11.1.2 Limited archaeological watching brief was carried out in late 2014 and early 2015 during temporary modifications to the site by Balfour Beatty while the farm was used as a temporary site compound. This included the excavation of a small trench east of the farmhouse, which revealed only late 19th and 20th-century deposits and features.

11.1.3 Prior to demolition, the farmhouse was subject to detailed archaeological recording by a building recording supervisor from OA, who also monitored the demolition in progress (OA 2017). Following demolition of the buildings, OA excavated fifteen trenches within and around both the farmhouse and the barn and stables in late May and early June 2015. The trenches were carried out to characterise any below-ground archaeology that might survive, in support of Sample Condition A for the recording of the buildings provided by Tunbridge Wells Borough Council and the Secretary of State (see the Statement of Common Ground between the Secretary of State and English Heritage (now Historic England), which asked for a comprehensive historic building investigation report (HA 2013, table 205–01)).

11.1.4 The work was also carried out as part of the SMS excavation agreed for this area (IA3, see volume 1) in the Environmental Statement (HA 2013). The outline methodology for the excavation of the characterisation trenches was set out in the DAMD (WSP and OA 2015 sections 4.4.10–11) and the WSI (OA 2015a, section 5.5), and was expanded upon in the detailed WSI for archaeological trenching of the Burgess Hill Farmhouse, Barn and Stables (OA 2015f), as required by the DAMD (WSP and OA 2015, sections 3.2.12 and 4.4.12). The WSI included plans showing the proposed position of the trenches (OA 2015a, figs. 3 and 4). Further trenching followed from the initial trenching almost immediately, due to the need to release this area for construction.

11.2 Location, geology and topography

11.2.1 Burgess Hill Farm was centred at NGR TQ 60990 43970 and was located on the east side of the A21 south of Top Lodge and opposite to Castle Hill hillfort on the west side of the A21, halfway along the A21 Dualling scheme (Fig. 110).

11.2.2 The site occupies an area of around 0.5ha and sits on a fairly level platform on the eastern slopes of Castle Hill. The A21 is lower than the ground level of the former buildings, but the ground rises steeply west of that, while it slopes downwards to the north, east and south. The farmhouse lay at a height of around 140m aOD. The underlying geology is Wadhurst Clay (BGS nd).

11.3 Archaeological and historical background

11.3.1 The archaeological potential of the development area was assessed by Atkins for the Public Enquiry (Buss 2013) and was set out in the Environmental Statement, Chapter 13 (HA 2013). A summary of the archaeological potential was set out in the WSI v. 6 (OA 2015a).

11.3.2 A small quantity of Neolithic pottery and struck flint was found in excavations on the Iron Age hillfort at Castle Hill west of the A21, some 200–400m south-west of Burgess Hill Farm.

11.3.3 A hillfort survives at Castle Hill immediately adjacent to the A21 on the western side, whose eastern rampart is only 100m west of Burgess Hill Farm. This has provided evidence dating to the middle Iron Age, with radiocarbon dates in the 3rd century cal. BC (Money 1975). Low banks outside (ie east) of this have also been tentatively interpreted as earthworks relating to the eastern entrance of the hillfort.

11.3.4 One sherd of possibly Roman pottery was found during translocation of woodland soils found in a field 150m south-east of the farm. Other than this, however, no Roman sites or finds have been recovered from the development area or surrounding study area, nor any of early medieval date.

11.3.5 Agricultural activity dating from the medieval period onwards is evident within the wider area of A21 scheme, examined in the desktop assessment, in the form of earthworks. There are also remains of a medieval bloomery in the wider area, showing that other activities were carried out in the area during this period. Domesday references the Lowry of Tonbridge and Richard of Tonbridge. The accounts show that the majority of land within the study area was relatively unpopulated throughout the medieval period, while Tonbridge had a higher population.

11.3.6 Post-medieval activity is mainly represented by the built heritage. The farm at Burgess Hill is Grade II Listed, and was a dependency of Somerhill Park to the north, which still retains its Grade II Listed Manor House, Lake Bridge going over a landscaped lake and Lake Cottage. Somerhill Park was constructed in the early 17th century.

11.3.7 An earthwork platform just to the east of the current A21 in Burgess Rough to the north of the farm was identified during a detailed walkover survey carried out as the first phase of archaeological mitigation for the scheme (OA 2014). This has subsequently been excavated, proving to have preserved a trackway of 17th and 18th-century date providing a passing place alongside the turnpike road that is now the A21.

11.3.8 The area including Burgess Rough was subsequently used as the woodland from which timber was obtained for the Castle Hill brickworks, which formerly lay on the west side of the A21 beyond Castle Hill Wood in the 19th and early 20th century (Tithe Apportionment 1836).

11.3.9 Historic maps for the area begin with the Ordnance Survey draft of 1797. This shows only a single building on the site of Burgess Hill Farm, but the farmhouse, barn and stable are all clearly distinguished on the Tonbridge Tithe Map surveyed in 1836. Another building to the north-east is also shown on the Tithe map, and has been identified as the cattle lodge. The absence of further buildings on the earlier OS draft could well reflect the true situation, as the 1797 map does include more detailed drawings of buildings on other sites shown close by along the A21. The one building shown was probably the farmhouse. Minor changes to the

size and layout of the buildings are recorded on the Ordnance Survey 1st edition map of 1871, and the subsequent maps of 1898 (2nd edn), 1910 (3rd edn) and 1938 (4th edn).

11.4 Understanding of the farm buildings from above-ground evidence and initial trenching

The Farmhouse

11.4.1 The phasing of the farmhouse was worked out in the Level 3 survey carried out by AOC (AOC 2009), and much of this was borne out by the detailed recording of the standing building undertaken subsequently by OA (2017), prior to demolition. Some reinterpretation did, however, result from the recording of the upper floors and roof, and this is summarised in Allen and Martin (2021).

11.4.2 The building probably began as a rectangular block, orientated north-west to south-east. The oldest surviving element of the farmhouse is believed to be the northern part of the north-eastern wall, tentatively dated to the 17th century (Fig. 111, Phase 1). Along this side, a line of unmortared half-bricks of early character was found and may represent part of an original footing for the wall, truncated by the later extension.

11.4.3 Prior to trenching, it was also thought possible that the chimney-stack in the south-east end wall was a survival of this early phase, but the first group of trenches revealed that the chimney had foundations 1m deep, built of stone and bricks similar to those of the basement wall adjacent. Although the wall had a straight joint with the chimney, the depth of the latter's foundations makes it very likely that the chimney and basement were built together in the 18th century (Phase 2).

11.4.4 The basement was dug beneath the southern third of the building, removing any evidence of earlier activity in this part of the building. Steps led down to this from outside to the south-east and from inside the building on the north-west.

11.4.5 To the north of the basement, excavation revealed a stone-and-brick foundation, with a straight, rough-edged joint that may indicate that the wall to the north was earlier. Trenches were dug across the interior of the building, but no laid floors survived, the natural apparently having been levelled up and the levelling material trampled.

11.4.6 At the north end of the building, Trench 2 revealed a stone foundation similar to that along the west side, but thinner, possibly due to truncation by a modern extension. Trenching was not extensive enough to establish whether the stone foundations on the west and north were parts of one build, nor whether the northern foundation returned southwards along the east side of the building.

11.4.7 Investigation outside the building in the initial trenching was limited but revealed a broken flagged surface outside the doorway of the farmhouse. There were few alterations to the building in the 19th century (Phase 3). In the late 19th/early 20th century, an extension was added along the north-eastern side along the full length of the building (Phase 4), with an internal porch at the north end.

11.4.8 In the mid-late 20th century, a short extension was added to the main block at the north-west end and the northern part of the whole building was subdivided into a number of smaller rooms (Phase 5). Also in this period, brick buttresses were constructed to support the bowing walls of the basement on the south-east, south-west and north-east sides.

The Barn and Stable

11.4.9 On the basis of evidence seen while dismantling the building, Joe Thompson of the Weald and Downland Open Air Museum proposed an alternative phasing to that in the Level 3 survey (AOC 2009), which was used when drawing up the detailed WSI, and which also shows the conjectured missing elements (OA 2015f, fig. 4). The trenching largely confirmed this alternative phasing.

11.4.10 The earliest part of the complex was the threshing barn (Fig. 112, Phase A1), which was a rectangular structure orientated south-west to north-east, with a central threshing bay and storage bays to either side. This was built of timber on brick dwarf walls. The threshing bay may originally have had a suspended timber floor, but this had later been replaced by a concrete floor at a lower level, which sloped down to the south-east. The whole of the threshing floor was exposed by the trenching, which confirmed that there were similar stone footings on both sides. No trace of the sleepers for a suspended floor were found, the layer below the concrete being a dark semi-organic soil, but brick pads and shallow hollows possibly for other supports attested to its former presence.

11.4.11 Outside the threshing barn to the north, trenching revealed a series of rotted wood planks below the concrete floor, possibly remnants of the original threshing-barn floor. These planks overlay the remnants of a brick-edged approach to the barn.

11.4.12 Shortly afterwards, or even as a secondary part of the same phase of construction, lean-tos were added on the south-east side (Phase A2). The central walls either side of the entrance to the barn had foundations of stone and the outer walls appear to have been solely of brick. The limits of the south-western lean-to were still visible, but the north-eastern one has been removed, and the floor probably lowered, when a later extension was added. Trenching confirmed that the stone foundations ended where the original lean-tos had been suspected, and that the original floor had been rough cobbling, preserved between a layer of redeposited natural that raised the level across much of the barn.

11.4.13 The stable was attached to the Phase A2 lean-to (Fig. 113, Phase A3), although it may have been added only shortly afterwards. This was a rectangular block at right angles to the barn and lean-tos, orientated south-east to north-west, and had room for four stalls along the north-east side, though no structural remains were found to confirm this. The outer walls were made of timber on brick dwarf walls.

11.4.14 Sometime later, a small lean-to was added to the north-west end of the stable (Phase B). All that remained was a concrete ramp leading up to the entrance. In the mid-19th century, a larger lean-to, possibly used for pigsties, was added to the south-east end of the stable (Phase C). This was built of much more recent bricks.

11.4.15 Trenching across the southern lean-to revealed a mortar floor with the impression of a squared timber running east-west along it, and this floor was cut by the foundations of both the lean-to and the stable. The limits of this earlier floor were not established, so whether this represented an earlier phase of stable, or predated it entirely, is uncertain. Outside the brick stable to the west, another trench revealed a layer including ash and iron slag sitting on the natural right at the base of the wall, perhaps indicating the use of a furnace, or the importation of material from one close by. This ashy deposit also appears to be earlier than the brick stable.

11.4.16 The trenches also showed that the brick walls of the stable were deep and that the east wall had acted as a terrace wall alongside another brick building with a brick floor at a lower level to the east. The whole length of the east wall of this building and the north-east corner were exposed.

11.4.17 Trenching north of the stable revealed stonework probably belonging to the north wall of the earlier brick-floored lean-to with several postholes.

11.4.18 South of the stable, the south wall of the brick lean-to here was much deeper than the northern wall, suggesting that the ground to the south dropped away, similar to the eastern side.

11.4.19 The next changes (Phase D) were made to the superstructure and, therefore, do not appear on the plan.

11.4.20 During the mid-20th century, the lean-tos against the barn were extended (Phase E). This may also be when the concrete troughs were added at the south-west end of the barn.

11.5 Project Aims and Objectives

General aims and objectives

11.5.1 The general aims and objectives of further trenching were:

- to clarify the sequence of construction of the buildings, particularly where later alterations above ground have removed or obscured relationships;
- to establish where possible the continuation of foundation, walls or partitions believed to have existed in earlier phases, but now removed or rebuilt above ground, and thereby to confirm or deny the proposed arrangement and functions of the buildings;
- to investigate whether evidence of earlier floors survives below the concrete flooring, and if so, to establish the number, date, character and stratigraphic complexity of these, and their relationships to the walls and foundations that may survive below ground;
- to establish whether internal features, whether partitions, posts, hearths or features of other type, exist within the buildings, and if so, to attempt to date these and to characterise them sufficiently;
- to determine whether structural phases earlier than those indicated by the above-ground remains are present below ground, and if so, to establish their date, character, complexity and duration;
- to determine whether archaeological remains of much earlier date, unrelated to the buildings, are present in beneath them, and where these exist, to establish the date, character and complexity of any remains by sample excavation;
- to establish the environmental significance of deposits with evidence of potential by targeted environmental sampling, processing and assessment;

- to place any archaeological discoveries into the local and, where appropriate, regional/national context, and to assess the implications of any such discoveries for our current understanding of the development of settlement in the area;
- and, on the basis of the results, to make recommendations as to whether further archaeological mitigation of the buildings, or parts of them, is required.

Specific aims and objectives

11.5.2 The specific aims and objectives were set out to investigate issues that arose primarily from the first phase of work (see OA 2015g, sections 3.2–3 and 8.6–14):

- to establish whether the stone foundations of the farmhouse, found on the west and north sides of the building, joined up, and if so, to establish whether they were contemporary or not;
- to establish the extent of the early floor found below the southern lean-to of the stable, and whether this continued northward below the stable and westwards beyond the lean-to and stable;
- to establish its relationship to the ash/clinker deposit west of the stable, and to obtain dating evidence for the floor and the ashy deposit;
- to investigate whether any internal features, such as earth-fast postholes or footings for internal stalls/divisions survive within the stable, and if so, to plot and record these;
- establish the character and extent of the flooring to the passageway and the stall areas for livestock, if these survive below the modern concrete;
- to clarify the construction of the northern lean-to and its date relative to the brick stable;
- and, to determine whether there is another structure surviving south of the southern lean-to.

11.6 Scope

11.6.1 The area of Burgess Hill Farm is part of archaeological Area IA3, designated for SMS excavation in the Environmental Statement (HA 2013). Limited archaeological watching brief was carried out around the buildings during its use as a temporary site compound late in 2014 and early in 2015.

11.6.2 Following demolition, and due to the presence of the former listed buildings, related archaeological below-ground deposits were present at ground level and immediately below, requiring a specific characterisation by trenching rather than area strip, and one targeted initially on the floors and foundations of the former buildings.

11.6.3 Investigation of the deposits was also required in order to provide a comprehensive investigation report for the Listed Buildings (see section 11.1.4 above).

11.6.4 Following an initial phase of trenching, several questions regarding the history and development of the buildings were brought to light and a second phase of excavation,

involving extensions to existing trenches and new slots, was undertaken with the aim of resolving these issues. Two previous reports have been produced that cover these stages of work (OA 2015g; 2015h). This report combines the results of both stages of work, presents the results in greater detail, and includes a full context inventory.

Area east of the farmhouse

11.6.5 A small trench 5m long and 1m wide was examined when stripping of topsoil (101), subsoil (102) and made ground (105) revealed an east-west ditch (110) east of the farm (Fig. 110). This was 2.7m wide and 0.7m deep, and contained four fills (106–109, all of which were dark silty clays or clayey silts. The first fill (109), a spill down the north side, was sterile, but the subsequent fills (108 followed by 107) contained pottery, CBM and metal finds, and the uppermost (106) also contained wood and plastic. On the south side the ditch cut a layer of trample (111) overlying a probable yard surface made of flint cobbles and crushed brick and tile (112). The CBM dated this surface to the late 19th or early 20th century. The metallised surface overlay a thin layer of hillwash (104) that overlay the natural sand (103).

The farmhouse

11.6.6 Following demolition of the farmhouse and dismantling of the barn and stables, a series of questions had been raised regarding the relationship of the buildings above-ground to their buried remains (see 11.5.2 above).

11.6.7 For the farmhouse, where there was a suspicion that the building was of 17th-century origin, it was clearly possible that a sequence of internal floors and associated features might be found, despite the significant additions and alterations to the building that had been made. Because of this possibility, the initial trenching was intended to characterise the level of survival of internal stratigraphy and features, while also examining relationship between the structural elements of the building to confirm or refine the phasing. As no particular complexities or changes to the phasing had been observed during building recording, it was hoped that the trenches would confirm the proposed structural sequence, but the trenches were not seen as necessarily providing total archaeological mitigation.

The barn and stables

11.6.8 For the barn and stables, an alternative phasing to that suggested from the AOC survey had been arrived at through observations made during dismantling by Joe Thompson of the Weald and Downland Open Air Museum, and here the aim was to examine the buried structural remains and their relationships to arrive at a structural sequence, and to see which (if either) of the alternative phasing the evidence would support. Again, the trenching was targeted on specific structural questions, and also upon clarifying indications in the historic map and documentary evidence of structures for which no evidence was visible above ground. The trenching was also intended to characterise the level of survival and the complexity of any internal floors or other features, but was not seen as necessarily providing full archaeological mitigation should new evidence be revealed.

11.6.9 The layout of the trenches, and the questions they were targeted to address, was set out in the WSI for archaeological trenching of the Burgess Hill Farmhouse, Barn and Stables (OA 2015f, figs. 3 and 4).

Earlier Archaeology

11.6.10 As the area had previously been covered by the buildings or by external concrete surfaces, it was not possible to formulate a specific approach to the recovery of any archaeology earlier than the buildings that might survive, although this was to be looked for by ensuring that trenches were cleared to natural. Given the limited extent of the trenches, which were targeted specifically upon the area of the buildings, it was anticipated that a further opportunity to view these areas for unrelated earlier archaeology would arise during the main stripping of these areas for construction.

11.7 Methodology

11.7.1 The methodology employed followed that set out in the WSI (ibid.). A summary of OA's general approach to excavation and recording can be found in the Appendices to the WSI for Archaeological Mitigation (OA 2015a).

11.7.2 Following demolition and clearance in May 2015, the basement of the farmhouse was photographed, now that the structure had been exposed to the light. Areas of the walls were cleaned by trowel of plaster to expose the underlying walls, showing that these were a mixture of brick and undressed stonework. A section of the concrete floor of the basement was removed by machine using a toothed bucket to see if earlier floors survived beneath this, but the concrete came down directly onto the natural.

11.7.3 Shortly after this one of the basement walls collapsed, and for health and safety reasons, the basement was backfilled prior to the excavation of the trenches.

11.7.4 In both buildings, lines for cutting were sprayed on the concrete floors and external surfaces 0.15–0.2m from the lines of the walls. Once the concrete had been cut through, it was removed by machine under close archaeological supervision, leaving strips of concrete either side of the walls.

11.7.5 The positions of the trenches were then sprayed out on the ground, and any concrete left adjacent to the walls within them was broken out and removed by hand. Loose soils left over from demolition were also removed by hand, and the resulting surfaces cleaned, were inspected for archaeological features and were then photographed and planned.

11.7.6 Excavation proceeded stratigraphically, removing deposits one at a time. Discrete features were half-sectioned, drawn and then the second halves excavated. The resulting cuts were then planned.

11.7.7 Every investigated archaeological deposit and feature was recorded using single context recording on pro-forma OA context sheets, and were recorded in plan and section. Plans were recorded at a scale of 1:10 or 1:20 as appropriate, and sections at 1:10. Photographs were taken in colour and in black and white. Natural surfaces exposed by excavation was left for several days to allow the surface to weather, and any features that weathered out were added to the CAD plan.

11.7.8 All finds were retained. Environmental samples were taken from deposits of environmental potential, in accordance with the general standards set out in the WSI for Archaeological Mitigation (OA 2015a, section 6.8).

11.8 Results

The farmhouse

11.8.1 Seven trenches were laid out to examine the farmhouse (Fig. 111). Trenches 1–4, 14 and 15 were laid out during a first phase of excavation to investigate various aspects of the building to identify possible stratigraphic relationships in different parts of the structure. Trench 17/18 was originally intended to consist of two trenches targeting the north-west and north-east corners of the farmhouse. In the event, these were extended to expose the stonework found in Trench 2 up to an across the projected lines of the west and east walls.

The southern end: cellar and fireplace

11.8.2 Trench 3 was located across the south-west corner of the building. Examination of the cellar inside this part of the building, prior to its collapse, had not included the removal of all the facing plaster, but removal of a small area on the south wall had indicated that this wall was constructed of courses of roughly dressed stone blocks, incorporating occasional bricks bonded with mortar (Plate 403). The west and north walls of the cellar were built of brick (see Trench 4 below).

11.8.3 The cut for the chimney of the farmhouse (90059) into the natural clay was c 1.5m deep, as deep as the cellar inside. The foundations of the chimney (90015) here were only revealed by hand to a depth of 1m for reasons of health and safety, but it was clear from the steps down into the cellar, east of the chimney, that the chimney continued to the full depth of the cellar, and a slot was subsequently dug by machine confirming the same depth here. The cellar and the fireplace were therefore clearly built at the same time. The foundations were built of courses of stone and occasional bricks or lengths of coursed brick, the bricks being similar to those in the basement walls on the west and north adjacent. The narrow gap between the foundations and the edge of the cut was filled with a dark grey silt (90058). There were no finds from this layer.

11.8.4 Fill 90058 was cut by (90057), the construction cut for the wall at the south-west corner of the farmhouse (90056). The cut was only traced to a depth of 0.2m, and the wall here, which presumably rose from the cellar wall beneath, was of unfrosted buff-coloured bricks set in an orange mortar (Fig. 114, section 1302). The construction cut 90057 was filled with a mixture of soil and brick and mortar fragments (90055). At ground level, the brick wall had a straight joint with the chimney, so the latter was presumably built to ground level first, and the walls then built up to it, and this was repeated as construction proceeded upwards.

11.8.5 Running just west of south from the corner of the farmhouse was drain 90018. This number covered the construction cut, the drain itself and the backfill around the circular pipe. The pipe was of 19th/20th century type. There was no direct relationship between the drain and the building, as this was cut away by a later underpinning trench, but this presumably took water from a downpipe at the corner of the building.

11.8.6 In the angle between the chimney and the south-west corner of the farmhouse, a tree had grown and then fallen or been uprooted. The cut of this (90054) disturbed the foundation trench for the chimney, and it was filled with orange-brown silty sand (90053) that did not contain any finds. The tree-throw hole fill was cut by 90052, a trench 0.53m wide and 0.2m deep running from the west edge of the chimney around the south-west corner of the building, interpreted as an underpinning of the original structure (Fig. 114, section 1302). This was filled with brick rubble bonded with a grey cement (90016), which abutted and underlay the outside of wall 90056. Just west of the corner of the original building, this cut also truncated drain 90018.

11.8.7 In places, broken frogged bricks formed a layer (90051) set into the top of the grey concrete, and cut through this just outside the corner of the building on the south was a rectangular drain hole for a downpipe partly covered with a slate, and running from it was a recent ceramic drain 90017, which curved south-eastwards around the chimney stack.

11.8.8 Outside the chimney to the south and some 1.2m from it, was an area of crushed brick (90060) overlying the natural clay, which continued beyond the end of the trench. This was presumably a make-up layer or rough surface of some kind. There was a gap between 90060 and drain 90017, and no relationship between it and the drain or surface 90051 could be established. South of the chimney the fill of this drain and of the chimney construction cut were truncated by a very recent tree-throw hole 90050, filled with dark grey silt numbered 90020. This, drain 90017 and brick surface 90051 were all sealed by topsoil 90019, which also abutted the outside wall of the farmhouse.

Central part of the building

11.8.9 Trench 4 revealed the junction of the cellar and the west wall to the north. The west and north walls of the cellar (numbered jointly 90021) were built of brick from the base up, and were bonded together. The west wall was one-and-a-half bricks thick and the north wall, which was an internal partition wall, was only one-brick thick. A small gap was, however, present at floor level between these walls, and was roughly bridged by further bricks, above which was the sill of the timber and lath wall.

11.8.10 Further east in Trench 2, a very narrow construction cut for the cellar (90164) was visible outside the north wall, and this was filled with mortar and sand (90163). Both walls were constructed in English bond using unfrogged pinkish-red bricks generally measuring 9 1/4" by 4 1/2" by 2", bonded with a lime mortar. On the inside, the cellar walls had a lime wash overlain by a pinkish plaster painted black, which was covered by a harder, more recent, white-painted plaster.

11.8.11 Trench 15 was dug at the north-east corner of the cellar and in line with the northern wall to see whether the stairs at the north-east corner of the cellar were secondary, and if any trace of an earlier wall survived east of them. This part of the cellar wall did not however survive the removal of the adjacent concrete floors by machine, which resulted in the collapse of this part of the cellar walls (numbered 90030). The construction cut for the cellar was visible, angled at the top but then going vertically downwards to the base of the cellar. Traces of the original light grey mortar with which the cellar wall had been bonded (numbered 90028) survived the collapse in places, but no finds were recovered from the construction infill. To the east of the cellar, the natural clay 90029 had been trampled and flattened prior to the construction of the extension, but was directly overlain by the modern concrete floor.

11.8.12 North of 90021 was the rough stone foundation of the west wall of the farmhouse, here numbered 90022. Trench 4 did not reveal the full width of this, so was extended by Trench 14 to expose more of the foundation. This wall (called 90022 at the south end and 90024 further north) consisted of a single course of roughly dressed sandstone blocks, generally two blocks about 0.46m wide, better-faced on the east (internal) side, and abutted by the trample (90023=90027) overlying the clay natural on which the stones had been laid. The east edge was straight for most of the exposed length (90024), but the southernmost two stone blocks (90022) were not in line, but offset 0.05m to the west. The

southernmost block was not squared on the south, so had an uneven straight joint with the brick foundation along the north side of the basement (Plate 404).

11.8.13 Up against the east edge, the trample abutting the foundation was cut by a very narrow and shallow cut 90075, only 0.08m wide and 0.08m deep, which was filled by small stones (90074). This cut did not reach the bottom of the foundation course, so was clearly later. It is possible that this narrow slot was originally dug to provide a separation between the clay and the plaster to be applied to the brick wall built upon the sandstone foundations, to prevent rising damp. The slot, however, crossed the line of the west doorway and ended just south of it, but short of the end of the straight length (90024).

11.8.14 The rough straight joint between the cellar wall and the stone foundation may indicate that the cellar was later, or even that its construction had necessitated the removal of the southernmost stone blocks, which were not replaced quite in line. Another possibility, suggested by the narrow slot against the wall, is that the western doorway was not original, and that instead there was previously a doorway just north of the cellar, which was later blocked and the wall rebuilt when the later west door was inserted. It is also possible, however, that the slot had simply been destroyed by later flooring at the south end, and that the foundation was slightly uneven.

11.8.15 On the outside of the building, the western edge of the foundation had been slightly disturbed south of the doorway by a later drain. Across the line of the doorway only the eastern line of stone blocks survived, suggesting that a threshold stone had been removed. To the north, the western edge of the foundations was overlain by a line of four stone slabs (90025) up against the wall. Smaller slabs continued for a little distance westwards alongside the concrete path in front of the door, but were truncated beyond that, being replaced by a layer of brick, mortar and gravel rubble (90036). The slabs may have formed a path, or possibly an area of hardstanding, along the edge of the building. These slabs were sloping downwards away from the wall, so presumably also acted to take water away from the footings of the building. The rubble layer may be equivalent to layer 90030 found south of the farmhouse (see Trench 3).

The northern end, including the inglenook fireplace

11.8.16 Trench 1 picked up a continuation of the stone foundation of the west wall farther north, where it was numbered 90005. This was of the same width and construction as 90024 farther south. No laid floor was found inside (to the east), but the trampled clay equivalent to 90023=90027 (here numbered 90008) was found overlying the natural. This was probably a levelling layer, but had sunk into irregular hollows in the underlying natural in places, suggesting that trees had covered the site prior to the construction of the farmhouse, and had only recently been cleared, leaving poorly compacted hollows. Against the inner face of the west wall, a continuation of the narrow slot 90075, here numbered 90168, was found, filled with small stones on edge (90167). Outside the wall to the west was a layer of garden soil 0.15m thick (90009) over the natural, cut by a modern drain 90006.

11.8.17 Trench 1 ran eastwards across the floor of the building exposing trample 90008 all the way across.

11.8.18 On the east side of the original building, a line of unmortared half-bricks (90003) ran north-south, intact on the west (internal side) and broken on the east. These were

early in character, measuring $4 \frac{3}{8}$ " wide but only 48mm (2") thick, and may represent part of an original footing for a timber-framed wall. These bricks were cut away on the east side by the concrete floor of an eastern extension (90002), which also abutted a brick wall (90001), only one brick thick, on the east side. Wall 90001 was made of unfrosted bricks 9" long, $4 \frac{1}{2}$ " wide and $2 \frac{1}{2}$ " thick, bonded with a lime mortar. Two successive layers of concrete were observed. Outside the wall on the east was a further layer of garden soil, numbered 90007.

11.8.19 Trench 1 was extended southwards to trace the continuation of the narrow brick foundation 90003, which ended immediately south of the trench at the junction with the foundation (90070) for an eastern extension to the building. South of 90070, the line of 90003 was continued by a foundation cut 90073, some 0.33m wide and 0.07m deep, which had two fills, 90072 overlain by 90071. The lower fill was a loose orange sand mixed with flecks of white mortar and fragments of redeposited natural clay, and was presumably a levelling layer for 90071, a firm off-white lime mortar at the base of a brick wall two bricks thick. The impressions of the first layer of bricks survived in the surface of mortar 90071.

11.8.20 Foundation 90070 cut mortar 90071, suggesting that this extended east-west wall was later. It was suggested that this foundation trench was overlain by the southernmost brick in foundation 90003, but as the overlap was slight it is also possible that cut 90070 was dug underneath the already existing brick footing. The base of cut 90070 was overlain by a loose, dark orange-brown silty sand 90068, probably a bedding and levelling layer for wall 90069. This wall was 0.25m (two bricks) wide, the gap between the bricks filled with a crumbly yellowish brown sandy mortar. The bricks were red, unfrosted, and averaged 240mm by 110mm and 80mm thick.

11.8.21 Inside the building traces of an orange sand 90067, the bedding for the modern concrete floor of the kitchen, survived demolition over clay layer 90008, and abutted wall 90069.

11.8.22 At the north end of Trench 2, a stone foundation was revealed, similar to that in Trenches 4 and 1, but thinner, as it had been truncated on the north by a modern extension (Plate 405). As mentioned above, Trench 17/18 continued to expose this stonework from the middle of the building to the east and west walls. This revealed that the stonework turned southwards at both ends before reaching the line of the east and west walls, and in fact represented the foundations of an inglenook chimney 2.15m wide and approaching 1.2m deep internally (see Fig. 111; Plate 406). The blocks were externally dressed and survived only a single course high bonded with clay. The blocks did not lie within a foundation trench, but were constructed directly upon the surface of the natural, and were abutted by the clay levelling layer, here numbered 90013.

11.8.23 Modern disturbance meant that the full width of the foundation (numbered 90166) only survived over short distances on the west and north sides, where it appeared to be just over 0.6m wide. The depth of the fireplace is indicated by one long slab on the east side, which probably represents the front of the east jamb (Plate 407). The external dimensions of the fireplace may therefore have been around 3.4m east to west and 1.8m north to south.

11.8.24 There was no surviving link between the fireplace and either the west or east wall of the building. The stone foundation on the west (numbered 90005 in Trench 1) ended 0.2m short of the projected line of the face of the fireplace, and there was no sign of an

eastern return. No stone foundation existed on the east side, where the wall was represented by a line of half bricks (numbered 90003). A single brick, 0.2m long, was found returning west at the north end of 90003, just east of the fireplace jamb.

The barn

11.8.25 Five trenches (Trenches 9–13) were excavated to address questions relating to the barn (Fig. 112). Trench 13 targeted the area north of the barn and its northern entrance, trench 12 examined the central threshing bay, and trenches 9, 10 and 11 exposed sections of the lean-to extensions to the south of the barn.

Area north of the barn

11.8.26 Trench 13 was located immediately north of the threshing barn. Excavation revealed remnants of a brick-edged approach to the barn, consisting of a natural clay layer that had been trampled with brick and stone fragments (90137). This was lined on its eastern side by brick pavements that appeared to align with the eastern side of the northern entrance to the threshing barn (90138). In the western side of the trench, the trampled clay layer was overlain by a series of four, roughly parallel, rotted planks (90136) that extended north from the later brick foundations of the northern entrance to the threshing barn (90142/90147) and part of its 20th-century facing-stone wall (90143). The planks were possibly remnants of a previous threshing-barn floor or part of an earlier door to the barn. The planks and the trampled clay layer in this area were overlain by a thin layer of topsoil (90079), which contained mid-20th-century glass and metalwork finds, and later by concrete levelling. To the east of the brick-edging 90138 lay a spread of irregularly shaped stones that were set into the natural clay. These may have been associated with the original barn construction or were used as hardcore for the farmyard area. This layer abutted the eastern continuation of the northern brick wall of the threshing barn (90144) and underlay another, thicker layer of topsoil (90080) that was not fully covered by the concrete in this area. The topsoil contained 20th-century pottery, glass, metalwork and animal bones.

The threshing bay

11.8.27 Trench 12 covered the whole of the threshing floor within the barn and revealed similar stone footings consisting of ashlar masonry (Plate 408). The threshing bay occupied the central section of the barn with side storage units located on either side. These were separated from the threshing bay by internal walls WD11 (90150) and WD12 (90091), which abutted the north wall WD5/6 (90142/90147) and south walls of the side storage units WD2 (90158) and WD3 (90088). These internal walls were 4.4m long and were set within foundation cuts measuring about 0.36m wide and 0.5m deep. The threshing bay extended to the south for a further 2.2m by walls WD8 (90085) and WD9 (90161). Though walls clearly abutted the southern faces of WD2 and WD3, and appear to have been a later addition, though the dimensions of their foundation cuts and the use of similarly sized ashlar masonry was very similar to walls WD11 and WD12. There is no evidence that walls WD2 and WD3 ever joined, since there is no indication of a foundation cut between them. Wall WD13 was later added to delineate the southern end of the threshing bay. This was a brick-built structure, one-and-a-half bricks wide, that abutted walls WD8 and WD9 a couple of metres north of their southern ends, and it may have been added to help support the threshing floor.

11.8.28 Following the removal of the existing concrete floor within the threshing bay, no trace of the sleepers for a suspended floor were found, though the presence of single brick line (90162) near walls WD2 and WD8 may have been associated with sleepers. The layer below the concrete was a dark, semi-organic soil (90078) that overlay a similar soil (90093) at the north end and contained a sandstone whetstone and pestle. Below this were mortared pairs of bricks 90152 and 90153 set into dirty natural yellow clay 90094, the latter with a shallow hollow alongside it. Two further sub-circular depressions or hollows in the surface of the clay, numbered 90154 and 90155, which seem likely to represent the voids left after the removal of other similar brick pads. The pads were presumably the truncated remains of supports for the timber planks of the former threshing floor and were clearly set in an east/west alignment across the northern half of the threshing bay (Plate 409). A single posthole was set internally adjacent to the northern wall about one meter in from the western wall of the threshing bay. The posthole was about 0.1m in diameter and may have been for a scaffold timber used during the construction of the barn, part of the floor support, or was associated with the northern entrance.

The southern lean-tos and extensions

11.8.29 The construction of the threshing-bay floor may have been contemporary with (or slightly later than) the addition of lean-tos on the southern sides of the barn storage units, of which walls WD8 and WD9 were associated. Trenches 9 and 10 confirmed that the stone foundations of these walls ended where the original lean-tos had been suspected, as these were later extended. In Trench 9, the southern wall of the western lean-to (90129) was one brick wide and constructed in English bond. It was exposed over three courses and is likely to have abutted the original southern end of wall WD9 (90135) of the threshing bay. The adjoining section here was cut through by the laying of a drain pipe. The areas north and south of southern lean-to wall 90129 were overlain by concrete surfacing (90130 and 90131). These may both have been added at the same time as the later extension to the south, represented by wall 90134 which continued south from wall WD9. Earlier flooring is indicated by an area of brickwork in the south-western part of the lean-to. A narrow trough appears to have been later added between the original southern lean-to wall and a parallel line of brick-edging to its northern side.

11.8.30 The southern end of the eastern lean-to was exposed in Trenches 10 and 11. The trampled natural clay was partially revealed in Trench 10 (90099), and this appears to have been levelled and cut through by foundation trenches (90106) for stone-built wall WD8 (90101) and brick-built wall WD13 (90107) immediately to the west of the trench. A stone floor (90100) overlay the trampled clay and was cut through for drain 90098, which abutted wall WD8 (Fig. 114, section 1308). A thick layer of soil (90103) abutted the southern end of this wall, and this may have been a redeposited foundation layer on which a later, southward extension was built. This wall (90102) was a Flemish bond, brick-built structure.

11.8.31 A rough stone-and-brick floor (90100/90110) covers much of the area east of wall WD8 and may have been an earlier external surface or a levelling layer for the extension (Plate 410). This layer was overlain by a clay and crushed brick floor that covered the entire barn (90109). The floor surface in the western side of the trench was truncated by a modern drain that led southwards. The eastern lean-to/extension was walled on the eastern side by WD7 (90113), c 3.3m across from WD8. About four-and-a-half courses of this wall was exposed at the eastern end of Trench 11, which showed that it was two bricks wide. This

structure was also of different construction to the continued southerly line of the threshing-bay wall WD8 to the west (90102), which was built using a single but wider brick in Flemish bond.

The stables

11.8.32 Initially, four trenches (Trenches 5–8) were excavated to examine aspects of the stables and its associated structures. Additional work was required to establish the extent of an earlier floor cut by the foundations of the stable and southern lean-to wall, to recover evidence of internal stalls or other features within the stable, to identify further evidence of terracing south of the southern lean-to, to establish the extent of the ash/slag layer west of the stables and its relationship to the early floor, and to further investigate the layout and construction method of the northern lean-to. This work was covered by extensions to Trenches 5, 6 (extending to Trench 16 which spanned the internal area of the stables) and 7. Trench 11, which initially targeted the south-eastern lean-to and extension of the barn was extended further south to investigate more of the yard area south of the barn and west of the stables.

Early features below the stables and the southern lean-to

11.8.33 An early rammed clay surface (90061), and a beam-slot (90066) imprinted into it, were revealed in Trench 6 below the brick floor of the southern lean-to (Fig. 114, section 1304; Plate 411). The rammed floor sat upon the natural clay, here numbered 90065. The extension to the trench exposed these features to the east for a farther c 1m, as much of the floor had been removed by later disturbance (90224) (Plate 412). To the west, a small slot was dug just east of the lean-to wall through the overlying deposits. This confirmed that the early clay floor and the beam-slot continued westwards until they were cut by the lean-to wall. No remains of the floor or beam-slot was found externally to the west of the wall. This floor and beam-slot were overlain by a thin accumulation of soil (90041) containing mid-19th century pottery, showing that this structure had been removed by this date.

11.8.34 Trench 16 was excavated across the centre of the stable, north/south, to investigate whether the early mortar floor continued to the north, but no trace was found. Within the stable, there was a layer of trampled or redeposited natural (90193), but above this it appeared that all deposits had been removed when the stable was constructed, and then a succession of redeposited soils were laid preparatory to the laying of the stable floor (Plate 413).

11.8.35 Area 7 was opened up outside the west wall of the stable and the southern lean-to, and continued eastwards along the outside of the southern lean-to wall. A layer of trampled natural sealed by a layer of angular stones (90189) was exposed to the west of the southern lean-to wall (Plate 414). This layer extended the full length of Area 7 and was generally not very even, but the stones showed more signs of wear and were less numerous towards the north-end. This surface was largely removed by later drains that were cut right against the stable wall (90206, 90186, 90185, 90180, 90181), but enough of it survived to show that it was cut by the construction of the lean-to and the stable. This was at the same level as the rammed clay floor within the southern lean-to, though no direct stratigraphic relationship could be obtained.

11.8.36 Immediately west of the walls, two postholes (90046 and 90190) were found 3.5m apart (Fig. 113). Both postholes contained the bases of wooden posts. The one in posthole 90190 was 0.16m square, while that in 90046 in a poorer condition but was at least 0.12m square (Fig. 115, section 1303). Both postholes were dug through the trampled clay natural (90048) and 90046, as was a third posthole (90207) which lay 1.4m WSW of post 90190.

11.8.37 Posthole 90046 was overlain by a layer of clinker (90045=90179) that abutted the base of the western brick wall of the stable (90095), and was in turn overlain by a buried topsoil and rubble (90044) (Fig. 115, section 1303; Plate 415). Posthole 90190 was cut by the construction trench for the southern lean-to. These two postholes may therefore have belonged to the structure surrounding layer 90061, though the later brick wall had destroyed any direct relationship.

11.8.38 Within the stable, Trench 16 exposed a quarter-circle feature (90217) with a radius of c 0.2m, only 500mm deep, within the trampled clay natural. This may represent the impression of a post, though it is also possible that it belonged to the base of a later pit (90214) that was only recognised in the section to the west after excavation.

11.8.39 The trampled natural was overlain by three redeposited soils: brick rubble 90192, clay layer 90191 and a firmer clay layer 90177 which may have formed the initial floor of the stable. Layer 90177 contained a clay pipe stem fragment of late 18th or 19th century type. Together, these deposits were 0.4m thick and were overlain by a thin, mixed dark deposit of sandy clay, decayed straw and occasional brick rubble (90176), which may indicate stable use or (more likely) material left after the original brick floor had been removed. Pit 90214 was cut into this soil layer and there was no sign of a post in its fills, but it offers the only evidence of a possible internal feature associated with the first phase of the brick stable.

The stable wall

11.8.40 The west and east walls of the stables were revealed in Trenches 7 and 8 respectively. The west wall (90095) was shown to have been particularly deep, c 0.4m, though less so than the east wall (90128), c 0.6m, which along with the external brick building on its eastern side (see below) acted as a terrace wall to mitigate the steep slope on this side. Notably, the construction cut for the stable wall on the southern side of the building (90062) got progressively wider to the east, as deeper foundations were needed for the terrace. The initial build of the stables walls was shown on west and east sides to have been constructed in English bond, though a later rebuild (90049) was noted in the western side which consisted of Flemish bond (Fig. 115, section 1303).

The northern lean-to

11.8.41 Trench 5 (including extended Trench 5a/b) revealed the whole area of a lean-to against the north wall of the stable. This measured approximately 3.2m x 1.8m and extended along the eastern two-thirds of the northern stable wall. A layer of clay (90196/90221) had been laid down on the natural. Three postholes (90234, 90198 and 90223) were dug to support the north wall of the building, while a fourth (90118) was located at the south-west corner of the structure, adjacent to the stables. The timber posts had survived in postholes 90223 and 90234, and measured 0.15m square (Plate 416).

11.8.42 The floor of the northern lean-to consisted of unbonded stone blocks (90197) only one course deep. This was abutted and slightly overlapped by a brick paviour floor (90115) made of handmade bricks and laid on edge without mortar or clay bonding. The brick floor directly abutted the north wall of the stable (Plate 416). There was no posthole at the south-east corner of the building, but here the stone foundation survived several courses high, and this had been bonded into the stable wall, suggesting that it had either been a buttress supporting the roof or had formed a dwarf wall with a timber post on top.

11.8.43 The stone foundation had collapsed or had been replaced with short stretches of brick on the east (90236) and north sides (90235). The latter stretch of wall had a square pit (90219) immediately outside the structure, towards which a brick drain (90240) drained from the barn (Plate 398). The fill of the pit (90218) contained a penny of Edward VII, dating the infill of the pit to the 20th century. Although part of the brick drain was truncated during machine clearance prior to excavation, it seems probable that the pit was a sump for this drain, and it may have led to the undermining of the lean-to wall, hence its repair here.

11.8.44 A second posthole (90201) had been dug north of the north-east corner of the lean-to and posthole (90234). This may have been another repair or an additional support for the building.

The southern lean-to and the yard west of the stable

11.8.45 The wall of the southern lean-to (90039) was built in English bond with lime mortar, similar to the southern stable wall (90040), within construction trench 90035 about four courses deep (Fig. 114, section 1304). The construction trench cut through earlier layers 90065, 90061 and 90041, the last containing pottery dating to the mid-19th century.

11.8.46 Once backfilled, a stone surface (90188) was established in the top of the construction trench, external to the western side of the lean-to, and was seen to abutting the earlier yard surface 90189 (Plate 414). The wall appears to have been rebuilt at least once, as concrete mortar appears on the eastern side.

11.8.47 Within the lean-to, a clay layer (90037), probably a levelling layer, was placed on top of the soil that had accumulated upon the early clay floor and the fill of the construction trench. This in turn was overlain by a very thin layer of soil, crushed mortar and ash (90036), which appears to have been a bedding layer for the upper brick paviour floor (90038) (Fig. 114, section 1304; Plate 411).

11.8.48 A succession of drains were constructed west of the stable block. One (90206) was laid at the junction of the stables and the barn, and another (90186) at the south-west corner of the southern lean-to (Plate 417). Both drains were backfilled with redeposited clay, and were then overlain by a layer of clinker (90179), which was observed across an area almost 3.5m wide and overlay the existing stone yard surfaces. This layer abutted the stable and southern lean-to walls and was thicker at the north end. It is likely to have been redeposited, perhaps to provide stable access to the stable door on this side of the building. In turn, the clinker layer was cut by later drains 90182 and 90185.

The eastern terrace

11.8.49 Trench 8 was extended to uncover the building to the east of the stables (Plate 418). Only the southern (90126) and eastern sides (90125) of the eastern building were exposed, with the former extending from the stable wall for c 2m and the latter observed for

1.8m (Fig. 115, section 1309). The walls were set in foundation trenches cut into the natural (90034) and an upper subsoil layer (90122), though the eastern wall had a deeper foundation, c 0.6m, owing to terracing and the drop in the ground level on this side. Both walls were constructed in English bond with a corbelled foundation. Within the building, part of a brick paviour floor (90127) was laid east/west at a lower level in the north-eastern part of the building. This overlay a bedding layer (90082), consisting of a dark silty matrix with frequent brick fragments, which sat atop of the subsoil and was built-up against both walls. This contained a clay pipe stem fragment of late 18th or 19th century type.

The area south of the southern lean-to

11.8.50 The area south of the stable and the southern lean-to was cleaned up to look for further traces of walled terrace. A brick wall (90241) was found, four courses deep, abutting the lowest courses of the eastern side of the lean-to wall and cutting a redeposited levelling layer of silty clay (900242) to the south of the stables. This structure continued east for about 0.5m before turning southwards at a right angle, and then returning west for about 1.2m before being ended or cut by the concrete top of a probable drain. Beyond this, the area was truncated by the large underground concrete tank. The wall was only two courses deep along this southern section.

11.8.51 No trace of a corresponding wall extending southwards was seen at the south-west corner of the lean-to, although the laying of later drains had caused considerable truncation in this area. The south side of the south wall of the southern lean-to was excavated down to the base all the way along, in case there were signs of an abutting wall here, but none was found. There was, however, considerable recent disturbance of this area towards the west side, and it is possible that a shallow wall like the eastern return had been removed entirely.

11.8.52 There was also no trace of a floor within this area, though given that only two courses of bricks survived on the east side, it is likely that, had there been a built floor, it would have been at a higher level and may have been removed by later disturbance.

11.9 Discussion

Farmhouse

11.9.1 The trenches established that the foundations of the chimney at the southern end of the building were around 1m deep and were constructed of a mixture of stone and bricks that were very similar to those in the basement walls. This suggests that the chimney and the adjacent basement were constructed at the same time, even though a straight joint between the chimney and the brick of the abutting basement wall showed that the foundations of the chimney had been built first.

11.9.2 A foundation of stone and brick was found to the north-west of the basement, and may have been contemporary with the stone foundation found on the northern side. A ragged straight joint between the western foundation and the basement brick wall may indicate that this foundation was cut through by the construction of the basement.

11.9.3 No trace of the stone-and-brick foundation was found along the line of the earliest timber framing on the east side of the building above ground, although a row of half-bricks was seen. It is not clear whether the row of half-bricks represents a truncated fragment of

this, largely removed by later alterations to the building on this side, or whether a foundation was never present here.

11.9.4 There were no surviving floors inside the building below the recent concrete floors, and no traces of internal partitions or features such as hearths.

11.9.5 Additional trenching established the presence of a large 'inglenook' fireplace at the north end of the building. The surviving single course of the chimney was built of sandstone blocks bonded with clay, and the clay pipe stem found within the chimney indicated a 17th-century or later date for its construction. The sandstone blocks were similar to those found in the foundation of the west wall (90005), which was also bonded with clay, perhaps supporting the view that these were contemporary.

11.9.6 The gap between the stone foundation on the west and the line of the fireplace was of similar width to the bricks found returning from the north end of the east wall, and these bricks may well represent the footing of a timber-framed wall against which the chimney was constructed.

11.9.7 The width of the fireplace was considerable, greater than that of the fireplace at the south end of the building, perhaps suggesting that this was the location of the original kitchen of the farmhouse.

11.9.8 There were no surviving floors within the inglenook or immediately to the south.

11.9.9 Overall, nothing was recovered to indicate an earlier phase of building than indicated by the upstanding structure and nothing was found that was necessarily constructed earlier than the 18th century, and possibly the second half of that century.

The barn

11.9.10 Only limited areas of the natural were uncovered beneath the barn, the largest being below the threshing floor, and no archaeological features or deposits certainly earlier than the barn were found beneath it.

11.9.11 In the barn, the stone sleeper wall visible on the west side of the threshing floor was matched by a similar wall on the east side, and both ended on the south where the end of the original lean-tos had been postulated by Joe Thompson, confirming his interpretation of the first phase structure.

11.9.12 Although no direct trace of the suspended timber floor suggested by Joe Thompson was found, an alignment of mortared bricks and large depressions where bricks may have been positioned, suggests the presence of a supported floor, perhaps made of wood. Further evidence of support may be represented by the posthole next to the northern wall and a short line of bricks close to the eastern wall. The soil found below the concrete floors, a dark dry semi-organic material, would be consistent with material that had accumulated below such a floor. The discovery of parallel timbers to the north of the barn may be remnants of a supported floor, or may have been parts of a disused doorway.

11.9.13 An entrance in the central part of the northern wall of the barn indicates that the threshing bay could be accessed from this side. This was supported by the presence of a brick-lined, trampled-clay layer leading to the entrance. Areas of hardcore may represent temporary storage surfaces, though this may have been the remnants from the construction of the barn.

11.9.14 Analysis of the footings to the south of the storage bays showed that the lean-tos were later additions to the south of the building. The initial constructions extended for about 4.4m south of the barn, though only the southern wall on the western side was observed. The eastern side appears to have been truncated to a greater degree by drains, though a rough stone surface across the area was identified. The southern end of the threshing bay was later bounded by a new wall, one-and-a-half bricks thick, in set slightly from the end of the building. It was likely that the raised threshing floor was inserted when, or soon after, this wall was built.

11.9.15 No trace of earth-fast posts or foundations for the south-east wall of the lean-tos was found.

The stables

11.9.16 Further investigation of the southern part of the stabled established the presence of an early rammed clay floor and an accompanying beam-slot that only survived within the southern lean-to to the stable. The absence of this floor to the north was probably due to the method of construction of the later brick stable, but its absence in the west, and the presence instead of a rough stone surface, suggests that the later stable and lean-to brick walls may have followed the approximate line of the earlier limit of the building to which this floor belonged.

11.9.17 The two postholes found just to the west of the later stable may have belonged to this putative early building, although due to later disturbance this cannot be proven stratigraphically. No other postholes were identified farther north, but the presence of later drains may have removed these entirely. If the surviving postholes do mark the original limits of the building, then the earliest stable would probably to have lain farther south than its brick successor.

11.9.18 The beam-slot extended some 3m from west to east, and enclosed an area only 1.2m wide. Unless the original building extended farther east than its successor, the space available for access would also have been no more than 1.2m wide, which is probably too narrow for a stall. The possible post-impression farther to the north may represent the limit of a stall, but there were no others along the same line, as might have been expected, and no floor survived that might have indicated the partition that should have accompanied it. It may be relevant that the pit cut through the later building, and which could have represented the pit dug to remove an internal post, lay very close to this, perhaps indicating the perpetuation of some internal arrangement in both phases of use.

11.9.19 The yard to the west of the stable and south of the barn was first covered with a rough stone and brick surface, and this was later replaced by a layer of clinker. Despite the quantity of clinker present, no evidence of a furnace has been found within or adjacent to the buildings, and it is most likely that this material was brought in from an industrial site locally, as was the slag found in the trackway at Burgess Rough to the north (OA 2015h).

11.9.20 The construction of the northern lean-to was confirmed as post-built, with timber walls supported on stone sills between the posts, and with an internal brick floor. Three postholes were noted along the northern wall, and a fourth was found just north of the north-east corner. This perhaps related scaffolding or to an unseen timber structural addition on this side. A fifth posthole at the south-western corner may have related to another structural

feature on this side, and it is notable that no posthole was found on the opposite southern corner of the building. The width of this building extended along the eastern side of the north wall of the stables. Some of the walls appear to have been repaired at least once, and this may have been partially due to the insertion of a probable sump, which drained water from a pipe leading from the barn to the west, next to the north wall of the lean-to.

11.9.21 The previous trenching had demonstrated that the stable formed the centre of an area of terracing, and was surrounded by buildings at a lower level on the east and south. The further investigation showed that another area surrounded by a brick wall existed south of the southern lean-to, although this was only observed on the eastern side and its full extent was not established due to more recent disturbance.

11.10 Burgess Hill Farm context inventory

Context	Type	W (m)	D (m)	Description	Findings	Date
101	Layer	-	0.2	Dark grey silty sand topsoil	-	Modern
102	Layer	-	0.2	Friable grey and orange-brown silty sand subsoil.	-	Modern
103	Natural	-	-	Friable yellowish orange sand with limestone lumps	-	-
104	Layer	-	0.10	Orangey brown silty sand – hill wash	-	Modern
105	Layer	-	0.3	Firm mottled light greyish brown clayey silt with lenses of redeposited yellow sand, occasional charcoal and large limestones. Made Ground	Pottery, CBM	Early-mid 20th Century
106	Ditch fill	3.0+	0.29	Loose black sandy silt, occasional limestones. Top fill of ditch 110	Plastic, wood, CBM, metal	Early-mid 20th Century
107	Ditch fill	2.5	0.12	Firm orangey brown silty clay, occasional small stones	Pottery, CBM	20th Century
108	Ditch fill	2.0	0.21	Loose black sandy silt, frequent grit	Pottery, CBM, metal	Early-mid 20th Century
109	Ditch fill	1.5	0.15	Firm dark orangey brown silty clay with occasional small stones	-	-
110	Ditch cut	2.7	0.70	E-W linear with gently sloping sides (step on south) and a cupped base.	-	20th Century
111	Layer	2.5	0.15	Loose greyish brown sandy silt with small stones - trample	-	
112	Structure	2.5	0.06	Compact small/medium stones and CBM fragments – probable yard surface	CBM	Late 19th early 20th century
90000	Structure	-	-	Ceramic drain	-	-
90001	Structure	-	-	East wall of extension	-	-
90002	Structure	-	-	Two layers of concrete floor	-	-
90003	Structure	-	-	Half-brick wide partition wall	-	-
90004	Structure	-	-	Concrete floor	-	-
90005	Structure	0.46	-	Foundation of main west wall	-	-
90006	Structure	-	-	Drain adjacent to west wall	-	-
90007	Layer	-	0.15	External garden soil	Clay pipe	late 18th-19th century
90008	Layer	-	-	Trampled clay floor	-	-
90009	Layer	-	0.15	Garden soil	-	-

Context	Type	W (m)	D (m)	Description	Finds	Date
90010	Structure	-	-	Concrete floor	-	-
90011	Structure	-	-	Northern end of bricked extension	-	-
90012	Layer	-	-	Rubble fill	-	-
90013	Structure	-	-	Internal clay levelling layer	-	-
90014	Structure	-	-	Cellar wall (same as 90021)	-	-
90015	Structure	1.30	0.15	Unworked limestone set with unfrogged brick for chimney stack base 90059	-	-
90016	Structure	1.60	0.20	Brick rubble in cement bracing/underpinning for pipe 90052	-	-
90017	Structure	-	0.16	Ceramic drain	-	-
90018	Structure	-	-	Ceramic drain	-	-
90019	Layer	-	-	Garden soil	-	-
90020	Layer	-	-	Loose, dark grey silt fill of root bowl 90050	-	-
90021	Structure	0.24	-	Bricked north wall of cellar	-	-
90022	Structure	0.42	-	Wall of faced sandstone blocks set into natural	-	-
90023	Layer	-	-	Trampled clay floor of light grey/brown clayey silt	-	-
90024	Structure	0.46	-	Stone foundation	-	-
90025	Structure	-	-	Stone slabs over foundations of west wall	-	-
90026	Layer	-	0.10	Brick, mortar and gravel bedding deposit of garden path up to building entrance	-	-
90027	Layer	-	-	Trampled floor	-	-
90028	Layer	-	-	Demolition backfill in foundation cut	-	-
90029	Layer	-	-	Natural silty clay trampled down for extension	-	-
90030	Layer	-	0.10	Demolition material in cleaning layer	-	-
90031	Cut	-	-	Foundation cut of east cellar wall	-	-
90032	Layer	-	-	Silty brown fill of 90033	-	-
90033	Cut	0.15	0.15	Sub-circular depression in clay floor	-	-
90034	Layer	-	-	Firm, yellow/orange clay natural	-	-
90035	Cut	-	-	Foundation cut for stable southern extension wall	-	-
90036	Layer	-	-	Layer of soil and mortar below brick pavier	-	-
90037	Layer	-	-	Redeposited clay natural below 90036	-	-
90038	Layer	-	-	Brick paving	CBM	-
90039	Structure	-	-	Brickwork exterior to wall 90040	-	-
90040	Structure	-	-	Brickwork interior to wall 90039	-	-
90041	Layer	-	-	Layer below redeposited natural cut bywalls	Pottery	mid-19th century
90042	Structure	0.20	0.04	Brick paviour floor	-	-
90043	Structure	-	0.10	Yellow/grey concrete bedding	-	-
90044	Layer	-	0.18	Buried topsoil	Pottery, animal bone	19th century

Context	Type	W (m)	D (m)	Description	Finds	Date
90045	Layer	-	0.10	Hard ash and clinker floor level	Animal bone, glass	late 19th or early 20th century
90046	Cut	0.20	-	Post-pipe square	-	-
90047	Layer	-	-	Posthole 90046 fill of dark grey silty clay and rotted in-situ post	-	-
90048	Layer	-	-	Trampled natural layer	Pottery	19th century
90049	Structure	-	-	West wall of stables	-	-
90050	Cut	0.40	0.20	Cut of root bowl	-	-
90051	Structure	-	-	Modern brick drain	-	-
90052	Cut	0.53	0.20	Bracing/underpinning trench	-	-
90053	Layer	-	-	Firm, orange/brown clay silty sand in bowl 90054	-	-
90054	Cut	0.40	0.16	Root bowl	-	-
90055	Layer	1.20	0.40	Backfill of foundation cut 90057	-	-
90056	Structure	-	-	Unfrogged buff brick wall	-	-
90057	Cut	-	-	Foundation cut	-	-
90058	Layer	-	-	backfill of dark grey silt in foundation cut 90059	-	-
90059	Cut	-	-	Cut for chimney stack base	-	-
90060	Layer	1.00	0.05	Surface of brick fragments on farmyard external	-	-
90061	Layer	-	0.05	Trampled clay floor with imprint of E-W aligned timber	-	-
90062	Cut	-	-	Cut for south wall of stables	-	-
90063	Layer	-	-	Brown silty clay fill of foundation cut 90062	-	-
90064	Layer	-	-	Mixed clay and silty clay backfill of foundation cut 90035	-	-
90065	Layer	-	0.25	Grey/brown silty clay – natural?	-	-
90066	Structure	0.10	-	'Shadow' of timber internal partition (stall?)	-	-
90067	Layer	-	-	Orange sand binding layer for internal floor surface	-	-
90068	Layer	-	-	Orange sand backfill of foundation cut 90070	-	-
90069	Structure	0.25	0.90	Brick wall return of 90001	-	-
90070	Cut	-	-	Foundation cut for brick wall	-	-
90071	Layer	-	-	Off-white, firm lime mortar fill of 90073	-	-
90072	Layer	-	-	Loose orange sand fill of foundation cut 90073	-	-
90073	Cut	0.33	0.07	Cut for an internal division; cut by 90070	-	-
90074	Layer	-	-	Crushed fill with sandstone fragments in foundation cut 90075	-	-
90075	Cut	0.80	0.80	Thin inner cut for 90022	-	-
90076	Layer	-	-	Fill of water pipe 90077	-	-
90077	Cut	-	-	Cut of modern water pipe	-	-

Context	Type	W (m)	D (m)	Description	Finds	Date
90078	Layer	-	-	Floor surface	Pottery, glass, metal	20th century
90079	Layer	-	-	Dirty topsoil in front of entrance	Glass, metal	mid-20th century
90080	Layer	-	-	Topsoil east of entrance	Pottery, animal bone, glass, metal	20th century
90081	Layer	-	-	Garden soil later than walls 90126 and 90125	Pottery, glass, metal	20th century
90082	Layer	-	-	Bedding layer of brick floor 90127	Pottery, clay pipe, glass, metal	19th-20th century
90083	Layer	-	-	Garden soil and rubble	Animal bone, flint	-
90084	Layer	5.30	0.52	Black/brown silty clay fill of wall cut	-	-
90085	Structure	-	-	Internal wall of threshing barn	-	-
90086	Cut	0.44	2.68	Cut for internal wall of threshing barn	-	-
90087	Layer	0.32	3.70	Dark brown silty clay cut of wall	-	-
90088	Structure	0.32	3.70	Internal wall of barn	-	-
90089	Cut	-	-	Cut of wall	-	-
90090	Layer	0.4	0.36	Fill of wall cut	-	-
90091	Structure	0.4	0.36	Internal wall of threshing barn	-	-
90092	Cut	0.4	0.36	Cut for wall	-	-
90093	Layer	-	-	Deposit built up beneath threshing bay timber floor	Metal, stone	19th/early 20th century
90094	Layer	-	-	Dark yellow/brown clay	-	-
90095	Structure	-	-	Original west wall of stables	-	-
90096	Layer	-	-	Clay fill of drain 90097	-	-
90097	Cut	-	-	Cut of drain 90096	-	-
90098	Structure	-	-	Modern pipe trench	-	-
90099	Layer	-	-	Clay floor	-	-
90100	Structure	-	-	Floor abutting wall 90101	-	-
90101	Structure	-	-	Stone wall extension to threshing barn	-	-
90102	Structure	-	-	Flemish bond brick continuation of floor	-	-
90103	Layer	-	0.45	Layer of soil underlying 90102	-	-
90104	Layer	-	-	Buried soil layer	-	-
90105	Layer	-	-	Foundation fill of cut 90106	-	-
90106	Cut	-	-	Foundation cut	-	-
90107	Structure	-	-	South end wall of threshing bay	-	-
90108	Layer	-	-	Crushed coal, coke and slag under 90109 external to S of building	-	-
90109	Layer	-	-	Clay and crushed brick floor covering entire barn	-	-
90110	Structure	-	-	Stone and brick floor inside most of byre extension, under 90109	-	-
90111	Fill	-	-	Fill of posthole 90112 in stone and brick floor	-	-

Context	Type	W (m)	D (m)	Description	Finds	Date
90112	Cut	-	-	Posthole for central support to south wall of byre	-	-
90113	Structure	-	-	South extension to threshing barn	-	-
90114	Structure	-	-	Un-mortared stone retaining wall to N, W and E	-	-
90115	Structure	-	-	Bricked floor of outbuilding	-	-
90116	Layer	-	-	Light yellow rammed clay	-	-
90117	Layer	-	-	Fill of posthole 90118	-	-
90118	Cut	-	-	Posthole for outhouse	-	-
90119	Cut	-	-	Timber upright—possible doorframe in north face of farmhouse	-	-
90120	Structure	-	-	Brick stable wall with lime mortar	-	-
90121	Layer	-	-	Garden soil and brick rubble	-	-
90122	Layer	-	-	Subsoil of firm brown clay	-	-
90123	Layer	-	-	Backfill of foundation cut 90124	-	-
90124	Cut	-	-	Cut of wall 90125	-	-
90125	Structure	-	-	East wall of extension	-	-
90126	Structure	-	-	South wall of extension	-	-
90127	Structure	-	-	Internal pavior floor of extension overlying earth mortar	-	-
90128	Structure	-	-	East wall of stables adjoining wall 90126	-	-
90129	Structure	-	-	South brick wall of extension	-	-
90130	Structure	-	-	Drain cutting through southern extension wall	-	-
90131	Layer	-	-	Clay and crushed brick under concrete floor	-	-
90132	Layer	-	-	Yellow/brown silty clay (possibly a trampled layer or subsoil)	-	-
90133	Structure	-	-	Drain cut	-	-
90134	Structure	-	-	Extension to south wall of threshing barn	-	-
90135	Structure	-	-	Ashlar stone foundations of threshing barn extension wall	-	-
90136	Structure	-	-	Imprint of four rotted timber planks, probably from a door	-	-
90137	Layer	-	-	Layer under 90079	-	-
90138	Structure	-	-	Area of brick extending to entrance of barn	-	-
90139	Layer	-	-	Spread of stones—possible levelling for farmyard	-	-
90140	Layer	-	-	Stone and brick fill of construction cut 90141	-	-
90141	Cut	0.30	-	Cut of foundation	-	-
90142	Structure	-	-	Brick and stone wall with entrance sill	-	-
90143	Structure	-	-	Modern structure	-	-
90144	Structure	-	-	Brick wall	-	-
90145	Layer	-	-	Dark, humic silty clay fill of 90146	-	-
90146	Cut	-	-	Cut for south side of wall	-	-

Context	Type	W (m)	D (m)	Description	Findings	Date
90147	Structure	-	-	Build of wall WD14	-	-
90148	Layer	-	-	Dark, humic silty clay	-	-
90149	Cut	-	-	Foundation cut for 90150	-	-
90150	Structure	-	-	Ashlar masonry wall	-	-
90151	Cut	0.10	-	Cut for a timber post	-	-
90152	Structure	-	-	Mortared bricks	-	-
90153	Structure	-	-	Mortared bricks	-	-
90154	Cut	-	-	Sub-Circular Shallow Depression	-	-
90155	Cut	-	-	Sub-Circular Shallow Depression	-	-
90156	Layer	-	-	Dark, humic silty clay fill 90157	-	-
90157	Cut	-	-	Foundation cut for 90158	-	-
90158	Structure	-	-	Flemish-bonded brick wall	-	-
90159	Layer	-	-	Fill of Foundation Cut	-	-
90160	Cut	-	-	Foundation cut for 90161	-	-
90161	Structure	-	-	Ashlar stone foundations	-	-
90162	Structure	-	-	Brick support pads for sleeper beams	-	-
90163	Layer	-	-	Mortar fill of 90164	-	-
90164	Cut	-	-	Cut for cellar	-	-
90165	Structure	-	-	Drain running from NW corner of farmhouse	-	-
90166	Structure	-	2.14	Stone foundation for N gable wall of farmhouse	-	-
90167	Layer	-	-	Slot fill internal to western wall	-	-
90168	Cut	-	-	Slot facing brick wall	-	-
90169	Layer	-	-	Sand and mortar fill of 90170	-	-
90170	Cut	-	-	Narrow cut in natural	-	-
90171	Cut	0.28	0.26	Cut of posthole	-	-
90172	Structure	-	-	Recovered post	-	-
90173	Deposit	-	-	Natural clay	-	-
90174	Layer	-	-	Levelling layer seen around barn and stable	Pottery	early 19th century
90175	Layer	-	0.06	Asphalt/clinker layer over floor	-	-
90176	Layer	-	-	Floor layer from final phase of stables	Flint, glass, metal	-
90177	Layer	-	-	Floor layer from final phase of stables	Pottery, animal bone, clay pipe	late 18th-19th century
90178	Layer	-	-	Brick rubble layer over clinker deposit to the W of the stables and S of the threshing barn	-	-
90179	Layer	3.47	-	Working surface providing access to stable doorway	Pottery, glass, metal	late 19th-20th century
90180	Structure	-	-	Ceramic drain	-	-
90181	Structure	-	-	Later square brick drain W of the stables and S of the threshing barn	-	-
90182	Cut	-	-	Cut of drain	-	-
90183	Layer	-	-	Fill of drain 90182	-	-

Context	Type	W (m)	D (m)	Description	Findings	Date
90184	Structure	-	-	Brick repair to asphalt surface	Pottery	mid-19th century
90185	Structure	-	-	Ceramic drain	-	-
90186	Structure	-	-	Ceramic drain	-	-
90187	Cut	0.30	-	Cut for west wall extension	-	-
90188	Layer	-	0.14	Stoney surface in wall cut 90187	-	-
90189	Structure	3.47	0.15	Floor surface predating stable cut	Pottery	early 19th century
90190	Structure	-	-	Preserved timber post	-	-
90191	Layer	-	0.20	Levelling deposit to raise floor level in stables	Pottery, flint, glass	19th century
90192	Layer	-	0.18	Crushed brick layer in wall cut	-	-
90193	Layer	-	0.15	Floor layer of stables of compacted clay	Animal bone	-
90194	Layer	-	-	Garden soil and demolition rubble to north of stables	Pottery	late 19th century
90195	Layer	-	-	Garden soil	-	-
90196	Layer	-	0.15	Clay bedding layer for floor	-	-
90197	Structure	-	-	External stone and brick foundation for extension 90200	-	-
90198	Cut	-	-	Cut of posthole	-	-
90199	Fill	0.20	0.40	Fill of posthole 90198, roughly central in N wall	Animal bone	-
90200	Cut	0.05	-	Foundation cut for 90197	-	-
90201	Cut	-	0.10	Posthole in NE corner	-	-
90202	Layer	-	-	Fill of posthole 90201	-	-
90203	Layer	-	-	Levelling deposit in farmyard area	Pottery	19th century
90204	Structure	1.20	-	Flemish bond, buff grey concrete mix makes door at W & E ends	-	-
90205	Layer	-	-	Brick bits and stone set in redeposited clay—possible yard surface	-	-
90206	Cut	-	0.40	Drain cut	-	-
90207	Structure	-	-	Timber post	-	-
90208	Layer	-	-	Area 7, slot 2, not described and no context sheet	Glass	late 19th-early 20th century
90209	Layer	-	-	Brick rubble upper fill of 90206	-	-
90210	Layer	-	-	Redeposited clay in 90206	-	-
90211	Fill	-	-	Fill of repaired drain cut 90212	Pottery	19th century
90212	Cut	-	-	Drain—repair to surface	-	-
90213	Layer	-	-	Backfill of pit 90214	-	-
90214	Cut	0.50	0.36	Probably a late pit	-	-
90215	Layer	-	0.15	Infill of depression 90216 in stable floor, prior to clinker deposit	-	-
90216	Cut	0.60	-	Depression/pit/posthole in clay floor of stables	-	-
90217	Structure	-	-	Possible early post impression	-	-
90218	Fill	0.50	0.35	Fill of cut 90219	Pottery, glass, metal	19th-20th century

Context	Type	W (m)	D (m)	Description	Finds	Date
90219	Cut	0.50	0.35	Square feature	-	-
90220	Layer	-	0.20	Garden soil built up against stable extension	Pottery, flint, glass, metal, stone	19th century
90221	Layer	-	0.15	Clay silt layer with brick and stone for site levelling	-	-
90222	Layer	0.25	-	<i>In situ</i> post in cut 90223	-	-
90223	Cut	0.20	-	Cut for post	-	-
90224	Layer	-	-	Levelling for early clay floor	-	-
90225	Layer	-	0.14	Asphalt layer	-	-
90226	Layer	-	0.40	Modern levelling	-	-
90227	Layer	-	0.24	Redeposited clay layer	-	-
90228	Layer	-	0.19	Redeposited welling layer	-	-
90229	Layer	-	0.10	Asphalt levelling layer	-	-
90230	Layer	-	0.11	Topsoil	-	-
90231	Layer	-	0.21	Redeposited clay levelling layer	-	-
90232	Layer	-	0.21	Mixed levelling layer	-	-
90233	Layer	0.15	-	Brick post-packing fill of 90234	-	-
90234	Cut	-	-	Posthole cut	-	-
90235	Structure	0.23	0.75	North wall of extension	-	-
90236	Structure	0.24	-	Repair after collapse of weakest east wall extension to stables	-	-
90237	Cut	-	-	Cut at the back of the barn	-	-
90238	Layer	0.36	2.20	Redeposited natural filling cut of foundations of south stable extension	-	-
90239	Structure	-	-	Drain at northern limit of excavation	-	-
90240	Structure	-	-	Brick built drain from threshing barn	-	-
90241	Structure	-	0.48	Extension wall to the south of stables	-	-
90242	Layer	-	-	Redeposited natural levelling layer in yard	Clay pipe, glass	late 18th-early 19th century

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