APPENDIX 2: LITHOSTRATIGRAPHIC DESCRIPTIONS

SECTOR 3

SECTOR 3	General	Roche (1976) – Equivalent to currently available section. Note that Roche recognised the 'Epipalaeolithic/Aterian transition' between his Levels 17 and 18 (at a depth of more than 95 cm in the current log below), a proposition which now appears markedly incorrect [SNC]. SNC 2003: "On the H/I line in Squares 18-19, E-W face, observer looking north; local zero in SNC observations at -3.69 (m below Site Datum). Stratigraphy generally very diffuse, apparently due to bioturbation at all fine-to-medium scales." SNC 2003: "E-W section H/I in Squares 18-21, observer looking north; SNC photos west 17 to 19 east; closer west 20 to 23 east." SNC 2003: "By the 19/20 point (about 1 m east of the main SNC log), the stratigraphy is very heavily affected by rockfall; the darker units in the logged material seem to be grossly represented by fine grit bands further east." SNC 2006: "Log line at the 18/19 boundary (equal to the right hand side of Roche 1976 fig.1), x 108.912, y 108.288, z -3.721 (m below Site Datum); colours all very dry; March photos 1-20 in 17-18 (plus edge of 19). Note that Roche fig.1 has squares "17" and "18" labelled wrongly (reversed); Roche's stated thicknesses seem excessive and certainly do not fit the section drawing. Note that Roche's radiocarbon sequence came from this section." SNC 2006: "Simon Blockley (tephra) sampling in Sector 3 H/I at 18/19 boundary; photos 1 and 2." Lithostratigraphic unit notation example for this column: S3[0-6], etc. (with '-03', etc., if needed).
SECTOR 3	[0-6]	Roche 1976: "*Niveau X. Argiles pulvérulentes jaune-clair. Traînée cendreuse à la base. Epaisseur: 0.10 m.*" [On section H/I line at 17-18, apparently continuous across section but the base of "*Niveau VIII*" (part of Grey Series) appears undulating, possibly erosive - not clear.] [NB. In 1971, Roche still had *Niveau X* as part of the Grey Series.] SNC 2003: "Interval 0-6; buff carbonate silt, with white flecks; charcoal. Looks a little like Raynal's Layer 5 (in Sector 2) but does not correlate." SNC 2006:"Buff carbonate silt; equal to Roche 10; dry 7.5YR 6-7/4; charcoal at base, as suggested by Roche; in the Sector 3 section, this unit rises eastwards (out of cave) with the light buff material disappearing, i.e. a drip basin, as suggested by Courty; also lost into cave by 16/17 line." S3[4-6] charcoal OxA-26484 13,980 ± 80 BP <TAF08-5820>.
	[c. 6-93]	Roche 1976: "*Les niveaux XI-XVI présentent un pendage moyen de 5° Est.*" SNC 2006: "The general 'bifurcating' of charcoal beds of Roche does not exist; the impression is mostly due to burrow disturbance."
SECTOR 3	[6-20]	Roche 1976: "*Niveau XI. Série de petites couches alternées de sables argileux jaunes et grisâtres, se terminant en biseau aigu. Epaisseur maximum: 0.30 m.*" SNC 2003: "Interval 6-20; light reddish silt with small stones; charcoal flecks in places; many burrows (slightly browner colour)." SNC 2006: "Light red silt, dry 6YR 6/6 at top, greyer downwards 7.5YR 5/4, more orange between 5.5YR 5/6; equal to Roche 11 (wedging out westwards into cave); rather more charcoal in the lower part (below local height 13); micro-bedded couplets of greyer and more orange at < 1 cm intervals."
	[20 down]	SNC 2006: "All the beds in this sequence rise steadily into the cave towards Sector 6; cf. photographs."
SECTOR 3	[20-31]	Roche 1976: "*Niveau XII. Terres brunes, plus compactes que les précédentes, englobant des blocs de petite et moyenne dimension provenant de la voûte. Epaisseur moyenne: 0.20 m.*" [On section drawing H/I line at 17-18, irregular, 'pinched' morphology.] SNC 2003: "Interval 20-31; mid-brown silt, quite stony; common charcoal." SNC 2006: "Brown (7.5YR 4/4, a little redder at base), quite stony (3-5 cm, 10 cm rare here but up to 30-40 cm further east); equal to Roche 12; approximately equivalent to sample <316> in Y3 (Yell03[74-80]) of Sector 8, possibly a little younger; much charcoal; unit rises westwards towards Sector 6; RNEB reports some Iberomaurusian found at approximately this level on the top of the Sector 3-6 'corner', west of the current log." SNC 2006: "Charcoal OxA-16264 15,355 ± 65 BP <TAF06-5412> at [22]. Charcoal OxA-16265 15,585 ± 65 BP <TAF06-5413> at [30]."
	[c. 31-53]	Roche 1976: "*Niveau XIII. Terres brun-noir où sont incluses des traînées cendreuses. Epaisseur maximum: 0.20 m.*" [On section drawing, apparently discontinuous lenticular forms.]
SECTOR 3	[31-39]	SNC 2003: "Interval 31-39; light brown silt and fine grit, bedded; charcoal." SNC 2006: "Light brown silt, 7.5YR 5/4 or lighter; partially equivalent to Roche 13."
SECTOR 3	[39-40]	SNC 2003: "Interval 39-40; charcoal-rich band; disturbed by 3-4 cm diameter burrows." SNC 2006: "Charcoal-rich; partially equivalent to Roche 13."
SECTOR 3	[40-45]	SNC 2003: "Interval 40-45; light brown; 3-4 cm diameter burrows." SNC 2006: " Light brown, very similar to [31-39]; partially equivalent to Roche 13."

SECTOR 3	[45-47]	SNC 2003: "Interval 45-47; charcoal-rich band; disturbed by 3-4 cm diameter burrows." SNC 2006: "Charcoal-rich; partially equivalent to Roche 13."
SECTOR 3	[47-53]	SNC 2003: "Interval 47-53; light brown." SNC 2006: "Light brown, very similar to [31-39 etc.]; partially equivalent to Roche 13."
	[c. 53-78]	Roche 1976: "*Niveau XIV. Série de fines couches rubannées grises, noirâtres* […]" (p. 155) "[…] *à l'intérieur desquelles sont incluses de fines trainées cendreuses. Epaisseur maximum: 0.40 cm.*" [On the section drawing, lenses shown.]
SECTOR 3	[53-58]	SNC 2003: "Interval 53-58; stratified material, dark brown in top 1 cm, lighter band, relatively dark at base; charcoal-rich; common small burrows. This is a **marker bed**, traceable as rising to the northern corner of Sector 6 (but higher than the sediment still present in the N-S section described by SNC on the 16/17 line, in Squares I and J), where it is lost; this **marker** may therefore lie (notionally) above all units observed in Sector 2." SNC 2006: "**Marker bed**; base 7.5YR 3/3; approximately equivalent to the top of Roche 14; correlates with sample <315> in Y5 (Yell03[110-112]) of Sector 8." SNC 2006: "Charcoal sqI19 OxA-16266 20,500 ± 90 BP <TAF06-5414>, the lateral equivalent of the [58] interval here (slightly higher in I19), base of this **marker bed**, equivalent to the upper limb of Unit S8-Y5. Also, bifurcating again into the cave by the 16/17 line in H/I face."
SECTOR 3	[58-93] General	SNC 2003: "Interval 58-93; looks similar to Raynal's *Ensemble I* in Sector 2; actual correlation unsure."
SECTOR 3	[58-65]	SNC 2003: "Interval 58-65; reddish to light brown gritty silt, lighter at top; common burrows." SNC 2006: "Gritty, silty upwards; partially equivalent to Roche 14."
SECTOR 3	[65-68]	SNC 2003: "Interval 65-68; dark, very gritty material; charcoal; becoming very stony/gritty and thickening eastwards (in sqs20-21)." SNC 2006: "Extremely gritty (3.0-0.5 cm mostly), thickening eastwards; westwards, several charcoal lenses, less gritty or grit concentrated at base; partially equivalent to Roche 14." SNC 2008: "MSA side-scraper found by AOH."
SECTOR 3	[68-77]	SNC 2003: "Interval 68-77; light buff at top, browner downwards; gritty silt and small stones." SNC 2006: "Silty, gritty; partially equivalent to Roche 14."
SECTOR 3	[77-78]	SNC 2003: "Interval 77-78; darker brown band." SNC 2006: "Disturbance from burrowing in sq18; darker, charcoal; partially equivalent to Roche 14."
SECTOR 3	[78-84]	Roche 1976: "*Niveau XV. Terres grises compactes, enrobant de petits blocs tombés de la voûte. Epaisseur maximum: 0.30 m.*" [Nothing in particular shown on section drawing.] SNC 2003: "Interval 78-84; light at top, browner downwards; stony silt." SNC 2006: "Silty, stony (5-10 cm but very large blocks [1 m] eastwards; minor discontinuous charcoal lens at 78; equal to Roche 15."
SECTOR 3	[84-93]	Roche 1976: "*Niveau XVI. Terres grises, compactes, présentant la même structure rubannée que celle du niveau XIV. Certaines trainées cendreuses atteignent une longueur de 0.50 m. Epaisseur: de 0.14 m à 0.40 m.*" "*Epipaléolithique très ancien.*" [Nothing particular shown on the section drawing.] SNC 2003: "Interval 84-93; several lenses of darker brown material; subject to penecontemporaneous burrowing." SNC 2006: "Darker, 7.5YR 4-5/3; several cemented bands; more diffuse charcoal; equal to Roche 16; might be approximately equivalent to sample <314> in Y7 (Yell03[150-160]) of Section 8."
SECTOR 3	[93-120]	Roche 1976: "*Niveau XVII. Terres grises, compactes, non rubannées. Epaisseur moyenne: 0.16 m. Ce niveau correspond à l'occupation épipaléolithique la plus ancienne de la grotte. Il est directement superposé au niveau XVIII qui appartient à l'Atérien supérieur.*" "*Epipaléolithique très ancien.*" [On the section drawing, the basal unit 18? Looks a bit more stony, perhaps.] SNC 2003: "Interval 93-120; light coloured carbonate powder with small to large stones; common older speleothem (floor?) fragments." SNC 2006: "The base of Roche 17 is equivalent to the [106] level on SNC log (within this light concreted material, although this particular level is more concreted and thus more visible in sq17, west of SNC log; there is also a discontinuous < 1 cm wavy very light grey lens with charcoal at this level)." The Aterian-Epipalaeolithic contact said to be dated by *Helix* Gif 2276 32,370 +1890 - 2470 BP (Roche 1971) [SNC: unreliable].
SECTOR 3	[120+]	SNC 2003: "Interval 120+; heavily concreted material (stalagmitic floor or material cemented to underlying floor?)."

SECTOR 3	20/21 General	SNC 2006: "Log line at the 20/21 boundary on the H/I line. z -3.508 (m below Site Datum)." Lithostratigraphic unit notation example for this column: S3-20/21[0-10], etc.
SECTOR 3	20/21 [0-10]	SNC 2006: "Stony silt."
SECTOR 3	20/21 [10-12]	SNC 2006: "Platy small stones, gritty, some browner, a little charcoal; patchy, slightly disturbed; much more charcoal in zones further east; correlates with sample <317>, top C14 date in Y2spit1 (Yell03[26-30]) in Sector 8."

SECTOR 3	20/21 [83-89]	SNC 2006: "Main **marker bed**; correlates with sample <315> in Y5 (Yell03[110-112]) of Sector 8."

SECTOR 3	AOH 2009	2009 field data from Anna Oh (reported in Oh 2011, figs. 2.5, 7.1 and A2). AOH noted that most of the "Epipalaeolithic" artefacts came from the top 35-40 cm; she did not report explicitly the position in this Sector of the MSA/LSA transition but, in her fig.7.1, she appeared to show two 'groupings' (indicated by brackets alongside the section drawing) of "human occupation levels", the upper covering her interval [top-55] and the lower her intervals [62-100]; note that AOH reported (to SNC) an MSA side-scraper from a level identified by SNC with his [65-68] interval, whilst LSA material was certain at least down to his 45 level.] SNC 2008: SNC photos 1068-85, showing OSL Nos. 10 to 13 (upwards); AOH excavation approximately in sqI19, nail at top/east side x 109.060 y 108.280 z -3.670 (m below Site Datum); SNC photos 4521-4525, 4528-4531. Lithostratigraphic unit notation example for this column: S3-AOH09[0-8], etc.
SECTOR 3	[5(above zero)-0]	AOH 2009: "5YR 3/4; silty, cemented, some charcoal pieces."
SECTOR 3	[0-8]	AOH 2009: "7.5YR 4/4." S3-AOH09[4-6] charcoal OxA-26484 13,980 ± 80 BP <TAF08-5820>.
SECTOR 3	[8-29]	AOH 2009: "7.5YR 3/2; granular silty layer." [Some stones shown in schematic section; OSL-TAF08-13 20.0 ± 1.7 ka BP (multigrain), 18.2 ± 1.4 ka BP (single-grain), from near base at c. 6-20.] AOH 2008: "S3-AOH09[11-13] (top Roche XII) charcoal OxA-26639 14,800 ± 60 BP <TAF08-6159>."
SECTOR 3	[29-30]	AOH 2009: "10YR 2/1; charcoal smeared layer." S3-AOH09[28-30] charcoal OxA-26640 16,170 ± 65 BP <TAF08-6633>. S3-AOH09[28-30] charcoal OxA-26641 16,165 ± 65 BP <TAF08-6633 duplicate>.
SECTOR 3	[30-35]	AOH 2009: [No description] AOH 2008: "S3-AOH09[30-32] (Roche XIII mid) charcoal OxA-26642 16,030 ± 65 BP <TAF08-6646>."
SECTOR 3	[35-36]	AOH 2009: "10YR 2/1; charcoal-smeared layer."
SECTOR 3	[36-40]	AOH 2009: "10YR 2/2; some charcoal flecks, silty." AOH 2008: "S3-AOH09[38-40] (Roche XIII base) charcoal OxA-26643 17,070 ± 75 BP <TAF08-6705>."
SECTOR 3	[40-44]	AOH 2009: [No description but ornamentation on schematic section suggests dark sediment over 'black' charcoal, few stones; lenses pinching out eastwards; OSL-TAF08-12 22.9 ± 2.2 ka BP (multigrain), 20.2 ± 1.8 ka BP (single-grain), at c. 47-55 (but within this S3-AOH09[40-44] sloping unit).]
SECTOR 3	[44-53]	AOH 2009: [No description but ornamentation on schematic section is the same as for the [36-40] interval.]
SECTOR 3	[53-55]	AOH 2009: "10YR 2/2; charcoal-rich bed pinching out towards the mouth of the cave." [A stone shown on schematic section.] [Fig.2.5 annotated to correlate with Y5 (Sector 8 WARD 2003); reported in text as confirmed by SNC, therefore equivalent to the base of the [53-58] unit in the SNC log, correlated with the upper limb of S8-Y5.]
SECTOR 3	[55-68]	AOH 2009: [No description but relatively dark brown ornamentation on schematic section; OSL-TAF08-11 28.4 ± 2.8 ka BP (multigrain) at approximately mid-interval at c. 65-68 (but within this sloping unit).] AOH 2008: "S3-AOH09[58-60] (Roche XIV mid) charcoal OxA-26644 22,580 ± 110 BP <TAF08-6858>."
SECTOR 3	[68-69]	AOH 2009: "10YR 2/2; charcoal pieces, silty layer." [Lens pinching out eastwards on schematic section.]
SECTOR 3	[69-71]	AOH 2009: [No description but relatively dark grey ornamentation on schematic section.]
SECTOR 3	[71-77]	AOH 2009: "7.5YR 4/4; silty clay layer, small pebbles."
SECTOR 3	[77-102]	AOH 2009: "5YR 4/6." [A larger stone shown on schematic section near base; OSL-TAF08-10 31.3 ± 2.5 ka BP (multigrain) at approximately mid-interval at c. 84-93.]
SECTOR 3	[102-117]	AOH 2009: "7.5YR 5/6; silty, some slightly sandy bits; some parts of the layer cemented." [OSL-TAF09-01 39.8 ± 3.9 ka BP (multigrain) from very near base.]
SECTOR 3	[117-120+]	AOH 2009: "Hard cemented base; possible flow stone layer."

SECTOR 4

SECTOR 4	General	SNC 2003: "N-S section on the 21/22 line, in Squares H, G and part F; local zero in SNC observations at 3.61 m below Site Datum; SNC photos 26-27, observer looking east. Stratigraphy generally very diffuse, apparently due to bioturbation at all fine-to-medium scales." Lithostratigraphic unit notation example for this column: S4[0-12], etc.
SECTOR 4	[0-12]	SNC 2003: "Interval 0-12; light reddish brown gritty sediment; dispersed charcoal."
SECTOR 4	[12-13]	SNC 2003: "Interval 12-13; strong orange stain."

SECTOR 4	[13-33]	SNC 2003: "Interval 13-33; light brown stony material; dispersed charcoal; some burrows; very diffuse boundaries."
SECTOR 4	[33-45]	SNC 2003: "Interval 33-45; darker brown to red-brown, stony; large land mollusc shell; diffuse charcoal; very diffuse boundaries."
SECTOR 4	[45-57]	SNC 2003: "Interval 45-57; another cycle of similar sediment; bone in very poor condition (cf. *Alcelephas* tooth); very diffuse boundaries."
SECTOR 4	[57-89]	SNC 2003: "Interval 57-89; bedded brown stony material (more stony than above); probably contains several cycles of sedimentation; very diffuse boundaries."
SECTOR 4	[89-93]	SNC 2003: "Interval 89-93; discontinuous lighter lenses over continuous chocolate brown; probably correlates with the [53-58] **marker bed** in Sector 3 (overall easterly dip); very diffuse boundaries."
SECTOR 4	[93-105]	SNC 2003: "Interval 93-105; light brown, becoming redder downwards; generally stony with many 5-10 cm platy stones near base; very diffuse boundaries."
SECTOR 4	[105-117]	SNC 2003: "Interval 105-117; light brown silt with small stones; very diffuse boundaries."
SECTOR 4	[117-125]	SNC 2003: "Interval 117-125; brown to red-brown, very stony material, with large slabs and blocks (including floor speleothem fragments); very diffuse boundaries."
SECTOR 4	[125-155]	SNC 2003: "Interval 125-155; complex of beds with very common small stones, patchily mid-brown, red-brown and light brown; generally stonier than units above level [117]; common shell fragments; very diffuse boundaries. On current evidence (still weak), the [155] level might correlate with the base of Raynal's *Ensemble I* in Sector 2 (equivalent to the [93] level in Sector 3)."
SECTOR 4	[155-200+]	SNC 2003: "Interval 155-200+; mid- to light brown; very gritty, very large rocks (50-100 cm); commonly strongly cemented, increasingly so downwards; very diffuse boundaries."

SECTOR 5

SECTOR 5	General	COURTY 1989: "Fine lamination is totally absent in the thick units occurring near the porch [entrance]. They show a well-developed channel microstructure and consist of densely packed, well-rounded aggregates (300-500 µm). Associated with the dense clay-rich fine fraction are travertine fragments of various degrees of alteration, well-rounded phosphatic nodules, quartz sand grains and fragments of red soils (Figure 11.4f) [caption: "Brown micro-aggregated fabric resulting from intense mixing by biological activity. Epipalaeolithic layers near the porch of the cave."]. [...] Near the porch, decalcified sediments have been intensively disturbed by biological activity, probably earthworms, whereas effects of runoff are not discernible." (p. 225) SNC 2003: "Western corner of Sector 5, roughly the centre of Square F22; local zero in SNC observations at 3.75 m below Site Datum." Lithostratigraphic unit notation example for this column: S5[0-10], etc.
SECTOR 5	[0-10]	SNC 2003: "Interval 0-10; light brown stony silt; very diffuse boundaries."
SECTOR 5	[10-20]	SNC 2003: "Interval 10-20; quite strongly cemented stony material; very diffuse boundaries."
SECTOR 5	[20-45]	SNC 2003: "Interval 20-45; cycles of light brown to reddish material; very diffuse boundaries."
SECTOR 5	[45-48]	SNC 2003: "Interval 45-48; stratified brown material with stony/gritty lenses; very diffuse boundaries. Correlates with the 45-57 interval in Sector 4."
SECTOR 5	[48-101]	SNC 2003: "Interval 40-101; cycles of bedded material, small to medium stones, becoming darker downwards; very diffuse boundaries."
SECTOR 5	[101-104]	SNC 2003: "Interval 101-104; light carbonate silt over chocolate brown **marker bed**; diffuse boundaries. Correlates with the [89-93] interval in Sector 4."
SECTOR 5	[104-160]	SNC 2003: "Interval 104-160; light brown, stony, with large stones and blocks; possibly a distinct brown band with grit at c. 130; very diffuse boundaries."
SECTOR 5	[160+]	SNC 2003: "Interval 160+; light brown cemented material; very diffuse boundaries."

SECTOR 6

SECTOR 6	North General	SNC 2006: "In sqsJ17/18; April photos 45-53; the sequence has its own local Unit numbering; section drawing in E-W plane. Lots of minor angular unconformities seen in the N-S section in sqJ18 from top of S6-(N)17 upwards; requires more detailed study." Lithostratigraphic unit notation example for this column: S6-(N)1, etc.

SECTOR 6	(N)1	Excavators 2006: "Unit S6-(N)1; light brown silt, with frequent charcoal (small fragments) and frequent small mammal bone; good bedding at base of S6-(N)1 (marking boundary with S6-(N)2) in a lens 10 cm laterally, 5 cm thick." SNC 2006; "Whole unit drawn as at least 9 cm thick (top truncated by recent excavation)."
SECTOR 6	(N)2	Excavators 2006: "Unit S6-(N)2; light brown silt." SNC 2006: "Drawn as c. 6 cm thick. Charcoal sqK19 OxA-16263 13,975 ± 60 BP <TAF06-5411>, local Unit S6-(N)2, just above S6-(N)3&4."
SECTOR 6	(N)3&4	SNC 2006: "Units S6-(N)3&4; similar to but not correlated with Raynal 5 (in Sector 2)."
SECTOR 6	(N)3	Excavators 2006: "Unit S6-(N)3; whitish silt deposit (not consistent)." SNC 2006: "Drawn as 2-3 cm thick, rather contorted."
SECTOR 6	(N)4	Excavators 2006: "Unit S6-(N)4; reddish silt." SNC 2006: "Drawn as c. 10 cm thick, rather wavy. Top of this unit was marked by the excavators (on the section drawing) at a z value of between "-2.77 and -2.80"; this must be an error by one metre, i. e. the z values should be at -3.77 and -3.80 (m below Site Datum)."
	(N)5-14	SNC 2006: "Units S6-(N)5-14 similar to Raynal 6-11 but not correlates; clearly very erosive base, with local 'basins'/'troughs' again (cf. Sector 2); lots of internal lensing and stratigraphic discontinuity."
SECTOR 6	(N)5	Excavators 2006: "Dark brown silt." SNC 2006: "Unit S6-(N)5; truncated (and lost completely northwards) by S6-(N)3&4. Drawn as 9-10 cm thick."
SECTOR 6	(N)6	Excavators 2006: "White silt." SNC 2006: "Unit S6-(N)6; truncated (and lost completely northwards) by S6-(N)3&4. Drawn as up to 4 cm thick in E-W section." SNC 2006: "Charcoal sqK18 OxA-16262 15,995 ± 65 BP <TAF06-5410>, local Unit S6-(N)6, just below S6-(N)3&4."
SECTOR 6	(N)7	Excavators 2006: "Marker horizon, comprising charcoal band, light grey silt, charcoal band set." SNC 2006: "Unit S6-(N)7; truncated (and lost completely northwards) by S6-(N)3&4; probably equivalent to the **marker bed** S8-Y5. Drawn as up to 5 cm thick in E-W section."

SECTOR 8

SECTOR 8	Grey Series general	Roche (1963): Ashy *Niveaux I-X*; ashy material, with discontinuous stony lenses, many burnt stones and hearths, charcoal, land snails (often in lenses, mostly crushed but more intact in places); 'chocolate' alteration zone at base of grey ashy series deeper into the cave (westwards); locally variable dips (sometimes undulating) but main dip out (eastwards) to the southeast; Roche sub-divisions (SNC very sceptical) would comprise a series of wedges. mostly dipping and thickening E-SE. COURTY 1989: "It is only in the upper part of the Epipalaeolithic sequence in the thick layered ash units at the base of the necropolis that calcium carbonate ash crystals become abundant (Figure 11.4e) [caption: "Mildly disturbed calcitic ashes forming thick accumulations in the upper part of the Epipalaeolithic sequence."]. There they form an essential constituent, associated with abundant, highly burnt sheep droppings [SNC very sceptical] and fire-cracked exploded travertine [bedrock] fragments." (p. 225). Cf. SNC general photos (2003) 35-48. Lithostratigraphic unit notation example for this column: S8-G88, etc.
SECTOR 8	Upper Grey Series	S WARD 2003: "topped by lime mortar (added by French Army to secure stability above the sediments)". SNC 2003: "E-W section in the c.A file at Square c. 24, looking south; SNC photos 71-80." SNC 2003: "Section excavated by S WARD in Square B23"; local zero deduced (from surveyed find distributions) to have been c. -0.30 ± 0.1 (m below Site Datum). SNC photos 101-103 of completed sampling.

SECTOR 8	G88	S WARD 2003: "Fairly uniform ashy silt; light/medium grey colour; inclusions of fragmented shell; angular blocks up to 7 × 7 × 4 cm (making the deposit quite gritty, with a contrast between the silt and grit fabric of the unit); unconsolidated; numerous charcoal pieces less than 1 cm; large fragments of bone but no evidence of smaller bone fragments; few lithic flakes; subdivided: G88-1 – 3 cm thick horizontal subunit; largely concreted and upper zone somewhat intermixed with overlying lime mortar; small lens of sediment (not a hearth) in upper 1 cm of subunit, slightly darker grey than surrounding sediments; G88-2 – mid-grey colour, generally average G88 sediment; thickening locally inwards (westwards) with inward dip of base; sample SW200B1 above SW200B2; G88-3 – hearth subunit, lens thickening quickly outwards (left partially *in situ*); light grey colour; some large blocks (whitened at the edges of the subunit); some fragments (only 1 cm^3) within; sample SW201; G88-4 – similar to G88-2 but slightly lighter in colour; locally inward dip; sample SW200B3; G88-5 – light grey ash layer; not a hearth but a convenient boundary between G88 and G89." SNC 2003: "Interval 0-25; ashes and small charcoal fragments; horizontal to slight westerly dip (separated into 5 subunits during excavation); nodular ashy concretions; grit and angular limestone 5-10 cm; moderate shell content; large bones." Charcoal sqB23 OxA-13479 10,935 ± 40 BP <TAF03-200>. Charcoal OxA-34434 10,855 ± 50 BP <TAF03>.
SECTOR 8	G89	S WARD 2003: "Basically the same as G88-4 in sedimentary features, with no obvious changes within the thickness observed; higher proportion of broken shell fragments, small bones, charcoal and small angular pieces of limestone (less than 0.5 cm^3); matrix very soft and unconsolidated; uniform mid-grey colour; rare large limestone fragments; occasional large charcoal fragments; 2 samples, SW202upper over SW202lower, one from each of the two excavation spits [SNC: the latter may have been labelled '203']; a few unbroken mollusc shells in spit 2; spit 2 may have encroached slightly upon G90 (i.e. crossed the real boundary); locally dipping inwards." SNC 2003: "Interval 25-42; uniform mid-grey unit; a little softer than above, fine stones; more broken shell and more bone than above." S8-WARD03-G89spit1 charcoal sqB23 OxA-13480 10,950 ± 45 BP <TAF03-202>. S8-WARD03-G89spit2 charcoal sqB23 OxA-13516 11,065 ± 45 BP <TAF03-203>.
SECTOR 8	G90	S WARD 2003: "Similar to G89 but a little darker; more obvious fragments of charcoal; laminations, thickening towards cave wall; two instances of localised red silts within the laminated series (without signs of cementation or weathering); subdivided: G90-1 – excavated as two spits 1 and 2, samples as SW204 above SW 205; spit 2 contains a little ashy – material from a lens appearing near the inner (western) section; more stony than G89; G90-2 – complex set of generally inward-dipping lenticular subunits, dug separately as 'spits' [SNC: from section drawing, the true stratigraphic order is youngest: spit 1 / sample SW206, spit 3 / sample SW208, spit 2 / sample SW207, spit 4 / SW209 oldest]; more fragments of charcoal in this subunit; more strongly laminated than in G90-1; similar to a midden, extremely rich in shells, charcoal, and small bone fragments but only very few lithics; possible burrow on outward side (fill not included in samples)." SNC 2003: "Interval 42-100; inclined, sloping down westwards (separated into 2 subunits during excavation); finely laminated ash (including spicular forms on bedding planes, especially at base, which could indicate grasses or fine leaves burnt *in situ*); more obvious charcoal than above; more medium stones at top but not very stony downwards; shell lenses and small bone fragments; burrows of 3 and 15 cm diameter; at level 85, discontinuous lens of reddish 'fired earth' just west of logged section." S8-WARD03-G90-1spit1 charcoal sqB23 OxA-13517 10,990 ± 45 BP <TAF03-204>.
SECTOR 8	G91	S WARD 2003: "Slightly darker than G90-4 [*sic*, probably referring to G90 in general] but not much difference overall, although G91 is not obviously stratified [laminated]; lens pinching out towards the cave centre line and also inwards; sample SW210." SNC 2003: "Lens only on east side of excavation (not in the line of the log); grey material lacking the fine stratification of G90."
SECTOR 8	G92	S WARD 2003: "G92 subdivided: Spit 1 similar to G91 but with more limestone blocks; lighter grey, more ashy material on the outward side; sample SW211; sharp upper boundary dipping outwards; Spit 2 more ashy than above; stronger ashy lens on inward side (possible hearth); poorly microstratified, with possible traces of churning; overall pinching out outwards; common charcoal fragments but rare lithics; sample SW212; Spit 3 is blocky; limestone cobbles slightly imbricated with their dips into the cave; the entire subunit dips inwards; sample SW213." SNC 2003: "Interval 100-130; stony burnt hearth, stones dipping slightly down westwards; strong light-coloured ashy lenses; upper surface truncated/eroded (down to north by 45°)."

SECTOR 8	G93	S WARD 2003: "Subdivided: G93-1 – similar to G92spit3 but dipping slightly outwards; slightly lighter in colour; a slight increase in 'soil' in this subunit (browner colour against the grey ash); interpreted as a true environmental change, with increased fine sediment reaching the cave from outside; samples SW214 and SW215; G93-2 – still quite blocky but a darker colour than G93-1; samples SW216 and SW217; tooth bagged (with surrounding sediment) for possible ESR dating, located close to boundary between two subunits." SNC 2003: "Interval 130-160; grey stony material with lenses of very slightly browner (mineral matrix) material (separated into two subunits during excavation), sloping 15° eastwards; upper surface truncated/eroded (down sharply to north)."
SECTOR 8	G94	S WARD 2003: "Slump feature [? SNC]; darker in colour than G93-2; more strongly stratified (with some back-stratification); common burnt bone, lithics, etc.; very common shell fragments, charcoal and lithic fragments; spit 1 with sample SW218; spit 2 with sample SW219; lower boundary cutting sharply down outwards locally." SNC 2003: "Interval 160-185; grey, well laminated (possibly slightly washed) material, dipping mostly eastwards but with a few localised cross-dips down to the west in places; moderately stony; dense shell/bone/charcoal/lithic artefact lenses."
SECTOR 8	G95	S WARD 2003: "Subdivided: G95-1 – increase in bone fragments compared with G94; large charcoal and shell fragments; more burnt lithics; large blocky pieces of fire-cracked stone (more common than in overlying units); including strong bands of broken shell and bone, horizontal or dipping only slightly outwards; spit 1 / sample SW220, spit 2 / sample SW221; G95-2 – small lens of extremely friable, lighter grey (ashy) material; spit 1 / sample SW222, spit 2 / sample SW223; G95-3 – extremely dense subunit of broken shells, almost midden-like; shells are large aligned horizontally, with fragments no larger than 1 cm^3; charcoal fragments, together with bone, lithic and limestone fragments, all commonly burnt; occasional very fine lenses of ash but also possible infiltration from above; fairly horizontally bedded, although exposed along the axis of a 'hump' [convex-up]; shell survival suggests that the component lenses are not hearths but, rather, material on the periphery of such features; sample SW224." SNC 2003: "Interval 185-215; cycles of ash over gritty debris (shell, burnt bone, charcoal, burnt stone), with ash-dominated cycles at top becoming grit-dominated downwards; almost horizontal but with a very minor easterly dip in places; rich in bone, burnt stone and burnt lithics in upper part; resembles a typical midden (cone of dejection) accumulation."
SECTOR 8	G96/1	S WARD 2003: "At top, some mixture of cobbles and shell fragments from the G95-3 subunit; downwards, only with occasional cobles and still rich in shell fragments; most of the stones are relatively small 3-4 cm^3; still very friable but still matrix-supported; very ashy but fractionally browner in colour, suggesting more input from outside cave; reasonably stratified, dipping slightly out of cave; sample SW225." SNC 2003: "Interval 215-235; quite well bedded, down very slightly eastwards; very ashy material (but just a little browner colour in places, suggesting slower sedimentation and mineral input); some stone, relatively small, but matrix-supported; shell."
SECTOR 8	G96/2	S WARD 2003: "more stony and clast-supported; still shell fragments, some bone fragments and a few large pieces of charcoal (although possibility of infiltration from G96-1); fairly horizontal bed but with an upper boundary dipping slightly out of the cave; cobble show signs of burning and have random (jumbled/natural) orientations; sample SW226." SNC 2003: "Interval 235-250; upper surface dips eastwards by 10° (more sharply than bedding angle in G96/1); clast-supported, stones 5-10 cm; some shell, charcoal (some large fragments) and bone, stone still heavily burnt." S8-G96-2A charred seed OxA-34435 12,420 ± 55 BP. S8-G96-2B charred seed OxA-34436 12,145 ± 55 BP.
SECTOR 8	G96/3	S WARD 2003: "Greater quantity of earth within this subunit (derived from outside the cave), colder to the touch and retaining more water; still with common cobbles but supported by a matrix of ash and shell fragments; thinning towards cave wall; sample SW227." SNC 2003: "Interval 250-260; 'earthy' (mineral sediment-rich) ash."
SECTOR 8	Medial Segment of Grey Series	SNC 2003: "E-W section on the C/B line in sq c. 20 (i.e. about 3 m west of upper sequence excavated by S WARD), described from top down."
SECTOR 8	G96/4	S WARD 2003: "Cobble/clast supported (dominated by clasts 7-15 cm^3), with very little fine matrix (possibly infiltrated from above); dipping into the cave; cobbles are rounded/sub-rounded and consistently burnt (powdery white on the surface); low levels of charcoal, bone and lithic fragments; friable and unstable in section; not sampled." [SNC: possibly sampled later, as section drawing seems to show SW1.] SNC 2003: "60-70 cm thick; powdery stony sediment, clast-supported, 10-15 cm diameter modal size, edge-rounded (apparently disturbed/reworked), heavily burnt."

SECTOR 8	G96/5	S WARD 2003: "Cobbly with patches of matrix-support and clast-support; most clasts are sub-angular and quite large (5-6 cm³); contains a brownish fine silty lens and generally cool (damp) to the touch; thin lenses of charcoal quite abundant, although not as hearth features; common lithics and bone fragments but very little shell debris; slight dip into the cave; sample SW228." SNC 2003: "30 cm thick; brownish silty ash; few patches of clast-support but mostly matrix-supported, many cobbles but more angular than above (does not appear to have been moved and therefore does not show strong edge-rounding); thin charcoal lenses."
SECTOR 8	G96/6	S WARD 2003: "More clast-support by cobbles but still some matrix, brown and silty (possibly some infiltration from G96-5); strong archaeological component (lithic, bone, shell, charcoal); some subunits dipping northwards towards the cave axis; not sampled." SNC 2003: "Thickness c. 15 cm [NB S8-G96/1-5 recorded as about 1.4 m thick overall; cf. the same thickness in the general G96 basal exposure, described below]; similar to G96/5 but more clast-support; still normal matrix and small stones; bedding slightly down to the east but also with a 20° dip component northwards."
SECTOR 8	Base of Grey Series	SNC 2003: "Sample sequence excavated by S WARD, E-W section on the C/B line in Square 21; SNC photos 24-25. Note that when WARD recorded multiple samples from a single subunit, these were usually laterally adjacent (and thus broadly equivalent) not superstratified." SNC 2003: "Sample sequence excavated, E-W section on the C/B line in Square 21; after sampling; SNC photo 81." SNC 2003: "E-W section 1.5 m further south (towards the cave wall) than the section in the underlying Yellow Series; local zero in SNC observations at -4.58 (m below Site Datum) (note that this demonstrates strong southerly dip of base of Grey Series, although units are more or less horizontal, rarely dipping slightly down eastwards, in the E-W plane); intervals recorded [by SNC] with zero at the base and counting upwards."
SECTOR 8	G96 (general)	SNC 2003: "Interval 60-200; alternations (see subdivisions above) between ash and coarse burnt stone, with a few finer sediment lenses; sharp local cross-beds in some places; stones up to c. 15 cm; shell, bone."
SECTOR 8	G97	S WARD 2003: "Composite hearth; fine-grained, grey and highly friable; many fragments of charcoal (macro & micro); some rounded pebbles [SNC: burnt limestone] and some coarser sediment but mainly very ashy; small broken shell fragments and lithics (including a backed piece); samples SW4, SW31, SW36, SW50." [SNC: the inclusion of sample SW50 and its approximate geometry, as shown on the excavation block diagram, would suggest sharp northward dip of the base of this unit close to the original exposure (before excavation), perhaps as a 'scoop' into underlying units.] SNC 2003: "Interval 40-60; grey-brown ashy silt, some cross-beds; burnt stones, bone, large charcoal fragments." Charcoal OxA-13477 sqB21 12,675 ± 50 BP <TAF03-36>.
SECTOR 8	G98	S WARD 2003: "Similar matrix to other units in the G90s series above; lenses pinching out northwards but dipping towards the cave wall; composed of three ashy hearth subunits (G98-1, -3 and -5), separated by two grey-brown earthy lenses (G98-2 and -4); similar levels of charcoal in all subunits but some concentration within the ashy lenses, which are also lightly concreted; lithics not common; G98-1 / samples SW38 and SW41, G98-2 / sample SW46, G98-3 / samples SW48 and SW53, G98-4 / samples SW58, SW61, SW63 and SW73, G98-5 / sample SW89." [SNC: the geometry of samples for all the subunits for G98, as shown on the excavation block diagram, suggests that reliance should not be placed upon stratigraphic integrity/apparent order within this interval; S WARD himself noted "lenses difficult to sample".] SNC 2003: "Interval 20-40; stratified hearths, white/grey ash, black charcoal; quite sharp local cross-beds; artefacts, bone, shell."
SECTOR 8	G99	S WARD 2003: "Transition to the 'natural' sequence below (red beds [Yellow Series]); yellow-brown, silty and very soft/friable; higher level of sub-angular pebbles [limestone] in comparison with G97 and G98; very porous/degraded limestone fragments 4-5 cm³; shell fragments; samples SW90, SW100, SW108 and SW109." SNC 2003: "Interval 3-20; grey-brown ashy silt with corroded stones; bone; 7.5YR 5/2." Charcoal sqB21 OxA-13478 12,495 ± 50 BP <TAF03-90>.
SECTOR 8	G100	S WARD 2003: "Blocks (cobbles) with brown matrix; larger bone fragments and more lithics than G99; likely to be a mixture of Grey and Yellow Series; sample SW118." SNC 2003: "Interval 0-3; stony interface with the Yellow Series below; bones." Bone sqC23 OxA-24109 12,605 ± 55 BP <TAF04-466>.
SECTOR 8	Yellow 2003 Series	Roche (1963): In fig.9 (longitudinal section), the contact between the Grey and Yellow Series drops c. 4 m between H6 (inwards) and A24 (outwards) but levels out to nearer the horizontal further west. SNC 2003: "E-W section, rather sloping between D/C and E/F lines, in Square 21 at top, passing into Square 22 downwards, observer looking south; SNC photos 82-86 (86 is a detail of the **marker bed** in the interval 110-112, lying between the two plastic bag marks in the wider photos). SNC photos 87-89 showing sampling by E. Rhodes; the OSL sample position (OSL-TAF03-14) showing partially in SNC photo 86, just to the right of Rhodes's abdomen, is centred on the **marker bed**." SNC 2003: "SNC description of E-W section on D/C line at the boundary between Squares 20 and 21; local zero in SNC observations at -3.93 (m below Site Datum). Cf. also SNC photos 24-25 at C/D21." Lithostratigraphic unit notation example for this column: S8-Yell03[0-15], etc.

SECTOR 8	Yell03[0-15]	SNC 2003: "Interval 0-15; stony brown silt with large bone fragments; equivalent to Unit Y1 of Sector 8 sample sequence excavation by WARD."
SECTOR 8	Yell03[15-19]	SNC 2003: "Interval 15-19; light brown stony silt."
SECTOR 8	Yell03[19-22]	SNC 2003: "Interval 19-22; mid-brown silt with charcoal."
SECTOR 8	Yell03[22-26]	SNC 2003: "Interval 22-26; light brown to gingery silt."
SECTOR 8	Yell03[26-30]	SNC 2003: "Interval 26-30; brown silt; charcoal, much bone, artefacts (apparently Iberomaurusian); source of large environmental sample <317>; overall horizontal but wavy over 2 m lateral scale, rising and dropping by 10-15 cm; appears to be multiple, subunits splitting and fanning eastwards. This unit possibly correlates with the strong bone grouping on the E-W section at the Square 16/15 boundary above the Deep Sounding (S)[25-35]." Charcoal sqD20 OxA-13519 13,905 ± 55 BP <TAF03-317>.
SECTOR 8	Yell03[30-53]	SNC 2003: "Interval 30-53; orangey light brown silt with a slightly browner band (archaeological?) at 48; well bedded; flecks of charcoal."
SECTOR 8	Yell03[53-56]	SNC 2003: "Interval 53-56; orangey and mid-brown banding; gritty silt; carbonate crusts; charcoal."
SECTOR 8	Yell03[56-67]	SNC 2003: "Interval 56-67; stony brown silt, more or less horizontal bedding."
SECTOR 8	Yell03[67-70]	SNC 2003: "Interval 67-70; gritty silt, horizontally bedded; charcoal, bone, shell."
SECTOR 8	Yell03[70-74]	SNC 2003: "Interval 70-74; stony brown silt."
SECTOR 8	Yell03[74-80]	SNC 2003: "Interval 74-80; several bands of brown gritty silt, horizontal bedding; bone, charcoal, shell; source of large environmental sample <316>." Charcoal sqD20 OxA-13518 17,085 ± 65 BP <TAF03-316>.
SECTOR 8	Yell03[80-95]	SNC 2003: "Interval 80-95; mid-brown silt; better stratified eastwards, wedging out westwards; bioturbation structures."
SECTOR 8	Yell03[95-100]	SNC 2003: "Interval 95-100; brown silt; artefacts; bioturbation structures."
SECTOR 8	Yell03[100-110]	SNC 2003: "Interval 100-110; blotchy dark brown, true thin chocolate brown bands (with very thin carbonate bands above) further west but apparently a little disturbed on description line; dipping here eastwards by 6°, by over 10° further west; charcoal, shell, bone, artefacts; bioturbation structures."
SECTOR 8	Yell03[110-112]	SNC 2003: "Interval 110-112; white/cream over dark chocolate brown; **marker bed**, correlates with the [101-104] interval in Sector 5; source of large environmental sample <315>." Charcoal sqD20 OxA-13607 22,200 ± 90 BP <TAF03/315>.

SECTOR 8	Yellow Series WARD 2003	Descriptions during excavation by S WARD 2003 in B/C22. Lithostratigraphic unit notation example for this column: S8-WARD03-Y1, etc.
SECTOR 8	Y1	S WARD 2003: "About 10 cm thick, thinning to c. 6 cm thick into cave; contains cobbles 3-4 cm; matrix is yellow/red fine carbonate; quite rich in lithics, bone and some teeth; rich in charcoal; lower boundary not very distinct at the front (north side) of the square but clearer change evident at the rear – more reddish colour in Y2 below; sample SW168. There is a small (c. 30 × 26 cm) hearth feature in the centre of Square B/C22; apparently surrounded by fire-cracked stones; sediment within hearth is brown/dark brown with pockets of lighter coloured ash; alongside, some burnt mammal and bird bones, and quite a large lithic (c. 3 × 8 cm); some pockets of charcoal and ash surround the hearth unit; sediment underneath hearth is reddened." Ostrich eggshell sqC22 OxA-14349 12,690 ± 55 BP <TAF04-657>.
SECTOR 8	Y2spit1	S WARD 2003: "About 15-20 cm thick, slightly lensing out into cave; redder colour and fewer stones and cobbles than Y1; brown hearth-like lenses; generally less finds than in Y1 (lithics, bones, etc.); still finding some microburins in Y2spit1 and some backed blades throughout; still quite high in charcoal; sediment is damper, apparently with a higher soil content. Sequence in more detail: (top) lighter (yellowish) band c. 1 cm thick; an red/orange band c. 2 cm thick; a yellow sandy/gritty layer; (base) a darker reddish band (higher in charcoal than overlying thin yellow and orange bands). Environmental samples taken from quadrants B and D."

SECTOR 8	Y2spit2	S WARD 2003: "About 10 cm thick; consistent reddish brown colour but with occasional yellow (more gritty) lenses and very small (c. 5 cm^2) patches; fewer artefacts than in Y2spit1, although still some lithics (backed pieces, cores, flakes, etc.); still some bone (1 animal jaw bone found); broken shells are quite a significant component (mixture of large & small fragments); marine shell (perforated, 'periwinkle' appearance) (Quadrant B), alongside three other marine shells (not perforated), all small and thick-walled; large cube (c. 3 cm^3) of haematite (Quadrant A); sediment darker red colour with slightly more charcoal in it than in Y1 (not very much more); slightly damper than Y2spit1 and a little more gritty; no ashy lenses evident; slightly more stony than in Y2spit1, in particular with more flat carbonate material (very crusty and light)."
SECTOR 8	Y2spit3	S WARD 2003: "About 10 cm thick; slightly darker reddish-brown than Y2spit2; more stone than in Y2spit2 (especially in quadrant D where large blocks are found); less stony in the other quadrants however, with most of the stones comprising flat carbonate crusty material and pieces of stal [speleothem]; more large blocks of stone within this spit as well; 1 jaw bone found on quadrant A/B border near the centre of the 1 m square + *Ammotragus*; 1 horn[core] of *Ammotragus* in Quadrant A."
SECTOR 8	Y2spit4	S WARD 2003: "About 10 cm thick; very similar in texture to Y2spit3, although slightly less blocky; fewer lithics than in Y2spit3 but still significant amount of bone and charcoal; less of the platy carbonate material than in the overlying Y2 spits; sediment is darker (damper and less oxidised) at the rear of the square and appears slightly higher in clay content; large platy boulder (c. 50 cm breadth, c. 20 cm width, c. 15 cm depth) intruding on A and B quadrants."
SECTOR 8	Y2spit5	S WARD 2003: "About 10 cm thick but care taken to respect stratigraphic boundary at base; definite decrease in lithics (only 2 pieces recorded as separate finds) but still good quantities of bone fragments (possibly even an increase in bone, especially in larger bone fragments); colour of sediment darkens to an almost deep red wine colour; still quite clayey (possible small increase in clay level); significant material (bones and some lithics) beneath the large platy boulder intruding on quadrants A/B (reported in Y2spit4), perhaps a particular activity area."
SECTOR 8	Y3	S WARD 2003: "Dated to 17.9 ka (uncorrected); unit about 2-3 cm thick relating to the first marker set by SNC; sediment becomes a little lighter in colour and clay content decreases; texture more sandy and gritty; common bone but very few lithics (only lithics found are flakes); some of the bones large and thick (couple prepared for potential U-series dating); some areas of the band appear to be quite quickly concreted with many of the artefacts covered with a tufa-like coating (very gritty); common charcoal; hard to trace moving southwards towards the rear of the sequence."
SECTOR 8	Y4spit1	S WARD 2003: "About 10 cm thick; orange brown sediment; more clayey at rear of square with small (10-20 cm^2) lenses of lighter (slightly more orange than red) gritty/sandy material similar to that in Y3 (but not a continuation of that unit); still large amounts of charcoal; relatively common large fauna compared to lithics and small fauna; some backed pieces, cores and flakes but much fewer overall than in overlying layers; the proportion of tools to flakes has increased, suggesting this was a place of tool usage rather than tool manufacture; ashy lens/small hearth (photos taken) found between quadrants A/B; 1 backed piece within the hearth; generally a lens of ash (white) with a band of charcoal beneath but no obvious basal reddening; quite a lot of stones in the spit especially the re-appearance of the platy carbonate material (as seen in overlying layers), typically 5 cm^2 × 0.5 cm thick; cobbles increase within this level."
SECTOR 8	Y4spit2	S WARD 2003: "About 10 cm thick; similar to Y4 spit1 but a general (relative) decrease in fauna and increase in lithics; still finding some cores and a few backed pieces; decrease in number of flakes; no other changes from Y4 spit1."
SECTOR 8	Y4spit3	S WARD 2003: "About 10 cm thick; sediment a little darker in colour than in Y4 spits1 & 2 and more clayey; still common charcoal; fewer archaeological finds overall (now down to about 5-10 per 10 cm spit depth, compared to av.10-15 in Y4 upper spits, 15-25 in Y2, 30-50 in Y1, etc.); general relative increase in lithics compared to fauna; less stony at the rear of the square and generally more archaeological finds."
SECTOR 8	Y4spit4	S WARD 2003: "Quadrant B: sediment a reddish brown cave-earth; very few artefacts (flakes) and only a couple of bone fragments (nothing diagnostic); 1 backed lithic found at base of Y4spit4 [SNC: anomalously low]. Quadrant A: far back right of section was significantly darker than nearer face of section + seems to be an increase in charcoal; small ashy patch, hearth-like, at the border between quadrants A/B (ash was separated and sample taken for Phytoliths); as in Quadrant B in that base of Y4spit4, patchy dark areas [disturbed Y5?]; slightly more common charcoal than in Y4spit3; also slightly more rock frags, occasional medium-sized (4-6 cm^3); no evidence of microfauna; 2 whole land snail shells (2.5 cm^3), as well as a few smaller (0.5 cm^3) semi-crushed land snail shells."
SECTOR 8	Y5	S WARD 2003: "c. 1-3 cm thick (becoming more patchy and thin going into cave); dark brown colour generally, black in patches (almost soil-like); quite moist to the touch; the unit is extremely patchy in quadrants A/B, although forms a more continuous band in quadrants C/D; unit is overlain by a thin (c. 0.5 cm thick) band of distinctive gritty/sandy yellow sediment; where Y5 is patchy, this yellow is found covering it; sediment was excavated from areas certain to be representative of Y5, rather than taken out in bulk; few bone frags (parts of relatively large bones) (Quadrant A); 3 lithic flakes found in Quadrant A; in Quadrant B, again very patchy and difficult to distinguish between Y4spit4 and Y5."

SECTOR 8	Yellow 2006 Series	SNC 2006: "April photos 3-35; April photos 54-63 after sampling; log in excavated square; base of Grey Series at zero in sqC22, x 103.207, y 105.515, z -4.113 (m below Site Datum); same local datum used by SB for microtephra sampling; sampling face, observer looking south." SNC 2008: "Zero nail resurveyed: x 103.179, y 105.719, z -4.020 (m below Site Datum)." Lithostratigraphic unit notation example for this column: S8-Yell06[0-17], etc.
SECTOR 8	Yell06[0-17]	SNC 2006: "Interval 0-17; rather uniform, moderately stony brown silt, internally well bedded; locally, dip 2° south but also 6° west (down into cave) but, more generally, subunits have a >2° down eastwards (out of cave), i.e. there is a local minor rise; generally dispersed charcoal, 1-3 mm mode; localised white-above-black/brown lenses appear to be *in situ* hearth material; base colour 7.5YR 6/4 or greyer, with white flecks; equivalent to Unit Y1 of Sector 8 WARD 2003 and to Yell03[0-15]." SNC 2008: "Ostrich eggshell [04-659] [12,690 ± 55] at unspecified level in Unit Y1."
SECTOR 8	Yell06[17-20]	SNC 2006: "Interval 17-20; slightly [*sic*] very fine gritty silt; 7.5YR or a little redder 6/6; contains charcoal; equivalent to the top of Unit Y2 of Sector 8 WARD 2003." SNC 2006: "Charcoal sqC22 OxA-16267 14,005 ± 60 BP <TAF06-5415> at [18], in the very top of Unit Y2, first centimetre of reddish brown material."
SECTOR 8	Yell06[20-23]	SNC 2006: "Interval 20-23; patchy cementation; variously cream to mid-brown."
SECTOR 8	Yell06[23-27]	SNC 2006: "Interval 23-27; at least two ginger (5YR 5/8) over light (7.5YR 7/6) cycles, with thicker light subunits and the ginger subunits (implying alteration?) usually <1 cm; very slight contortions, with ruptured elements often disposed as small 'troughs' 10 cm long (almost dish structures), seen in both N-S and E-W section; relatively stone-free, very uniform silt (possibly originally loessic?), with very little clay (will not make a plastic roll); whole unit thickening into cave (aven input?); charcoal; equivalent to the "red/orange" level in spit1 of Unit Y2 of Sector 8 WARD 2003 and to Yell03[22-26]; similar to Raynal 5 (in Sector 2) but not a direct correlate." SNC 2006: "Charcoal sqC22 OxA-16268 14,515 ± 60 BP <TAF06-5416>, in Unit Y2 at [27]."
SECTOR 8	Yell06[27-31]	SNC 2006: "Interval 27-31; stonier (fine grit) silt with weak cement; mid-brown; charcoal, artefacts; equivalent to base of spit1 of Unit Y2 of Sector 8 WARD 2003 and to Yell03[26-30]."
SECTOR 8	Yell06[31-45]	SNC 2006: "Interval 31-45; slightly gritty, purer silt, with some stones; mid-brown (slightly greyer than 7.5YR 5-6/4); at level [34] (<1 cm thick), contains slightly more gingery band, which is becoming much grittier into cave; at [36] level, pure silt mudclasts 1-3 mm; at [42] level (<1 cm thick), another gingery band; approximately equivalent to spit2 of Unit Y2 of Sector 8 WARD 2003." SNC 2006: "Charcoal sqC22 OxA-16272 14,630 ± 60 BP <TAF06-5421>, in the middle of Unit Y2 at [37]."
SECTOR 8	Yell06[45-50]	SNC 2006: "Interval 45-50; silt, with silt clasts (probably very small scale bioturbation); less stony than units above and below; gingery (5YR 6/6); approximately equivalent to spit3 of Unit Y2 of Sector 8 WARD 2003; interval Yell06[31-50] combined approximately equivalent to Yell03[30-53]."
SECTOR 8	Yell06[50-64]	SNC 2006: "Interval 50-64; quite gritty silt with small stones, sometimes as platy elements in bands; strongly banded; mid-brown but with lighter and gingery bands internally; charcoal and lithics throughout; approximately equivalent to spit4 and part of spit5 of Unit Y2 of Sector 8 WARD 2003 and to Yell03[53-70]." SNC 2006: "Charcoal sqC22 OxA-16269 15,790 ± 60 BP <TAF06-5417>, lower in Unit Y2 at [58]." SNC 2008: "Ostrich eggshell sqC22 OxA-14350 16,660 ± 70 BP <TAF04-1734>, at unspecified level in spit5A of Unit Y2." [OSL-TAF08-16 22.7 ± 1.9 ka BP]
SECTOR 8	Yell06[64-69]	SNC 2006: "Interval 64-69; platy stony silt; slightly to very cemented; brown; equivalent to base of spit5 of Unit Y2 of Sector 8 WARD 2003 and to Yell03[70-74]."
SECTOR 8	Yell06[69-72]	SNC 2006: "Interval 69-72; silty sediment very rich in charcoal; possibly banded; brown to grey 7.5YR 5/3-4; equivalent to Unit Y3 of Sector 8 WARD 2003 and to Yell03[74-80]." SNC 2006: "Charcoal sqC22 OxA-16270 16,285 ± 65 BP <TAF06-5418>, in Unit Y3 exactly, at [70] (NB spider silk contamination); the [71] level here correlates with the level for the sample <316> date."
SECTOR 8	Yell06[72-97]	SNC 2006: "Interval 72-97; silt, slightly gritty in places, with a few smaller stones in bands; very silty, with probably bioturbated silt clasts (lighter) throughout but particularly silty in the [86-90] interval, very little clay (no plastic roll); light brown (7YR 6/4); perhaps less stony and lighter in colour than the [50-72] interval; much less charcoal than above (mostly <1 mm); approximately equivalent to spit1 and spit2 and part of spit3 of Unit Y4 of Sector 8 WARD 2003 and to Yell03[80-95]." SNC 2008: "Ostrich eggshell sqC22 OxA-14351 16,695 ± 70 BP <TAF04-1927>, at unspecified level (depth -4.42 m below Site Datum) in spit1 of Unit Y4 in sqC22." [SNC: may be incorrect stratigraphic unit - possibly S8-Y2.] SNC 2006: "Charcoal sqC22 OxA-16242 16,630 ± 75 BP low carbon yield <TAF06-5419>, in upper part of S8-Y4 at [78]." SNC 2006: "Charcoal sqC22 OxA-16273 17,515 ± 75 BP <TAF-06-5422>, in the middle of S8-Y4 at [86]."

SECTOR 8	Yell06[97-106]	SNC 2006: "Interval 97-106; banded, darker bands at [97] and [104] levels; generally very diffuse limits to subunits; dark bands 7.5 YR 3-4/4; common bioturbation (channels mostly vertical < 1 mm wide up to 2 cm long), lighter, slightly redder features than ground colour; cream speckles; common charcoal; approximately equivalent to part spit3 of Unit Y4 of Sector 8 WARD 2003 and approximately to Yell03[95-100]." SNC 2006: "Charcoal sqC22 OxA-16271 20,420 ± 90 BP <TAF06-5420>, base of S8-Y4 at [97] (assumed to be below 'LGM')." [OSL-TAF08-14 26.2 ± 2.0 ka BP] [OSL-TAF08-15 29.7 ± 2.7 ka BP]
SECTOR 8	Yell06[106-116]	SNC 2006: "Interval 106-116; strongly banded sequence consisting of the following subunits: [106-107] light-over-dark couplet, with a reddened base; fragmented in places by bioturbation; [107-108] normal brown silty sediment; [108-109] light-over-dark couplet, with a reddened base; fragmented in places by bioturbation; [109-110] normal brown/gingery silty sediment; [110-112] slightly darker; [112-114] mid to light brown silty sediment; [114-116] major dark band, with light cap; slightly stony; 1-2 mm zone of slightly concreted material at very base; this subunit is a **marker bed** that can be traced widely around sections. The dark subunits (7YR 1/5/2 plus true black) often look washed but, in places (where there is white ashy material above and reddening below), there are true *in situ* hearth elements; approximately equivalent to spit4 of Unit Y4 and to Unit Y5 of Sector 8 WARD 2003 and to Yell03[100-112]; the strong and persistent [114-116] interval is certainly equivalent to at least part of S8-Y5 and to Yell03[110-112]. The [114-116] interval here is probably equivalent to the general level of the sample <315> date." SNC 2006: "Charcoal <5423> [failed], in the upper element of the S8-Y5 pairing (itself with multiple lenses; very poor individual charcoal survival, mostly smeared), at [107]." SNC 2006: "Charcoal sqC22 OxA-16274 20,630 ± 90 BP (2 very small samples, all rather poor in large charcoals, smearing) <TAF06-5424>, near base of S8-Y5 at [114]."

SECTOR 8	Grey 2008 Series	SNC 2008: Additional charcoal samples from main sagittal (longitudinal) section. Lithostratigraphic unit notation example for this column: S8-08-G99.
SECTOR 8	G99	SNC 2008: "Basal Grey Series; additional charcoal samples in sqC22, <6840>, <6841>." Charcoal sqC22 OxA-22904 12,490 ± 50 BP <TAF08-6840>. Charcoal sqC22 OxA-22787 12,545 ± 55 BP <TAF08-6841>.
SECTOR 8	Yellow 2008 Series	SNC 2008: "Photos 0927-0949 150408; photos 1107-1118 of base of sequence 170408; log taken within excavated notch (tape not quite vertical but, looking eastwards, at right angles to bedding, which dips generally southwards and a little eastwards); zero in Square C22, x 103.785, y 105.277, z -3.931 (m below Site Datum); re-surveyed carefully to give x 103.716, y 105.268 and z -3.980 (m below Site Datum) (preferred co-ordinates); a find measurement at the 212 level on the tape gave a z value of -6.08; same local datum used by AO for microtephra sampling; sampling face, observer looking south. The 'general finds' (GF) bag numbers are noted in most cases; some of individual charcoals in separate plastic bags were inserted into one or other of the paired sediment sample series." SNC 2008: Additional charcoal samples from main sagittal (longitudinal) section. Lithostratigraphic unit notation example for this column: S8-Yell08[0-2], etc.
SECTOR 8	Yell08[0-2]	SNC 2008: "Interval 0-2; probably rather disturbed [cf. GF0-2/5746]."
SECTOR 8	Yell08[2-12]	SNC 2008: "Interval 2-12; obvious ashy hearth material in lowest 2 cm (probable phytolith content); equivalent to Unit Y1 (top missing) of Sector 8 WARD 2003 and to Yell03[to-15] and Yell06[to-17]. [GF2-4/<5783>; GF4-6/<5790>; GF6-8/<5793>, charcoal sample; GF8-10/<5894>; GF 10-12/<5932>, charcoal sample]" SNC 2008: "Additional charcoal samples in sqC22, <6842>, <6844>, <6845>". Charcoal sqC22 OxA-22905 12,665 ± 50 BP <TAF08-6842>. Charcoal sqC22 OxA-22788 12,850 ± 55 BP <TAF08-6844>.
SECTOR 8	Yell08[12-16]	SNC 2008: "Interval 12-16; equivalent to the top of Unit Y2 of Sector 8 WARD 2003 and to Yell06[17-20]. [GF12-14/<5938>, charcoal sample; GF14-16]" SNC 2008: "Additional charcoal samples in sqC22, <6852> at height equivalent to 13 level, <6853> at height equivalent of 12 level." Charcoal sqC22 OxA-22907 14,230 ± 55 BP <TAF08-6853>. Charcoal sqC22 OxA-22906 14,135 ± 55 BP <TAF08-6852>.
SECTOR 8	Yell08[16-18]	SNC 2008: "Interval 16-18; light-coloured cemented material, equivalent to Yell06[20-23]. [GF16-18/<5954>, charcoal sample]"
SECTOR 8	Yell08[18-23]	SNC 2008: "Interval 18-23; ginger red and cream bands, plastic deformation, rolls and over-thrusts, floating charcoal; equivalent to the "red/orange" level in spit1 of Unit Y2 of Sector 8 WARD 2003 and to Yell03[22-26] and Yell06[23-27]. [GF18-20/<59079>; GF20-22/<5980>; GF22-23+/<6006>, charcoal sample]" SNC 2008: "Additional charcoal sample in sqC21, <6854> at height equivalent to [23] level." Charcoal sqC21 OxA-22908 14,110 ± 55 BP <TAF08-6854>.

SECTOR 8	Yell08[23-28]	SNC 2008: "Interval 23-28; small stones and grit; artefacts, charcoal; equivalent to base of spit1 of Unit Y2 of Sector 8 WARD 2003 and to Yell03[26-30] and Yell06[27-32]. [GF23-26/<6008>, charcoal sample; 26-28 none]"
SECTOR 8	Yell08[28-30]	SNC 2008: "Interval 28-30; silty interval, quite pure in places; top surface very sharp and irregular (possibly through 'plastic indentation' from stones above); etched bone find <6013>; equivalent to part of spit2 of Unit Y2 of Sector 8 WARD 2003 and to part of Yell06[31-45]."
SECTOR 8	Yell08[30-33]	SNC 2008: "Interval 30-33; gingery, very gritty; equivalent to part of spit2 of Unit Y2 of Sector 8 WARD 2003 and to part of Yell06[31-45]. [GF30-32/<6018>, charcoal sample; GF32-33+/<6041>, charcoal sample]" SNC 2008: "Additional charcoal sample in sqC21, <6855> at height equivalent to [33] level (but note proximity of modern mollusc cluster)." Charcoal sqC21 OxA-22909 14,140 ± 55 BP <TAF08-6855>.
SECTOR 8	Yell08[33-38]	SNC 2008: "Interval 33-38; silty interval; equivalent to part of spit2 of Unit Y2 of Sector 8 WARD 2003 and to part of Yell06[31-45]. [GF33-35/<6045>; GF35-37/<6049>, charcoal sample; GF37-38/<6060>, charcoal sample]"
SECTOR 8	Yell08[38-40]	SNC 2008: "Interval 38-40; strong ginger band; equivalent to part of spit2 of Unit Y2 of Sector 8 WARD 2003 and to part of Yell06[31-45]. [GF38-40/<6095>, charcoal sample]"
SECTOR 8	Yell08[40-44]	SNC 2008: "Interval 40-44; light ginger-coloured; approximately equivalent to top of spit3 of Unit Y2 of Sector 8 WARD 2003, approximately equivalent to middle of Yell03[30-53] and top of Yell06[45-50]. [GF40-42/<6109>; GF42-44/<6125>, charcoal sample]" SNC 2008: "Additional charcoal sample in sqD21, <6856> at height equivalent to [41] level."
SECTOR 8	Yell08[44-48]	SNC 2008: "Interval 44-48; indurated, light cream-coloured; approximately equivalent to bottom of spit3 of Unit Y2 of Sector 8 WARD 2003, approximately equivalent to bottom of Yell03[30-53] and bottom of Yell06[45-50]. [GF44-46/<6129>; GF46-48/<6130>, charcoal sample]"
SECTOR 8	Yell08[48-57]	SNC 2008: "Interval 48-57; approximately equivalent to spit4 and part of spit5 of Unit Y2 of Sector 8 WARD 2003 and to Yell03[53-70], equivalent to Yell06[50-64]. [GF48-50/<6139>, 2 charcoal samples; GF50-52/<6146>, charcoal sample; GF52-54/<6185>, 2 charcoal samples; GF54-57/<6206>]"
SECTOR 8	Yell08[57-61]	SNC 2008: "Interval 57-61; quite strongly cemented, platy small stones; equivalent to base of spit5 of Unit Y2 of Sector 8 WARD 2003 and to Yell03[70-74] and Yell06[64-69]. [GF57-61/<6234>]"
SECTOR 8	Yell08[61-64]	SNC 2008: "Interval 61-64; cemented; bone and charcoal [charcoals in cemented sediment set in foil and individually bagged, [6233, 6235]); equivalent to Unit Y3 of Sector 8 WARD 2003 and to Yell03[74-80] and Yell06[69-72]. [GF61-64/<6248>]"
SECTOR 8	Yell08[64-68]	SNC 2008: "Interval 64-68; small limestone clasts, silty, very silty at base; small coprolite, bone, charcoals, Iberomaurusian lithics; approximately equivalent to part of spit1 of Unit Y4 of Sector 8 WARD 2003 and to the top of Yell03[80-95] and of Yell06[72-97]. [64-66/<6267>, charcoal sample; GF66-67/<6282>; GF 67-69/<6302>]"
SECTOR 8	Yell08[68-71]	SNC 2008: "Interval 68-71; very common patches of grit and small, platy stones; archaeological traces, including Iberomaurusian microlith; approximately equivalent to part of spit1 of Unit Y4 of Sector 8 WARD 2003 and to upper parts of Yell03[80-95] and of Yell06[72-97]. [GF68-71/<6317>, 2 charcoal samples]"
SECTOR 8	Yell08[71-74]	SNC 2008: "Interval 71-74; silty interval; approximately equivalent to part of spit1 of Unit Y4 of Sector 8 WARD 2003 and to middle parts of Yell03[80-95] and of Yell06[72-97]. [GF71-73/<6363>, 2 charcoal samples; GF73-74/<6371>, 3 charcoal samples]"
SECTOR 8	Yell08[74-77]	SNC 2008: "Interval 74-77; very common, small platy stones, gritty patches, some larger stones (c. 10 cm); approximately equivalent to part of spit1 of Unit Y4 of Sector 8 WARD 2003 and to middle parts of Yell03[80-95] and of Yell06[72-97]. [GF74-77/<6414>, 3 charcoal samples]"
SECTOR 8	Yell08[77-93]	SNC 2008: "Interval 77-93; silty, strongly so at top; dispersed charcoal flecks; less obviously banded/laminated; approximately equivalent to parts of spit1 and spit2 and part of spit3 of Unit Y4 of Sector 8 WARD 2003 and to middle-lower parts of Yell03[80-95] and of Yell06[72-97]. [GF77-79/<6427>, charcoal sample; GF79-81/<6430>, charcoal sample and backed microlith; GF81-83/<6466>, charcoal sample and tiny lithic flakes; GF83-85/<6476>, charcoal sample; GF85-87/<6485>, flint debris; 87-89 none; GF89-91 none, charcoal sample; 91-93 none]"
SECTOR 8	Yell08[93-99]	SNC 2008: "Interval 93-99; diffuse banding; fine (< 5 mm) platy limestone; approximately equivalent to part of spit3 of Unit Y4 of Sector 8 WARD 2003 and approximately to Yell03[95-100]; equivalent to Yell06[97-106]. [GF93-95/<6532>, charcoal sample and lithic chips; GF95-97/<6543>, 2 charcoal samples and lithic chips, MSA side scraper <6544>, cf. 'Non-Levallois Flake Industry'; GF97-99/6568, 2 charcoal samples]"
SECTOR 8	Yell08[99-105]	SNC 2008: "Interval 99-105; showing darker/lighter banding; approximately equivalent to spit4 of Unit Y4 and to upper Unit Y5 of Sector 8 WARD 2003 and to Yell03[100-112]; equivalent to Yell06[106-112]. [GF99-1-1/<6569>, charcoal sample, fragments of speleothem & calcite at base; GF101-103/6593, charcoal sample and lithic]" SNC 2008: "Additional charcoal sample in Squares c.D20-19, 6927 at height equivalent to [101-2] level."
SECTOR 8	Yell08[105-107]	SNC 2008: "Interval 105-107; strong light band, with totally cemented patches; equivalent to Yell06[112-114]. [GF105-107/<6603>]"

SECTOR 8	Yell08[107-109]	SNC 2008: "Interval 107-109; dark band, **marker bed**; partially equivalent to the upper subunit of Unit Y5 of Sector 8 WARD 2003 and to Yell03[110-112] and Yell06[114-116]. [GF107-109/<6631>, 2 charcoal samples]"

SECTOR 8	Grey Series TAYLOR & BELL 2017	Descriptions during environmental (principally molluscan) sampling by I BRACK 2009 and V TAYLOR 2010 (sequence revised by V TAYLOR & M BELL 2017, by M BELL 2018) in sqsA-C/23. Local zero (surveyed by SNC) is -0.315 (m below Site Datum). Lithostratigraphic unit notation example for this column: S8-MMC1, etc. The correlations between the MMC column and the Hogue 2010 sequence (and the SNC 2009 description of that sequence) are here correct, whilst those given in Taylor/Bell 2017 are incorrect. Similarly, the present descriptions and correlations supersede those in Taylor 2014.
SECTOR 8	MMC1 [37-40] MMC2 [40-45] MMC3 [45-45.7] MMC4 [45.7-50]	I BRACK 2009: "Grey coloured ashy, loose sediment with inclusions; lacks obvious stratigraphy and shows some evidence of disturbance."
SECTOR 8	MMC5 [50-55] MMC6 [55-58] MMC7 [55-58] MMC8 [58-60] MMC9 [60-62] MMC10 [63-67] MMC11 [67-71] MMC12 [64-69]	I BRACK 2009: "Horizontal stratigraphy is becoming visible; inclusions present - lithics, animal bone, shell, charcoal; charcoal lens at base of MMC6; MMC7 lens of crushed shell on interior portion of column; MMC10&11 only present in front portion of the column; MMC12 lens of crushed shell."
SECTOR 8	MMC14 [64-69]	I BRACK 2009: "Darker grey coloured ashy sediment; rich in shell and charcoal - links to L4/5 in adjacent lithics column [HOGUE 2010]."
SECTOR 8	MMC13 [63-84] MMC15 [69-74] MMC16 [74-75] MMC17 [75-77] MMC18 [77-79] MMC19 [79-80]	I BRACK 2009: "Bowl shaped feature comprising light coloured, ashy sediment and few inclusions; MMC15&16 hearth layers associated with the bowl shaped feature in sample MMC13; abundant charcoal and calcined bones present in some layers; white chalky stone fragments and large white stones present in the base of MMC17; MMC18 ashy lens containing more whole shells than overlying layers."
SECTOR 8	MMC20 [80-83] MMC21 [83-86] MMC22 [86-92] MMC23 [92-98] MMC24 [98-102]	I BRACK 2009: [No description] SNC 2010: Top of MMC20 correlates with the L5/L6 boundary of HOGUE 2010; cf. SNC photos 6957-6962.
SECTOR 8	MMC25 [102-116]	I BRACK 2009: "Distinctive coarse layer with coarse fragmented and whole shells, heat-affected rock and charcoal - Equivalent to lithic column L6 [HOGUE 2010] [SNC: incorrect]." SNC 2010: MMC25 is a pocket pendant from below the L6/L7 boundary of HOGUE 2010; MMC25 wedges out eastwards; cf. SNC photos 6963-6967.

SECTOR 8	MMC26 [105-110] MMC27 [110-115] MMC29 [115-122] MMC30 [122-125]	I BRACK 2009: "Homogeneous mid-grey ashy sediment with some inclusions."
SECTOR 8	MMC28 [116-134] MMC31 [128-138]	I BRACK 2009: "Light coloured ash layers with frequent whole and fragmented burnt shell."
SECTOR 8	MMC32 [132-138] MMC33 [138-142] MMC34 [142-145] MMC35 [145-148] MMC36 [148-152] MMC37 [152-155] MMC38 [155-158] MMC39 [158-161] MMC40 [161-164] MMC41 [162-164] MMC42 [164-166] MMC43 [166-168] MMC44 [168-170] MMC45 [170-178]	I BRACK 2009: "Mid-grey ashy-silt sediments with few inclusions; sediments are dipping towards the back of the cave; possible wash beds. MCC41 pocket of brown-grey sediment which lacks any inclusions."
SECTOR 8	MMC46 [178-184] MMC47 [184-196] MMC48 [191-197] MMC49 [197-200] MMC50 [200-205]	I BRACK 2009: "Deposit contains frequent faunal remains (not burnt), heat affected rocks, charcoal and fragmented shell. MMC47 relates to lens with less fragmented shell than layers above and below. Top of MMC46 equal to lithic column L14/15." SNC 2010: Top of MMC46 correlates with the L14/L15 boundary of HOGUE 2010; cf. SNC photos 6968-6974.
SECTOR 8	MMC80 [200-208] MMC81 [208-218] MMC82 [218-228] MMC83 [228-238] MMC84 [238-246] MMC85 [246-254] MMC86 [254-264] MMC87 [264-271]	V TAYLOR 2010: "Distinctive horizon with up to 90 % large, angular, heat affected limestone fragments; clast supported with fine sediment and charcoal between clasts; number of large rocks reduces at base as part of transition to underlying silty layer."

SECTOR 8	MMC88 [271-276] MMC89 [276-281] MMC90 [281-286] MMC91 [286-294]	V TAYLOR 2010: "Homogeneous 7.5YR 5/3 brown sterile silt layers. MMC91 shows more stone as part of transition to rocky layer below." SNC 2010: MMC88-90 (continuous beds, thickening to 15 cm and more; including some patches of washed material, laminated, with charcoal and shell; earthier and a little more stable eastwards but still under-compacted; colour becoming less homogeneous) correlates with the L25 of HOGUE 2010; cf. SNC photos 6989-6992.
SECTOR 8	MMC92 [294-306] MMC93 [306-316] MMC94 [316-325] MMC95 [325-333] MMC96 [333-345]	V TAYLOR 2010: "Clast supported horizon similar to that seen at 2.20 m; up to 70 % large, angular, heat-affected limestone fragments with grey-brown ashy silt in between clasts; clasts are less frequent and sediment shows a pinker colour towards base."
SECTOR 8	MMC97 [345-348] MMC98 [348-351] MMC99 [351-354] MMC100 [354-359] MMC101 [359-362] MMC102 [362-365] MMC103 [365-368] MMC104 [368-371] MMC105 [371-374] MMC106 [374-376]	V TAYLOR 2010: "Silty pinkish-grey (7.5YR 6/2) and brownish grey (7.5YR 5/2) sediment with gravel grade stone up to 4 cm; frequency of stone gradually increases reaching 35 % in basal Grey Series; sandy sediment in MMC99 and lens of Yellow Series in MMC100 suggesting mixing between basal Grey and Yellow Series sediments. Transitional zone." SNC 2010: MMC96-102 (localised ash lenses, dipping southwards by 15°, suggesting the edge of a true cone of dejection) correlates with the finer interval of L28 of HOGUE 2010; MMC103-106 correlates with the stonier interval of L29 of HOGUE 2010; cf. SNC photos 6981-6988.
SECTOR 8	Yellow Series TAYLOR & BELL 2017	SNC 2010 photos 6666-6672.
SECTOR 8	MMC107 [376-379] MMC108 [379-382] MMC109 [382-389] MMC110 [389-392]	V TAYLOR 2010: "Reddish yellow (7.5YR 6/6) silty sediment with some sand and up to 10 % small stone, some of which may be heat affected; frequent faunal remains and lithics - Equal to Y1 [WARD 2003]."
SECTOR 8	MMC111 [392-397] MMC112 [396-399] MMC113 [399-401] MMC114 [401-404] MMC115 [404-407] MMC116 [407-409] MMC117 [409-412] MMC118 [412-418]	V TAYLOR 2010: "Start of unit Y2 [WARD 2003]; yellowish red (5YR 5/8 and 5YR 6/8) silt with sand; contains distinctive layer ["red/orange" level in spit1 of Unit Y2 of Sector 8 WARD 2003, similar to, but not correlating with, Raynal 5 in Sector 2] (samples 112 and 113) which is slightly redder in colour and appears to be sterile of artefacts; tabular calcite present below 4.19 m."

SECTOR 8	MMC119 [418-420]	V TAYLOR 2010: "Stony band; reddish yellow (5YR 6/8) layer with up to 40 % stones; frequent calcite crust up to 1 cm in depth."
SECTOR 8	MMC120 [420-424] MMC121 [424-430]	V TAYLOR 2010: "Yellowish red (5YR 5/8) silty sand with infrequent small gravel grade stone."
SECTOR 8	MMC122 [430-437] MMC123 [437-439] MMC124 [439-441]	V TAYLOR 2010: "Yellowish red with silty sediment with some sand; 50 % stone inclusions up to 10 cm; increasingly stony at base - transitional zone with underlying stony band."
SECTOR 8	MMC125 [441-445]	V TAYLOR 2010: "Distinctive stony band. Reddish yellow (5YR 6/8) with gravel grade 40 % stones up to 4 cm." SNC 2010: "MMC125 probably equivalent to S8-Y3."
SECTOR 8	MMC126 [445-448] MMC127 [448-450] MMC128 [450-452] MMC129 [452-456] MMC130 [456-466]	V TAYLOR 2010: "Sediments dipping towards cave wall; up to 40 % gravel grade stone in places; whole land snail shells are observed in the lowest levels. The sequence continues below the limit of excavation for some distance." SNC 2010: "MMC130 at base is equivalent to lower part of S8-Y4."

SECTOR 8	Grey Series SNC 2009	Descriptions during excavation by J HOGUE 2009 in sqA24 (measurements on the A24/23 line in the SW corner of the excavation); local zero is -0.310 (m below Site Datum). 2009 SNC photos 4474-4476 hearth bulk sampled as <8087>; 4493-4501 upper Grey Series. SNC photos: 4593-4601, wash series scale in L13, mollusca at top of L6 ("L10" not showing in these shots); 4602-4608, 'pit' feature in section on the west side of the square; 4609-4615, fractured units, scale at base of L3. Lithostratigraphic unit notation example for this column: S8-SNC09-L1, etc.
SECTOR 8	MORTAR [c- 10 to 3]	SNC 2009: "Lime mortar, with varied dolomite clasts (mostly 6-15 cm); very slight dip 2°-4° into cave; made floor."
SECTOR 8	L1 [3-6/7]	SNC 2009: "Trampled facies; many local microfaults and fractured discontinuities (containing sub-recent pottery, etc.); formerly a laminated interval/zone."
SECTOR 8	L2 [6/7-14]	SNC 2009: "Structure only locally laminated, mostly disturbed (churned); ashy; 10YR 6/1; contained a hearth; rather diffuse lower boundary."
SECTOR 8	L3 [14-38]	SNC 2009: "Slightly better bedded than L2 (same colour), with various good charcoal-rich lenses; slightly irregular and undulating; many small stones and common grit; bone fragments; only 2° dip into cave and 5° to south (towards cave wall)."
SECTOR 8	L4 [38-39]	SNC 2009: "More compact than L3; lens with more grit and charcoal at base of L4."
SECTOR 8	L5 [39-46]	SNC 2009: "Rather fractured (treadage); shell at all angles; some medium stones throughout, larger stones at base; very rich in charcoal (containing a hearth); pockets of dense shell and charcoal; low bedding angle (cf. L3); 10YR 5-3/1; equivalent to MMC14 of TAYLOR & BELL 2017."
SECTOR 8	L6 [46-66]	SNC 2009: "Variable bedding, fractured in places, better laminated in others; ashy; 10YR 5-6/1; lithics; stony lenses with charcoal, fractured shell and bone fragments, especially at base; contains a hearth; thin and very restricted (5-10 cm laterally) light ash lenses; wavy base, with charcoal concentration; L5/L6 boundary equivalent to 19/20 boundary, base equivalent to MCC25 (a lens pendant from the boundary in question."
SECTOR 8	L7 [66-85]	SNC 2009: "Almost homogeneous; fractured or poor lensing; no sorting; poor bedding sloping <6° into cave."
SECTOR 8	L8 [85-100]	SNC 2009: "Poorly bedded, fractured towards contained hearth; moderate stone content, rather burnt; some shell and bone lenses; colour has speckles of charcoal and orangey bone fragments; dipping 8° into cave and 8° to the south (towards cave wall); L8/L9 boundary equivalent to MMC32/33 boundary." Bone OxA-27276 11,410 ± 55 BP <8552>.

SECTOR 8	L9 [100-110]	SNC 2009: "Very compact ash lens; tiny charcoal, bone and shell lenses included; mostly well laminated; relatively sterile of lithics; small stones; quite dark grey in places; pocketed or undulating base; 10° dips into cave and southwards; top L9 equivalent to top MMC33." SNC 2009: "On western side of square, strong turbation phenomena, with ash and cemented ash clasts, some browner grey (more mineral) zones, large disturbed area of charcoal-rich material, vertical steps in boundaries, fabric unlaminated; probably a dug feature, a small backfilled 'pit' (otherwise a large burrow). NB – heights of underlying units given as if they continued straight through this 'pit' feature."
SECTOR 8	"L10"	SNC 2009: "Red silty lithorelics at base of L9."
SECTOR 8	L11 [110-120]	SNC 2009: "Uniform grey, laminated material; bedding slightly concave-up, dipping 10° into cave; shell fragments commonly on bedding planes; thin ashy lenses; sterile of lithics."
SECTOR 8	L12 [120-122]	SNC 2009: "Similar to L11 but much more charcoal, bone and shell on bedding planes; generally darker; c. 8 cm thick on east side, with lithics in a small cut feature."
SECTOR 8	L13 [122-130]	SNC 2009: "Similar to L11."
SECTOR 8	L6-L13	SNC 2009: "L6-L13 form a group of related units, apparently showing wash bedding."
SECTOR 8	L14 [130-135]	SNC 2009: "Top of L14; some stone but the main change is increased colour in the matrix (probably increased mineral) &.5YR 5/2; compact."
SECTOR 8	L14 [135-143+]	SNC 2009: "Main L14 (not bottomed at this time); increasingly stony, angular fragments and rounded burnt clasts; common shell; bone and lithics present; L14/15 boundary equivalent to MMC45/46 boundary."
SECTOR 8	L9-L13	SNC 2009: "L9-L13(L14) equivalent to MMC33-45; this wash sequence more compact than units affected by treadage above and below. Top MMC46 is equivalent to the L14/L15 boundary."
SECTOR 8	Grey Series SNC 2010	Descriptions during excavation by J HOGUE 2009 in sqA24 (measurements on the A24/23 line in the SW corner of the excavation); new local zero is at base, measurements given upwards; SNC photos 6651-6665. Lithostratigraphic unit notation example for this column: S8-SNC10-L15, etc.
SECTOR 8	L15 [94-89]	SNC 2010: "Quite stony; 4-5 cm thick; washed unit, charcoal and shell horizontal; overall unit dipping into the cave."
SECTOR 8	L16 [89-64]	SNC 2010: "Massive unit; stones at all angles; slightly earthy fine matrix but the whole looks disturbed (in antiquity)."
SECTOR 8	L17 [64-58]	SNC 2010: "Similar to L19; poor bedding, no washing; stones; common bones; possibly slight dip eastwards, out of cave."
SECTOR 8	"L18"	SNC 2010: "L18 was a disturbed pocket, not represented in the section described."
SECTOR 8	L19 [58-54]	SNC 2010: "Stonier and less well structured than below; no obvious horizonality; charcoal throughout."
SECTOR 8	L20 [54-42]	SNC 2010: "Some larger stones; slightly earthy but with localised lenses of material like L21 below; bones lying flat."
SECTOR 8	L21 [42-37]	SNC 2010: "Laminated and slightly washed; dark grey; much more shell and charcoal than below; good continuous exposure across section, more or less horizontal but, if anything, sloping locally slightly outwards; L21/22 boundary equivalent to some level in MMC51-54 (interval) (i.e. "intra-MMC57" column)." [SNC: the comment concerning a possible correlation with the MCC column is an error.]
SECTOR 8	L22 [37-34]	SNC 2010: "Slightly more compact and finer than below; transitional boundary."
SECTOR 8	L23A [34-0]	SNC 2010: "Poorly structured; slightly brown 'earthy'; common medium stone; common bone; appears stratified but not greatly washed; some lenses but laterally discontinuous; almost horizontal, slight dip westwards, into cave."
SECTOR 8		SNC 2010 description resumed, with measurement downwards from local zero.
SECTOR 8	L23B [0-16]	SNC 2010: "A little more larger stone than above; still light, slightly brown 'earthy' colour; short lenses, including ash laminae, dipping slightly eastwards, out of cave."
SECTOR 8	L24 [16-51]	SNC 2010: "Coarse scree (6-10 cm diameters), almost perfectly clast-supported; large bone and charcoal fragments, very common; more fine matrix at base (with a patchy grey to earthy colour), some air-space near top; most stone is burnt; very minor internal bedding, probably indicating 3-4 accumulation events; more or less horizontal."
SECTOR 8	L25 [51-72]	SNC 2010: "Larger stones at top and some especially large ones at base but the central interval is matrix-supported; very fine gritty, slightly earthy, quite compact (the grit is probably supplying most of the support); local grit lenses, horizontal; more charcoal and artefacts towards the base, amongst stones; there may have been a more stable (long-lasting) surface at/near to top of this unit but no real alteration/weathering; L25 equivalent to MMC88-90 interval."
SECTOR 8	L26 [72-100]	SNC 2010: "Very coarse (10-14 cm diameters); perfect clast-support in most places; mostly burnt stone; very irregular fabric, stones at all angles; common air-holes; common snails and charcoal in relatively large fragments."
SECTOR 8	L27 [100-108]	SNC 2010: "Large stones but in an earthy (not very gritty) matrix; large bones; common charcoal."
SECTOR 8		SNC 2010: "The base of L27 is followed outwards into sqsC23/24 in which the sequence below continues downwards."

SECTOR 8	L28 [108-143]	SNC 2010: "Good matrix-support; only rare small stones; generally moderately clear stratification, with very slight dip to ESE out of cave; common ash, greyish, slightly crushable (i.e. not totally collapsed spicular structure); charcoal and fine grit; elongate objects (e.g. bone fragments) horizontal; slightly more coherent ashy (lighter) lenses nearer top; some larger stones pressed into top surface; appears to be a comparatively slow accumulation, with better stratification as one proceeds further into the cave; finer (central) interval in L28 equivalent to MMC96-102 interval."
SECTOR 8	L29 [143-160]	SNC 2010: "Very stony, partially clast-supported; common bone and charcoal; very irregular base, appearing disturbed, even 'dug over'; stonier interval of L29 equivalent to MMC103-106 interval."
SECTOR 8	Yellow Series SNC 2010	Descriptions during excavation by J HOGUE 2009 in sqsC23/24 (measurements continuing on local datum downwards from Grey Series above). SNC photos 6333-6448. Lithostratigraphic unit notation example for this column: S8-SNC10-L30, etc.
SECTOR 8	L30 [160-171]	SNC 2010: "Stony dense light yellow silt; common bone; lithics."
SECTOR 8	L31 [171-180]	SNC 2010: "Bright orange silt and stones, with cream flecks; charcoal present."
SECTOR 8	L32 [180-185+]	SNC 2010: "Very dense silt; common charcoal and cream flecks; appears to be near the top of the Y2 sequence."

SECTOR 8	Grey Series HOGUE 2010	Descriptions during excavation by J HOGUE 2009/10 in Square A24 (leaving some 0.75 m lateral separation with the TAYLOR & BELL 2017 (collected 2009) sampling column). [Some correction by SNC of claimed correlation with S WARD 2003 GS units.] Lithostratigraphic unit notation example for this column: S8-JH10-L1, etc.
SECTOR 8	MORTAR [0-35] L1[35-41]	J HOGUE 2010: "Lime mortar at surface, over L1 trample (equivalent to top of G88)."
SECTOR 8	L2[41-52] L3[52-82] L4[82-83] L5[83-88]	J HOGUE 2010: "Mid brownish grey (10YR 5/2); slightly gritty ashy-silt series; churned and fractured fabric; frequent small (< 5 mm) mollusc shell fragments; moderate charcoal flecks; with bioturbation (10 cm in scale) throughout deposits; middle context (L3) looser and less compressed; less friable mid-grey specked ash towards bottom (L5); and mollusc shell and charcoal lens (L4); lenticular in nature." [SNC: equivalent to bulk of G88 and to G89.] S8-JH10-L2 bone sqA25 OxA-24111 10,680 ± 45 BP <TAF09-7319>. S8-JH10-L3 charcoal sqA24 OxA-23404 10,870 ± 45 BP <TAF09-7525>. S8-JH10-L4 bone sqA24 OxA-24112 11,165 ± 45 BP <TAF09-7997>.
SECTOR 8	L6[88-104] L7[104-116] L8[116-132] L9[132-137]	J HOGUE 2010: "Mid-grey (7.5YR 5/1); speckled ashy-silt series; variably bedded fabric; with abundant small snail shell pieces; frequent charcoal flecks and large (> 20 mm) charcoal pieces; occasional large burnt limestone fragments; interstratified with very fine ash 'hearth' deposits; clear boundary; L5/L6 contact is equivalent to the contact between the bottom of MMC19/17 and top of MMC20; equivalent to bottom of G88, G89 and top of G90." [SNC: equivalent to G90 and probably G91.] SNC 2009, photos 4246-4259 of hearth (bulk recorded as <7369>). S8-JH10-L6 bone sqA24 OxA-24113 11,540 ± 50 BP <TAF09-8289b>. S8-JH10-L6 charcoal sqA24 OxA-23405 11,615 ± 50 BP <TAF09-8275>. S8-JH10-L8 charcoal sqA24 OxA-23406 11,445 ± 55 BP <TAF09-8590>. S8-JH10-L8 charcoal sqA24 OxA-23407 11,465 ± 50 BP <TAF09-8590 duplicate>.
SECTOR 8	L11[137-151] L12[151-160] L13[160-179] L14[179-181]	J HOGUE 2010: "Light grey (7.5YR 7/1); 'sterile' very fine ash series; compact; finely laminated; dipping into cave; occasional charcoal flecks; small mollusc shell fragments; sometimes forming discreet very thin lens; few faunal remains; occasional medium size limestone fragments near base (L14); equivalent to G91 and G92." [SNC: equivalent to G92 and upper half of G93." SNC 2009: photos 4549-4551. S8-JH10-L11, OSL-TAF09-24 18.3 ± 1.2 ka BP (multigrain), 17.4 ± 1.0 ka BP (single-grain). S8-JH10-L11 charcoal sqA24 OxA-23408 11,545 ± 55 BP <TAF09-8849>.
SECTOR 8	L15[181-187]	J HOGUE 2010: "Horizon of large (60-120 mm) burnt limestone fragments (c. 40 %); with interfiling dark grey; loose; charcoal (60 %), mollusc shell (30 %) silt matrix; poorly bedded; L14/L15 contact equivalent to top of MMC46; and equivalent to top of G93." [SNC: equivalent to mid-G93.] S8-JH10-L15 charcoal sqA24 OxA-23409 11,890 ± 55 BP <TAF10-9159.
SECTOR 8	L16[187-198] L17[198-208] L19[208-217] L20[217-225]	J HOGUE 2010: "Mid brownish-grey (10YR 5/2) slightly sandy-silt deposits; poorly sorted; churned and fractured fabric; frequent small mollusc shell fragments; frequent charcoal flecks; frequent medium-large cindered limestone fragments; frequent animal bone fragments; often forming concentrated clusters; less churned towards base of unit; fewer limestone fragments; numerous terrestrial snail shell fragments; equivalent to bottom of G93, G94 and top of G95." S8-JH10-L17 bone OxA-27277 12,040 ± 55 BP <9368>. S8-JH10-L19 bone OxA-27278 11.945 ± 55 BP <9494>. S8-JH10-L20 bone OxA-27281 12,210 ± 55 BP <9578>.
SECTOR 8	L21[225-231]	J HOGUE 2010: "Mid grey (7.5YR 5/1) slightly sandy-silt; moderately well-bedded; with numerous small mollusc shell fragments; clear boundary; L21/L22 contact equivalent to intra-MMC57; and equivalent to intra-G95." [SNC: the comment concerning a possible correlation with the MCC column is an error.]

SECTOR 8	L22[231-238] L23[238-270]	J HOGUE 2010: "Mid grey (7.5YR 5/1); firm; slightly sandy-silt; moderately sorted; relatively homogeneous; occasional charcoal flecks; very small mollusc shell fragments (< 2 mm); and animal bone fragments; occurrence of limestone fragments medium-large (40-120 mm) towards the bottom of the deposit (L23); matrix sits in-between clasts in underlying deposit; equivalent to bottom of G95 and top of G96." S8-JH10-L23 bone OxA-27280 12,290 ± 55 BP <9775>.
SECTOR 8	L24[270-306]	J HOGUE 2010: "Rubble horizon; consisting of medium-large (40-150 mm) burnt limestone fragments; loosely packed; lithic artefacts and animal bone orientated vertically; voids between rocks towards base of deposit; clear boundary; equivalent to intra-G96." S8-JH10-L24 bone OxA-27279 12,310 ± 55 BP <9881>.
SECTOR 8	L25[306-321]	J HOGUE 2010: "Very distinct mid brown (7.5YR 5/2); 'sterile' sandy-silt; occasional charcoal flecks; increasing in proportion towards base; occasional small shell fragment; occasional medium-large limestone clasts; matrix sits in-between clasts in top of underlying deposit; equivalent to intra-G96." S8-JH10-L25 charcoal sqB24 OxA-23410 12,405 ± 55 BP <TAF10-10052>.
SECTOR 8	L26[321-348] L27[348-354]	J HOGUE 2010: "Rubble horizon; consisting of medium-large (40-150 mm) burnt limestone pieces; loosely packed; with numerous voids; mid brownish-grey (10YR 5/2); loose; slightly sandy-silt; infilling between clasts; frequency of rocks decreasing towards base (L27); clear horizon; equivalent to bottom of G96."
SECTOR 8	L28[354-381]	J HOGUE 2010: "Mid brownish-grey (10YR 4/4); homogeneous compact ashy-silt; well sorted; frequent charcoal flecks giving speckled appearance; occasional small mollusc shell fragments; occasional recent disturbance from carpenter [mason?] bees; equivalent to G97 and G98." S8-JH10-L28 charcoal sqB24 OxA-23411 13,060 ± 65 BP <TAF10-10319>.
SECTOR 8	Transition Zone L29[381-398]	J HOGUE 2010: "Mid brown (7.5YR 4/2) firm gravely sandy-silt matrix; interlocking with large dolomite clasts (60 % of deposit) from the make-up of the cave; infrequent evidence of burning; occasional charcoal flecks; equivalent to G99 and G100." Cf. SNC 2010 photos 6831-6834 base of Grey Series.
SECTOR 8	Yellow Series HOGUE 2010	Lithostratigraphic unit notation example for this column: S8-JH10-Y1, etc.
SECTOR 8	Y1[398-411]	J HOGUE 2010: "Mid brownish-yellow (10YR 6/6); cemented; silty-sand; moderate medium (20 mm-60 mm) stones occurrences; frequent large animal bone fragments; numerous lithic artefacts; notable absence of mollusc shell; localised brown/black charcoal lenses and ashy hearth deposits; equivalent to L30, Yell06[0-17] and Yell08[2-12]." SNC 2010: "Y1 equivalent to MMC107-110 interval and J HOGUE L30." S8-JH10-L30 Bone OxA-27282 12,730 ± 60 BP <10710>.
SECTOR 8	Y2spit1	J HOGUE 2010: "Middle yellow-red (5YR 7/6), contains occasional charcoal flecks; infrequent lithic artefacts; higher grit content at top and towards base; approximately equivalent to L31, L32, Yell06[17-31] and Yell08[12-28]." [Limit of excavation 423.] SNC 2010: "Y2 spit2/spit1 (arbitrary spit boundary) approximately equivalent to MMC114/115 boundary and J HOGUE L31." S8-JH10-L31 Bone OxA-27283 12,875 ± 60 BP <10847> [possibly a Y1 object disturbed downwards into Y2spit1).
SECTOR 8		SNC 2010 photos of entire A24 (archaeological) and A23 (MMC) sequences.

SECTOR 9

SECTOR 9		Test excavation northwest of the inner (west) end of Ruhlmann's Trench (Squares O21/22). SNC 2006: "Northeast-facing section (viewed by looking SW, into cave) in sqO21/22; z -4.044 (m below Site Datum) at the very top of the section drawing. The very gritty material near rocks in this area has significant microfaunal content." O REESE 240907 section drawing: the entire section shown as 1.13 m thick (starting at z -4.12 (m below Site Datum)). Lithostratigraphic unit notation example for this column: S9-U1, etc.
SECTOR 9	Unit 1	SNC 2006: "Mostly anthropogenic, with at least 3 charcoal trails in generally mid- to darker brown gritty silt; much large charcoal, possibly *in situ* heating in places; burnt stone and bone; said to contain LSA in quantity; rather irregular base, perhaps a little erosive." SNC 2006: "Charcoal OxA-16260 18,005 ± 75 BP <TAF06-5407>, base of LSA Unit 1." O REESE 240907 section drawing: Unit 1 shown as between 5-10 cm thick, lowest at -4.24 m; dispersed charcoal and one stronger burning lens; fine stones.

SECTOR 9	Unit 2	SNC 2006: "Lighter gritty material; some bone; isolated charcoal." SNC 2006: "Charcoal OxA-16240 18,185 ± 75 BP <TAF04-1133>, Unit 2." O REESE 240907 section drawing: Unit 2 shown as between 7-17 cm thick, lowest at -4.35 m; dispersed charcoal, quite stony.
SECTOR 9	Unit 3	SNC 2006: "Dark brown 'earthy' material; slight reddening at the base; traceable right across the section, although fading southwards; said to contain side-scrapers, as well as typical LSA material." O REESE 240907 section drawing: Unit 3 shown as up to 8 cm thick, shown as lens pinching out southwards, lowest at -4.40 m. SNC 2009: "Unit 3 hearth (above the lens known as '3a') in sqP24, sample <TAF09-7441> of hearth (burnt stone, lithics, charcoal)". Not clear whether '3a' is a lens in the top of what had been called Unit 4 in sqO21/22 or still a part of Unit 3. SNC photos 4303-4312.
SECTOR 9	Unit 4	SNC 2006: "Increasingly stony and gritty, light to medium brown; chert flake; said to contain MSA but few finds. The charcoal lenses show very slight dip towards the cave wall, slightly stronger dip out of cave; they, and the cleaner beds between them, fan out (each thickening) to the northeast." O REESE 240907 section drawing: Unit 4 shown as up to 57 cm thick, lowest at -4.92 m; major block band in centre of Unit, blocks in the order of 20 × 50 cm.

SECTOR 9		Section at outer (east) end of Ruhlmann's Trench. SNC 2009: "At northeast end of trench, looking northwest; log co-ordinates recorded as [20] level = x 117.840, y 100.453, z -3.787 (m below Site Datum), in sqQ27. At this point, the beds slope down slightly into the cave (southwestwards), suggesting that there was a talus at the cave entrance; all units show poor but continuous bedding; there is quite a lot of finest bioturbation 'furring'. Microfaunal and OSL samples. Depths approximate, measured directly down-section." SNC 2009: photos 4526-4527 showing microfaunal samples. Lithostratigraphic unit notation example for this column: S9-09[8-16], etc.
SECTOR 9	[8-16]	SNC 2009: "Possibly disturbed".
SECTOR 9	[16-19]	SNC 2009: "Gritty silt, mid-brown".
SECTOR 9	[19-25]	SNC 2009: "Light brown above, traces of grey and 'chocolate' brown at base with charcoal".
SECTOR 9	[25-32]	SNC 2009: "Gritty silt, mid-brown, slightly reddened at top".
SECTOR 9	[32-40]	SNC 2009: "Gritty, brown".
SECTOR 9	[40-42]	SNC 2009: "'Chocolate' brown".
SECTOR 9	[42-44[	SNC 2009: "Gritty, brown, including Iberomaurusian backed bladelet".
SECTOR 9	NB. [35-45]	SNC 2009: "Microfaunal sample <TAF09-8491>, backed bladelet at the base; also OSL-TAF09-20 18.64 ± 1.73 ka BP".
SECTOR 9	[44-49]	SNC 2009: "'Chocolate' brown with some bedded lenses".
SECTOR 9	NB. [16-49]	SNC 2009: "Unit 1 in sqsO21/22 probably correlates with the lower part only of this 16-49 interval."
SECTOR 9	[49-70]	SNC 2009: "Gritty, light brown; correlating with Unit 2 in sqsO21/22".
SECTOR 9	[70-78]	SNC 2009: "Gritty, mid-brown; traces of charcoal and lithics; correlating with Unit 3 in sqsO21/22".
SECTOR 9	[78-90]	SNC 2009: "Slightly gritty, light brown; correlating with part of Unit 4 in sqsO21/22".
SECTOR 9	NB. [70-80]	SNC 2009: "Microfaunal sample <TAF09-8492>, including several Iberomaurusian backed bladelets [*sic*] and charcoal; also OSL-TAF09-21 25.05 ± 2.28 ka BP".
SECTOR 9	[90-92]	SNC 2009: "Silt, yellow brown".
SECTOR 9	[92-98]	SNC 2009: "Silt, dark 'chocolate' brown, charcoal".
SECTOR 9	[98-102]	SNC 2009: "Silt, yellow brown".
SECTOR 9	[102-103]	SNC 2009: "Silt, dark 'chocolate' brown, strong charcoal; the layer is discontinuous northeastwards (outwards) but, southwest of the large rock, it is much stronger, with bedding lenses, hearth material and lithics".
SECTOR 9	[103-106]	SNC 2009: "Silt, yellow brown".
SECTOR 9	[106-120]	SNC 2009: "Silt with small stones".
SECTOR 9	NB. [110-120]	SNC 2009: "Microfaunal sample <TAF09-8493>; no obvious archaeology or charcoal; only a little bone; carbonate-rich, perhaps some eucladioliths; speleothem fragments; corroded small limestone clasts common; also OSL-TAF09-22 26.05 ± 1.98 ka BP". P Ditchfield: "Iberomaurusian backed bladelet found 140410 <TAF10-11057> at about this level." [SNC: problematical – not *in situ*?]
SECTOR 9	[120-124]	SNC 2009: "Silty, light-coloured".
SECTOR 9	[124-128]	SNC 2009: "'Chocolate' brown with charcoal".
SECTOR 9	[128-154]	SNC 2009: "Angular clast of ancient speleothem/calcite in a very light silt (including decomposing speleothem); common bird and micromammal bones, mollusca; a few larger bone fragments and one lithic chip near base; larger stones appearing downwards; very compact; rare stalactite fragments".

SECTOR 9	NB. [140-150]	SNC 2009: "Microfaunal sample <TAF09-8494>; no obvious archaeology and few bones; many small limestone clasts; also OSL-TAF09-23 28.28 ± 3.09 ka BP". SNC 2010; "Fine silty sand (15 cm above main speleothem collapse, sqQ27, 5.626 m below Site Datum) with apparent rhizoliths/soil nodules in carbonate".

SECTOR 9		Section near outer (east) end of Ruhlmann's Trench. SNC 2016: "Near northeast end of trench, looking northwest; log co-ordinates recorded as [0] level = x 117.868, y 101.437, z -3.535 (m below Site Datum)." The sequence reported here continues well below the LSA, the lower material being included to assist in correlation. SNC 2016: general photos 3467-3469 showing "old" microfaunal samples and some "old" OSL samples to the 'east' (right). Lithostratigraphic unit ("context") notation example for this column: S9-16-CTX1, etc.
SECTOR 9	[0-18]	SNC 2016: "Missing interval (excavated/collapsed prior to 2003)."
SECTOR 9	CTX1 [18-34]	SNC 2016: "Compact gritty silty loam; 7.5YR 6/4; angular small stones; partial matrix-support; internal planar bedding, dipping gently into cave (W)."
SECTOR 9	CTX2 [34-40]	SNC 2016: "Similar to CTX1 but with traces of burning affecting limestone (more powdery) and colour 5YR 3/3; charcoal flecks; irregular in section (cannot cut flat); fragmented and patchy cemented ash at base in [39-40] interval (this interval being counted incorrectly in CTX3 during excavation). Equivalent to S9-09[19-25]."
SECTOR 9	CTX3 [40-50]	SNC 2016: "[40-43] interval, silty fine sand, with colour strengthening to 'orangey' 5YR 5/6; [43-50] interval, gritty silty loam, 7.5YR 5/4; diffuse, possibly turbated, boundary between these two subunits; gritty but more 'weathered' than in CTX1 and with fewer stones, matrix-supported; 'orangey' subunit at top might be a hearth but more probably a natural wash input."
SECTOR 9	CTX4 [50-61]	SNC 2016: "[50-54] interval, lensing out westwards; dark hearth remnant 7.5YR 4/3; Taf09-OSL20 passed through the equivalent of this subunit, in the interval S9-09[35-45]. [(50)54-61] interval; very similar to lower subunit of CTX3; 3 cm lens (pinching out eastwards) of more 'orangey' material near but not at base (2 cm of normal sediment at base); dispersed charcoal; slightly less dense than CTX3, stones dipping at all angles. Both subunits dip into the cave."
SECTOR 9	CTX5 [61-67]	SNC 2016: "Dense silty loam with slightly weathered fine grit; 7[*sic*]YR 6/4; slightly more gritty lenses and stringers, stronger at base." Charcoal sample OxA-35508 16,410 ± 70 BP <TAF16-14786>.
SECTOR 9	CTX6 [67-76]	SNC 2016: "Very similar to CTX5 but very slightly lighter, with slightly redder lenses included."
	N.B.	SNC 2016: "On the west side of the excavation, burrows have caused the slumping of a block containing the base of CTX3 (relabelled "CTX7" during excavation), hearth material of type CTX4 (relabelled "CTX8" during excavation) and a part of the top of CTX5. Further west still, CTX4 is in place, with CTX5 & CTX6 below (local gritty lens, used to form the boundary on the east side of the excavation, is uncertain)."
SECTOR 9	CTX9 [76-91]	SNC 2016: "Dense gritty silty loam; 7[*sic*]YR 6/4; common stalagmitic fragments; charcoal fragments, with charcoal sometimes in very fine stringers; well stratified in silty/gritty alternations; during deposition of this unit, sedimentation changes downwards to the horizontal. Lowest occurrence of LSA lithics, although burrows through CTX9 may have carried a few elements downwards. Equivalent to S9-U3." Charcoal sample <TAF16-15025> [failed]. Charcoal (flot) sample OxA-35509 19,230 ± 80 BP <TAF16-15374>.
SECTOR 9	CTX10 [83-86]	SNC 2016: "On the west side of the excavation, traces of brown sediment with strong charcoal (hearth), no more than 3 cm thick, lying within CTX9." Charcoal sample (hearth) <TAF16-15387> [too small?].
SECTOR 9	CTX11 [91-97]	SNC 2016: "Silt becoming dominant, dense, in places no stones or grit at all; matrix-support; 7[*sic*]YR 6/6; 'blotches' of CTX12 dragged upwards (bioturbation?); this is the first truly silty unit in this sequence."
SECTOR 9	CTX12 [97-99]	SNC 2016: "Up to 7 cm thick in places; brown powdery sediment; burnt limestone; charcoal; reddened at base (redder than the more 'orangey' wash lenses above); adze and flakes (local geologists (Oujda) suggest the raw material is a fine volcanic, although it might otherwise be a quartzite; fine sparkle and hackly fracture, tending to shallow steps; dark bluish grey 2G 4/10B). Cf. 'Non-Levallois Flake Industry'." SNC 2016: "Photos 3470-73; close-up across CTX12; scale top 1 cm into lowest S9-U3 equivalent; scale bottom 1 cm short of bottom if CTX14; note clean silt beds above and below CTX12." Charcoal sample (hearth) OxA-35510 20,520 ± 100 BP <TAF16-15495A>. Charcoal sample (east) OxA-35511 20,160 ± 90 BP <TAF16-15495B>.
SECTOR 9	CTX13 [99-105]	SNC 2016: "Almost clean silt; 5YR 6/6, with yellower streaks; very dense in places, elsewhere with a little grit, grittier westwards; may have a few laminations in places." Charcoal sample (S9-16-CTX13 base) OxA-35654 20,460 ± 90 BP <TAF16-15634>.
SECTOR 9	CTX14 [105-112]	SNC 2016: "Gritty silty loam; 5YR 5/4; relatively sharp upper and lower boundaries; good charcoal in a hearth subunit in the SE part of the excavation; dispersed charcoal powder/flecks elsewhere; still fakes in the 'adze' raw material. Hearth subunit equivalent to S9-09[102-103]." Charcoal sample (east) OxA-35655 20,520 ± 90 BP <TAF16-15668>. Charcoal sample <TAF16-15668b> [too small].

SECTOR 9	CTX15 [112-127]	SNC 2016: "Well bedded sequence of silty deposits, sometimes with stony, gritty or cleaner silt subunits; silt is 5YR 5/6; finer grit is quite corroded; especially strong silty lenses in the middle of this subsequence; becoming lighter at base 5YR 6/6."
SECTOR 9	CTX16 [127-134]	SNC 2016: "[127-131] interval; stony silt; 5YR 6/4; very common grit; charcoal specks; probably some ash, slightly cemented in places. [131-134] interval; ash (5YR 6/2-3) over dark sediment, sometimes black with strong charcoal component. Chips of 'adze' raw material but also a Levallois flake with facetted butt (presumed MSA) near base." Charcoal sample <TAF16-15877> [fail]. Charcoal sample (general finds) OxA-35656 23,170 ± 120 BP <TAF16-15876>.
SECTOR 9	CTX17 [134-170]	SNC 2016: "[134-138] interval; gritty; slightly greyed 5yr 5/4-6; some charcoal flecks may be associated with hearth above; relatively sharp lower boundary. [138-170] interval; stony silt; 5YR 5/6 and lighter; stones are often corroded speleothem fragments; some local concretions and eucladioliths; partial clast support; in the [145-146] interval, a slightly more dark brown band, possibly archaeological." Charcoal sample <TAF16-15932> [fail].
SECTOR 9	[170+]	SNC 2016: "Ancient speleothem shatter bed."

SECTOR 10

SECTOR 10		Roche (1963): Plate IIIB (section N7-Q9), appears to show strong lensing with some plastic deformation (stratigraphic level not recorded). Burials in northeastern corner of cave, towards the base of the Grey Series in this area. Current Campaign – dominated by excavation of human burials; deposits attributed to the Grey Series are defined in **Chapter 2**. SNC 2013: "Some of the grey ash-fill of burial features in S10 is strongly capable of being attracted by a magnet (paramagnetic?)." Lithostratigraphic unit notation example for this column: S10-sqO8-U1, etc.
SECTOR 10	Unit 0	SNC 2009 sqO8: "Grey ashy trample; masses of bone (including human fragments); ancient artefacts and modern objects."
SECTOR 10	Unit 1	SNC 2009 sqO8: "White contorted material turning pink at base; up to 4 cm thick and quite continuous; similar to Raynal 5 in Sectors 1 and 2 but not a certain correlate."
SECTOR 10	Unit 2	SNC 2009 sqO8: "Dark chocolate silt, including charcoal <8563> and a lithic <8564>; lens thickening southwards, possibly 5 cm or more; similar to Raynal 6-7 in Sectors 1 and 2 but not a certain correlate."
SECTOR 10	Unit 3	SNC 2009 sqO8: "white/pink/lightest orange; extremely carbonate-rich; corroded carbonate 'core stones', some possible eucladioliths but the bulk is mostly corroded ancient calcite; few bone fragments, no obvious artefacts; pieced by a few minor burrows; at least 30 cm thick. Reportedly (JB) cored by a palynologist in the past."
SECTOR 10		SNC 2009, small test-pit in sqsO7-P7; SNC photos 4552-4556; developed section facing east, out of cave; dug in brief episodes to avoid interference with burial excavations. Depths given as level below -2.35 (m below Site Datum). SNC photos 4570-4585.
SECTOR 10		SNC 2009 sqsO7-P7: "Slightly disturbed grey ashy material (bones and lithics) of basal Grey Series." Lithostratigraphic unit notation example for this column: S10-sqsO7&P7-U1, etc.
SECTOR 10	Unit 1	SNC 2009 sqsO7-P7: "Contorted 'cream' unit with plastic deformation structures; pink/ginger at base; less than 5 cm thick (top at -2.30 (m below Site Datum)); similar to Raynal 5 in Sectors 1 and 2 but not a certain correlate."
SECTOR 10	Unit 2	SNC 2009 sqsO7-P7: "Chocolate and grey/khaki material; bedded, normally laminated; minimal presence northwards ('right') but thickening southwards into an erosion trough (at least 14 cm thick); charcoal, lithics; similar to Raynal 6-7 in Sectors 1 and 2 but not a certain correlate."
SECTOR 10	Unit 3	SNC 2009 sqsO7-P7: "Lighter, 'orangey' material; cemented patches; stones, some angular, some rounded, calcite elements, cemented aggregates, stalactite fragments, all at rather irregular/random angles; charcoal, microfauna, some bones, lithics (MSA types where diagnostic, cf. finds <8730-8733>). Rises, before truncation, to c. 2.3 m below Site Datum. Appears similar to the Pink Series (Raynal 13-14) but not a certain correlate."
SECTOR 10	Unit 3a [6-18]	SNC 2009 sqsO7-P7: "Orangey carbonate-rich matrix; various creams, base matrix colour 5YR 7/6-8); many small clasts of calcite and dolomite (some extremely rounded, 1-10 cm diameter); very irregular bedding angles; cemented crusts, discontinuous laterally; lower boundary slightly irregular and diffuse; similarity to Raynal 13 confirmed."
SECTOR 10	Unit 3b [18-51]	SNC 2009 sqsO7-P7: "Slightly browner matrix; 5YR 5/4 to 6/6; much angular fine grit, often in wavy lenses; microfauna (mammals, birds, fish, mollusca); artefacts, scattered charcoal, rare burnt bone; no clear surfaces but archaeology probably at several levels; base somewhat diffuse but quite irregular, with variations on 10-15 cm (vertical) over 50 cm (lateral)."

SECTOR 10	Unit 3c [51 or higher down to as much as 65]	SNC 2009 sqsO7-P7: "Dense cemented material, with stones and grit; 5YR 7/6; microfauna; no obvious archaeology; small burrows (modern) near base; rounded dolomite at base (large rock or bedrock)."
SECTOR 10		P BERRIDGE 2009 sqB1 NE & NW: "Burial pit [Grey Series] cut through material resembling Upper Laminated Series over upper Raynal 13 (orangey)."

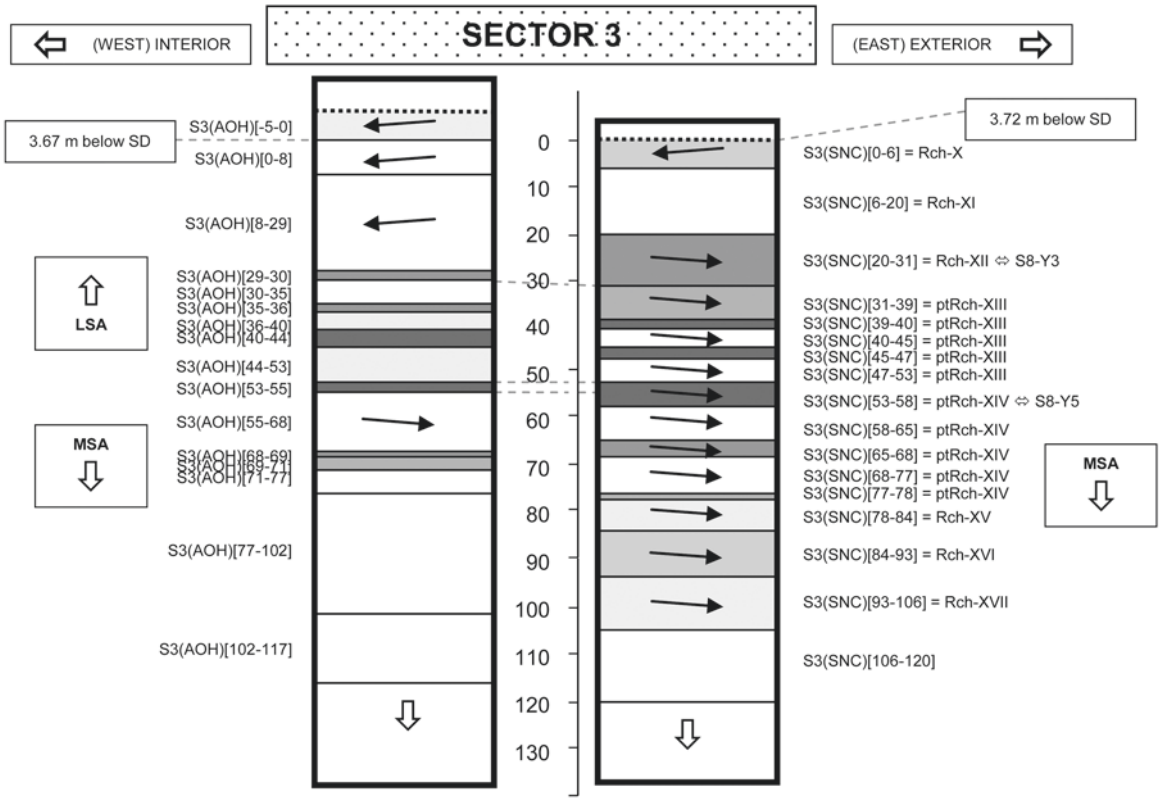
SECTOR 10		SNC 2016: "x = 118.428, y – 121.125, z = -1.798 (m below Site Datum)." SNC 2016: photos 3474-78; showing the yellowish material (including the hearth) with the 'Brown Layer' above (cf. nail at local zero)." Lithostratigraphic unit notation example for this column: S10-16[0-10], etc.
SECTOR 10	[0 to +51 or higher]	SNC 2016: "Unstructured grey ashy material (Grey Series); common large limestone fragments; absolutely no internal structure (no hearths); bottom 15 cm is 'earthier', with more mineral matrix; higher material has more molluscan fragments (unweathered alkaline context)."
SECTOR 10	[0-10]	SNC 2016: 'Brown Layer' (counted as the basal unit of the Grey Series in S10, equivalent to Roche's *Niveau IX*); earthier than above; many small stones, often corroded; variable colour (redder, yellower, browner, greyer, lighter/darker), either as blotches or as very local lenses, but a 'central' colour of 7.5YR 5-4/3; variously massive structure to locally high-angle bedded; various corroded bones, lithics, metallic ores; some reddish patches are corroded fallen wall speleothem; looks like 'made ground'; interstratified boundary with typical ashy grey sediment above (thin alternating lenses within a 5 cm thick transition).
SECTOR 10	[10-15]	SNC 2016: "Yellowish material; thinly stratified (laminated and lenticular); topped by a carbonate crust (probably a sub-surface reinforcement horizon due to decaying organics in the 'Brown Layer' above.
SECTOR 10	[15-18]	SNC 2016: "Locally, multiple ash lenses with charcoal at base (sampled <15944>); some dark brown Mn on partings; ash often burnt very efficiently, with little surviving charcoal; feature (possibly an *in situ* hearth but no convincing burning/heating at base) probably c. 60 cm in diameter."
SECTOR 10	[18 downwards]	SNC 2016: "Dense powdery sediment with corroded small stones; 10YR 5/4."

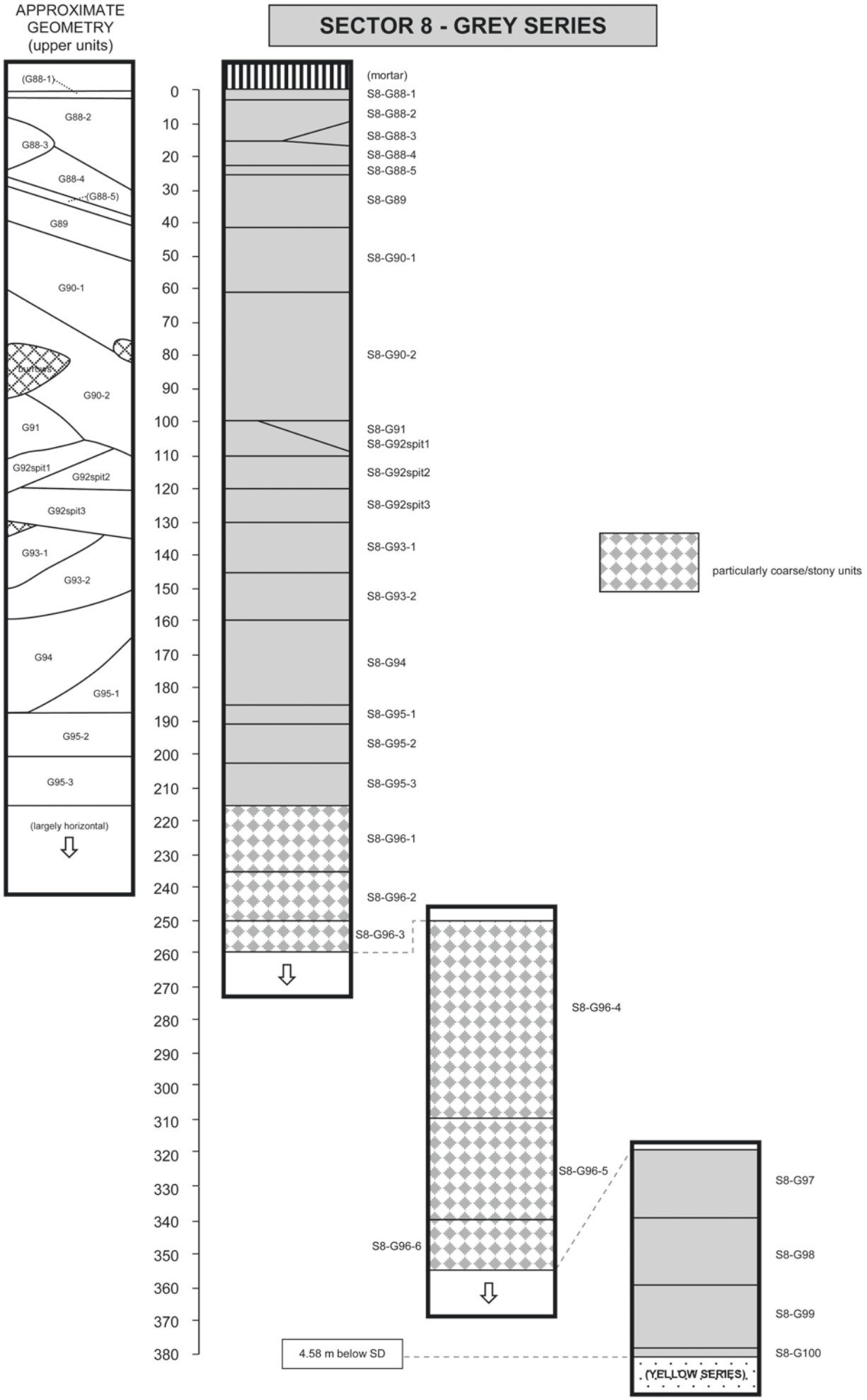
DEEP SOUNDING

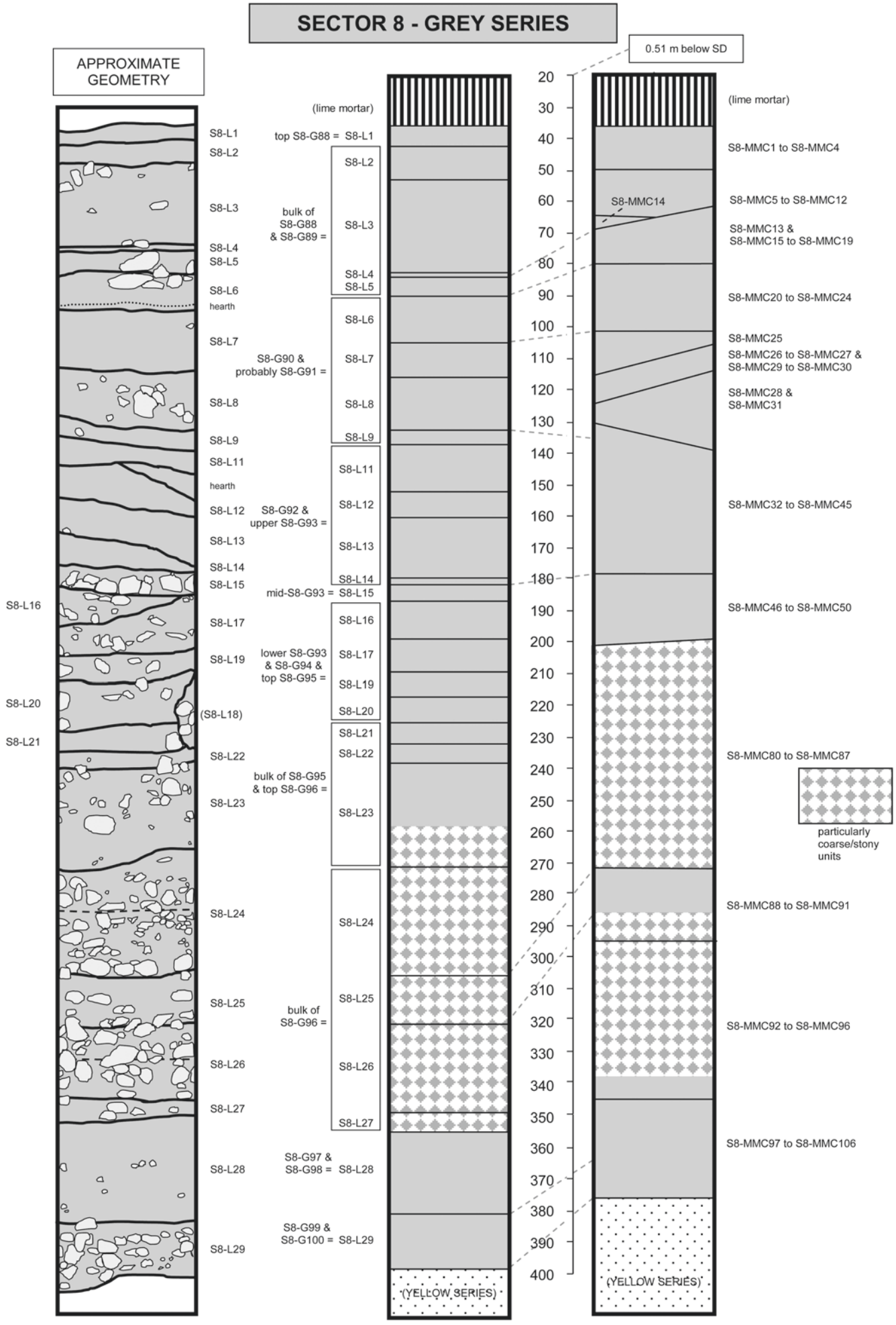
DEEP SOUNDING (DS)	General (South)	SNC 2003 : "Southern side of the Deep Sounding (equivalent to inner end of Ruhlmann's southern trench), E-W section on c.F/E line, observer looking south at the boundary between Squares 14 and 15; local zero in SNC observations at 3.01 m below Site Datum." SNC 2003: "Southern side of the Deep Sounding, E-W section on c.F/E line, observer looking south at the boundary between Squares 14 and 15 as central point but photos panoramic both east and west from centre; SNC photos 90-100." SNC 2003; "Material laterally equivalent (further into the cave more or less on the line of Sector 8) to the top units of the Yellow Series." SNC 2008 ; "Towards the back of the cave (towards Sector 11), the Yellow Series seems to be subject to an angular unconformity with the overlying Grey Series (even though this boundary is altitudinally high compared with Sector 8), with the Yellow Series cut out progressively westwards. It is possible (even likely) that, in the 'SW lobe' of the currently accessible cave, Grey Series deposits overlie directly a yellowish alteration crust of the ancient calcite. Additional charcoal samples in sqD17, <6833> and <6834> in basal Grey Series, <6835> and <6836> in highest undisturbed Yellow Series." Lithostratigraphic unit notation example for this column: DS-(S)[5-8], etc.
		Grey Series (unstable). Base of GS (cf. S8-G99) Charcoal sqD17 OxA-22902 12,370 ± 50 BP <TAF08-6834>. Base of GS (cf. S8-G99) Charcoal sqD17 OxA-22784 12,660 ± 70 BP <TAF08 6833>. Base of GS (cf. S8-G99) Charcoal sqD17 OxA-22785 12,500 ± 55 BP <TAF08-6833 duplicate>.
DS	(S)[5-8]	SNC 2003 : "Interval 5-8; mid-brown gritty silt band." Charcoal sqD17 OxA-22786 12,200 ± 55 BP <TAF08-6836>; SNC 2008: "stratigraphically highest YS in this area". Charcoal sqD17 OxA-22903 13,045 ± 50 BP <TAF08-6835>.
DS	(S)[8-25]	SNC 2003 : "Interval 8-25; light brown gritty silt, lightly cemented; bone."
DS	(S)[25-29]	SNC 2003 : "Interval 25-29; mid-brown band, darker at base with ashes."
DS	(S)[29-31]	SNC 2003 : "Interval 29-31; light orange-brown, cemented at top (from ashes above?)."
DS	(S)[31-34]	SNC 2003 : "Interval 31-34; white cemented ashes."
DS	(S)[34-35]	SNC 2003 : "Interval 34-35; dark brown sediment."

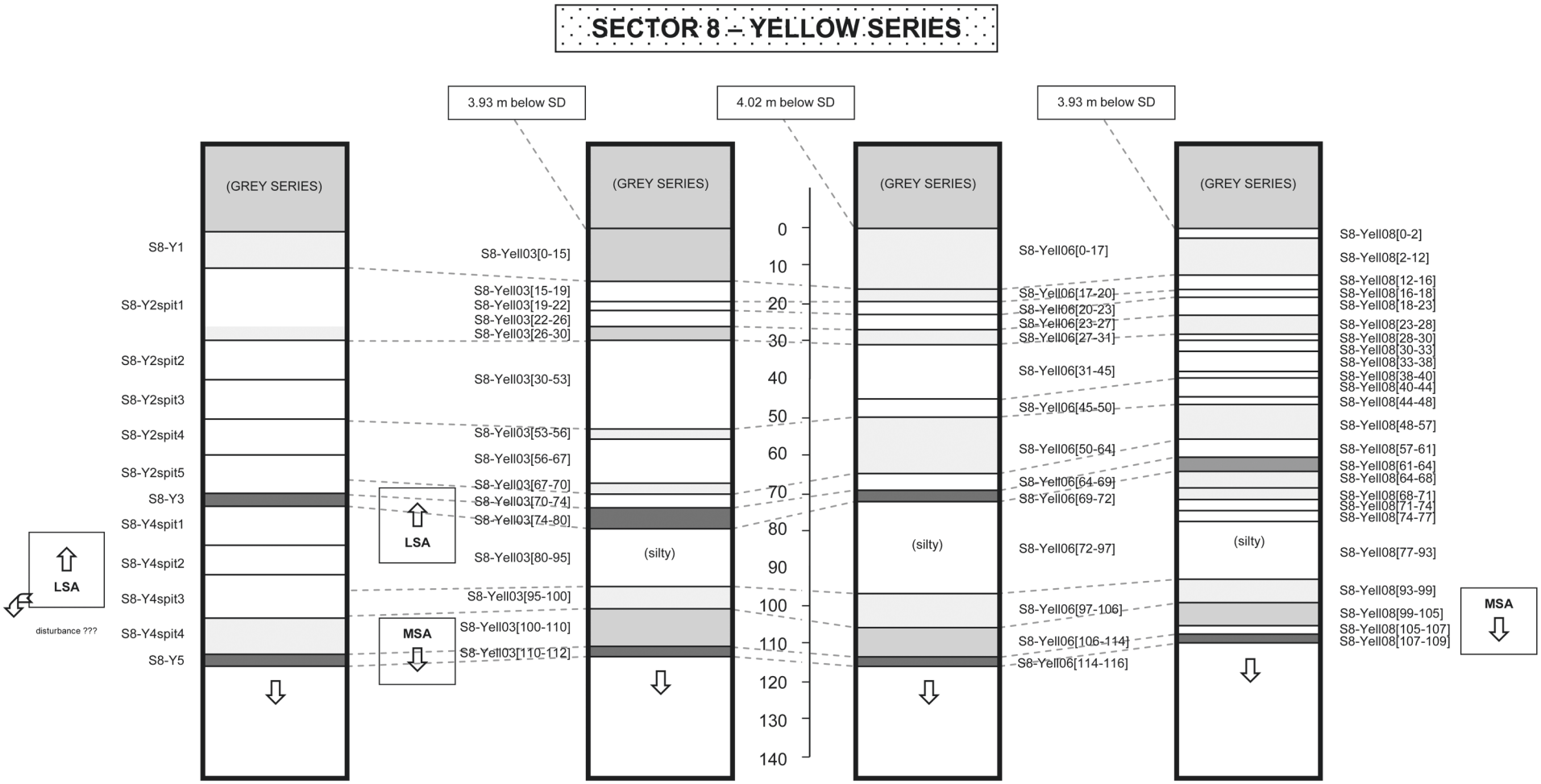
DS	(S)[25-35]	SNC 2003 : "Sample MF11 (S. Parfitt) in interval 25-35; much bone, both larger mammals & microfauna, shell, charcoal, burnt stone, artefacts. All these units dipping 5º-10º to east."
DS	(S)[35-44]	SNC 2003 : "Interval 35-44; light orange-brown; most cemented at the top; small pieces of charcoal throughout."
DS	(S)[44-45]	SNC 2003 : "Interval 44-45; dark chocolate brown lenses, capped by carbonate crusts."
DS	(S)[45-48]	SNC 2003 : "Interval 45-48; laminated brown, becoming lighter downwards; silty, stone burnt to a powder."
DS	(S)[48-49]	SNC 2003 : "Interval 48-49; whitish crust."
DS	(S)[49-52]	SNC 2003 : "Interval 49-52; dark brown to chocolate brown laminae. Probably the **marker bed**, correlating with the Yell [110-112] interval in Sector 8." [Equivalent to Unit S8-Y5]

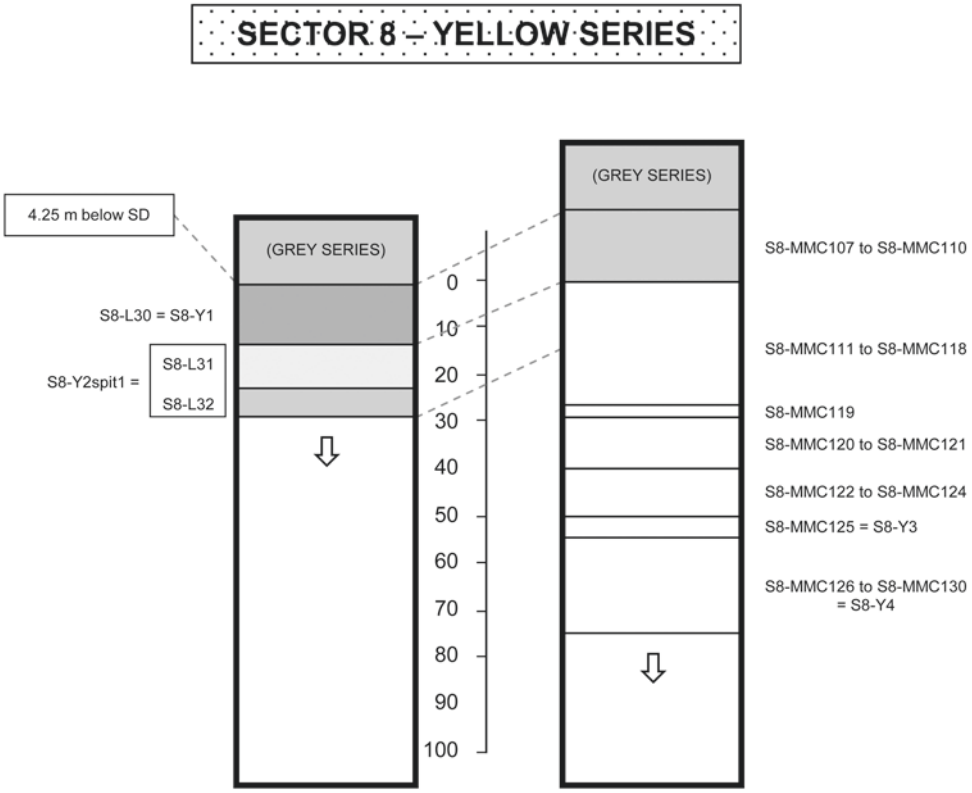
SCHEMATIC SECTIONS

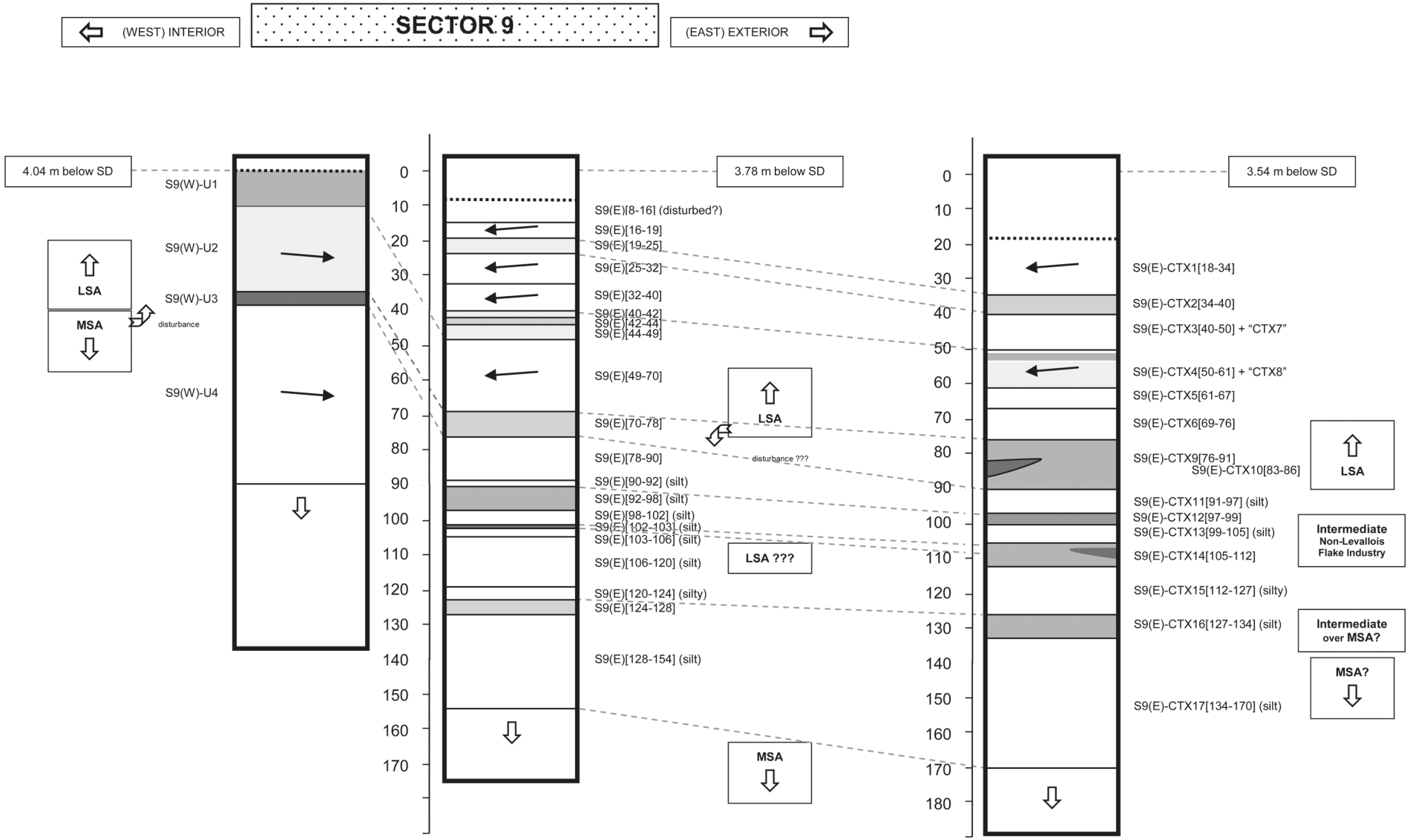



APPROXIMATE GEOMETRY (upper units)
SECTOR 8 - GREY SERIES
(G88-1)
G88-2
G88-3
G88-4
(G88-5)
G89
G90-1
G90-2
G91
G92spit1
G92spit2
G92spit3
G93-1
G93-2
G94
G95-1
G95-2
G95-3
(largely horizontal)
(mortar)
S8-G88-1
S8-G88-2
S8-G88-3
S8-G88-4
S8-G88-5
S8-G89
S8-G90-1
S8-G90-2
S8-G91
S8-G92spit1
S8-G92spit2
S8-G92spit3
S8-G93-1
S8-G93-2
S8-G94
S8-G95-1
S8-G95-2
S8-G95-3
S8-G96-1
S8-G96-2
S8-G96-3
S8-G96-4
S8-G96-5
S8-G96-6
S8-G97
S8-G98
S8-G99
S8-G100
(YELLOW SERIES)
4.58 m below SD
particularly coarse/stony units
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
330
340
350
360
370
380


SECTOR 8 - GREY SERIES
APPROXIMATE GEOMETRY
0.51 m below SD
(lime mortar)
top S8-G88 = S8-L1
bulk of S8-G88 & S8-G89 =
S8-G90 & probably S8-G91 =
S8-G92 & upper S8-G93 =
mid-S8-G93 = S8-L15
lower S8-G93 & S8-G94 & top S8-G95 =
bulk of S8-G95 & top S8-G96 =
bulk of S8-G96 =
S8-G97 & S8-G98 = S8-L28
S8-G99 & S8-G100 = S8-L29
S8-L1
S8-L2
S8-L3
S8-L4
S8-L5
S8-L6
hearth
S8-L7
S8-L8
S8-L9
S8-L11
hearth
S8-L12
S8-L13
S8-L14
S8-L15
S8-L16
S8-L17
S8-L19
S8-L20
(S8-L18)
S8-L21
S8-L22
S8-L23
S8-L24
S8-L25
S8-L26
S8-L27
S8-L28
S8-L29
(YELLOW SERIES)
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
300
310
320
330
340
350
360
370
380
390
400
(lime mortar)
S8-MMC1 to S8-MMC4
S8-MMC14
S8-MMC5 to S8-MMC12
S8-MMC13 & S8-MMC15 to S8-MMC19
S8-MMC20 to S8-MMC24
S8-MMC25
S8-MMC26 to S8-MMC27 & S8-MMC29 to S8-MMC30
S8-MMC28 & S8-MMC31
S8-MMC32 to S8-MMC45
S8-MMC46 to S8-MMC50
S8-MMC80 to S8-MMC87
particularly coarse/stony units
S8-MMC88 to S8-MMC91
S8-MMC92 to S8-MMC96
S8-MMC97 to S8-MMC106
(YELLOW SERIES)


SECTOR 8 – YELLOW SERIES
3.93 m below SD
4.02 m below SD
3.93 m below SD
(GREY SERIES)
(GREY SERIES)
(GREY SERIES)
(GREY SERIES)
S8-Y1
S8-Y2spit1
S8-Y2spit2
S8-Y2spit3
S8-Y2spit4
S8-Y2spit5
S8-Y3
S8-Y4spit1
S8-Y4spit2
S8-Y4spit3
S8-Y4spit4
S8-Y5
LSA
disturbance ???
LSA
MSA
MSA
S8-Yell03[0-15]
S8-Yell03[15-19]
S8-Yell03[19-22]
S8-Yell03[22-26]
S8-Yell03[26-30]
S8-Yell03[30-53]
S8-Yell03[53-56]
S8-Yell03[56-67]
S8-Yell03[67-70]
S8-Yell03[70-74]
S8-Yell03[74-80]
S8-Yell03[80-95]
S8-Yell03[95-100]
S8-Yell03[100-110]
S8-Yell03[110-112]
(silty)
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
S8-Yell06[0-17]
S8-Yell06[17-20]
S8-Yell06[20-23]
S8-Yell06[23-27]
S8-Yell06[27-31]
S8-Yell06[31-45]
S8-Yell06[45-50]
S8-Yell06[50-64]
S8-Yell06[64-69]
S8-Yell06[69-72]
S8-Yell06[72-97]
S8-Yell06[97-106]
S8-Yell06[106-114]
S8-Yell06[114-116]
(silty)
S8-Yell08[0-2]
S8-Yell08[2-12]
S8-Yell08[12-16]
S8-Yell08[16-18]
S8-Yell08[18-23]
S8-Yell08[23-28]
S8-Yell08[28-30]
S8-Yell08[30-33]
S8-Yell08[33-38]
S8-Yell08[38-40]
S8-Yell08[40-44]
S8-Yell08[44-48]
S8-Yell08[48-57]
S8-Yell08[57-61]
S8-Yell08[61-64]
S8-Yell08[64-68]
S8-Yell08[68-71]
S8-Yell08[71-74]
S8-Yell08[74-77]
S8-Yell08[77-93]
S8-Yell08[93-99]
S8-Yell08[99-105]
S8-Yell08[105-107]
S8-Yell08[107-109]


SECTOR 8 – YELLOW SERIES
4.25 m below SD
(GREY SERIES)
S8-L30 = S8-Y1
S8-Y2spit1 =
S8-L31
S8-L32
0
10
20
30
40
50
60
70
80
90
100
(GREY SERIES)
S8-MMC107 to S8-MMC110
S8-MMC111 to S8-MMC118
S8-MMC119
S8-MMC120 to S8-MMC121
S8-MMC122 to S8-MMC124
S8-MMC125 = S8-Y3
S8-MMC126 to S8-MMC130
= S8-Y4


(WEST) INTERIOR
SECTOR 9
(EAST) EXTERIOR
4.04 m below SD
S9(W)-U1
S9(W)-U2
S9(W)-U3
S9(W)-U4
LSA
MSA
disturbance
3.78 m below SD
S9(E)[8-16] (disturbed?)
S9(E)[16-19]
S9(E)[19-25]
S9(E)[25-32]
S9(E)[32-40]
S9(E)[40-42]
S9(E)[42-44]
S9(E)[44-49]
S9(E)[49-70]
S9(E)[70-78]
S9(E)[78-90]
S9(E)[90-92] (silt)
S9(E)[92-98] (silt)
S9(E)[98-102] (silt)
S9(E)[102-103] (silt)
S9(E)[103-106] (silt)
S9(E)[106-120] (silt)
S9(E)[120-124] (silty)
S9(E)[124-128]
S9(E)[128-154] (silt)
LSA
disturbance ???
LSA ???
MSA
3.54 m below SD
S9(E)-CTX1[18-34]
S9(E)-CTX2[34-40]
S9(E)-CTX3[40-50] + "CTX7"
S9(E)-CTX4[50-61] + "CTX8"
S9(E)-CTX5[61-67]
S9(E)-CTX6[69-76]
S9(E)-CTX9[76-91]
S9(E)-CTX10[83-86]
S9(E)-CTX11[91-97] (silt)
S9(E)-CTX12[97-99]
S9(E)-CTX13[99-105] (silt)
S9(E)-CTX14[105-112]
S9(E)-CTX15[112-127] (silty)
S9(E)-CTX16[127-134] (silt)
S9(E)-CTX17[134-170] (silt)
LSA
Intermediate Non-Levallois Flake Industry
Intermediate over MSA?
MSA?
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180

	Yellow Series-G sample column									Grey Series-G sample column									
unit	Y4	Y4	Y4	Y4	Y2	Y2	Y1	Y1	Y1	G1OO	G99	G99	G99	G99	G98-5	G98-4	G98-4	G98-4	G98-4
square	BC22	BC22	BC22	C22A	BC22	BC22	BC22	BC22	BC22	BC22	B21	B21	C21	B21	B21	B21	B21	C21	B20
volume of sediment (in litre)	16	13	4	5.6	4	16.5	1.5	5.5	1	12.5	3.5	3.5	3.5	2	1.5	6	3.5	5	7
Avena sp. (wild oat), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cf. *Bromus* sp. (large seeded grass), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cariophyllaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chenopodiaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cistaceae, seed	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ephedra sp., cone bract	1	-	-	-	-	-	2	3	-	-	-	-	-	-	-	-	-	-	-
Fabaceae (wild pulse), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fumaria sp. (fumitory), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Galium sp. (bedstraw), seed	5	1	-	1	-	-	-	1	1	-	-	1	1	1	-	1	1	-	1
Juniperus phoenicea L., seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	1
Lens cf. *nigricans* (M. Bieb.) Godr., seed	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Pinus pinaster Ait., seed	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
Pinus pinaster Ait., seed scale	-	-	-	-	-	-	-	-	-	1		1	1	-	-	3	1	1	1
Pistacia terebinthus L., seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-
Quercus ilex L., cupule	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus sp (acorn), cotyledon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus sp. (acorn), cupule	-	-	-	-	-	-	-	-	-	-	1	5	2	-	1	10	4	9	4
Quercus sp. (acorn), abscission scar	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Quercus sp. (acorn), pericarp	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rosaceae, seed	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Rubiaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sambucus nigra/ebulus L., seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Small seeded legume, seed	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-
Stipa tenacissima L., rhizome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	2
Tetraclinis articulata (arar), leaf	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vicia/Lathyrus sp. (wild pulse), seed	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Woody legume, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet type rosaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet type rosaceae, fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet seed	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	1
Indet fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet nut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total	7	1	1	2	1	1	2	5	1	1	1	7	4	2	3	21	8	12	12
seed density per litre of sediment	0.375	0.07	0.5	0.35	0.25	0.06	1.33	0.9	1	0.08	0.28	2	1.14	1	2	3.5	2.28	2.4	1.71

Appendix 6 (part a) Macro-botanical remains from occupational levels in Sector 8, with numbers of seeds unless otherwise stated.

	Grey Series-G sample column																					
unit	G98-3	G98-2	G98-1	G98	G97	G96-5	G96-3	G96-3	G96-2	G96-1	G95-3	G95-2	G95-1	G95-1	G94-1	G94-1	G93-2	G93-1	G92	G92	G92	G91
square	B21	B21	B21	B21	B21	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23
volume of sediment (in litre)	0.5	2	2.5	1	1.5	3	5	3.3	1.5	6.5	10	5.5	5	5.5	6	7.5	13.5	7.5	8.5	7	7.5	7
Avena sp. (wild oat), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cf. *Bromus* sp. (large seeded grass), seed	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cariophyllaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chenopodiaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cistaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ephedra sp., cone bract	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fabaceae (wild pulse), seed	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
Fumaria sp. (fumitory), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galium sp. (bedstraw), seed	-	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	1	-	-	4
Juniperus phoenicea L., seed	-	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	9	1	3	4	10	6
Lens cf. *nigricans* (M. Bieb.) Godr., seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pinus pinaster Ait., seed	-	-	1	-	-	1	-	-	-	-	-	2		-	1	-	-	-	-	1	2	-
Pinus pinaster Ait., seed scale	2	1	1	1	1	5	5	4	1	6	8	16	4	2	5	7	12	2	5	3	3	8
Pistacia terebinthus L., seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	2
Poaceae, seed	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus ilex L., cupule	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus sp (acorn), cotyledon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Quercus sp. (acorn), cupule	1	4	1	6	2	6	28	7	1	16	15	22	4	2	6	8	26	10	16	15	2	2
Quercus sp. (acorn), abscission scar	-	-	-	-	-	1	-	-	-	-	1	-	1	-	-	-	2	-	-	-	1	7
Quercus sp. (acorn), pericarp	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	2
Rosaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubiaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sambucus nigra/ebulus L., seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Small seeded legume, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stipa tenacissima L., rhizome	-	1	-	1	-	1	1	-	-	1	1	1	1	1	1	1	1	5	9	6	3	2
Tetraclinis articulata (arar), leaf	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Vicia/Lathyrus sp. (wild pulse), seed	-	-	1	-	-	-	-	1	-	2	-	1	-	1	-	1	-	-	1	-	1	-
Woody legume, seed	-	-	-	-	-	-	-	-	-	-	2	-	-	-	2	-	-	-	1	-	-	7
Indet type rosaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet type rosaceae, fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet seed	-	-	1	-	3	-	-	-	-	-	-	1	-	-	-	-	2	-	-	3	1	-
Indet fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Indet nut	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total	4	7	9	8	6	15	34	12	2	25	27	43	11	6	17	17	56	18	36	33	31	41
seed density per litre of sediment	8	3.5	3.6	8	4	5	6.8	3.63	1.33	3.84	2.7	7.81	2.2	1.09	2.83	2.26	4.14	2.4	4.35	4.71	4.13	5.85

Appendix 6 (part b) Macro-botanical remains from occupational levels in Sector 8, with numbers of seeds unless otherwise stated.

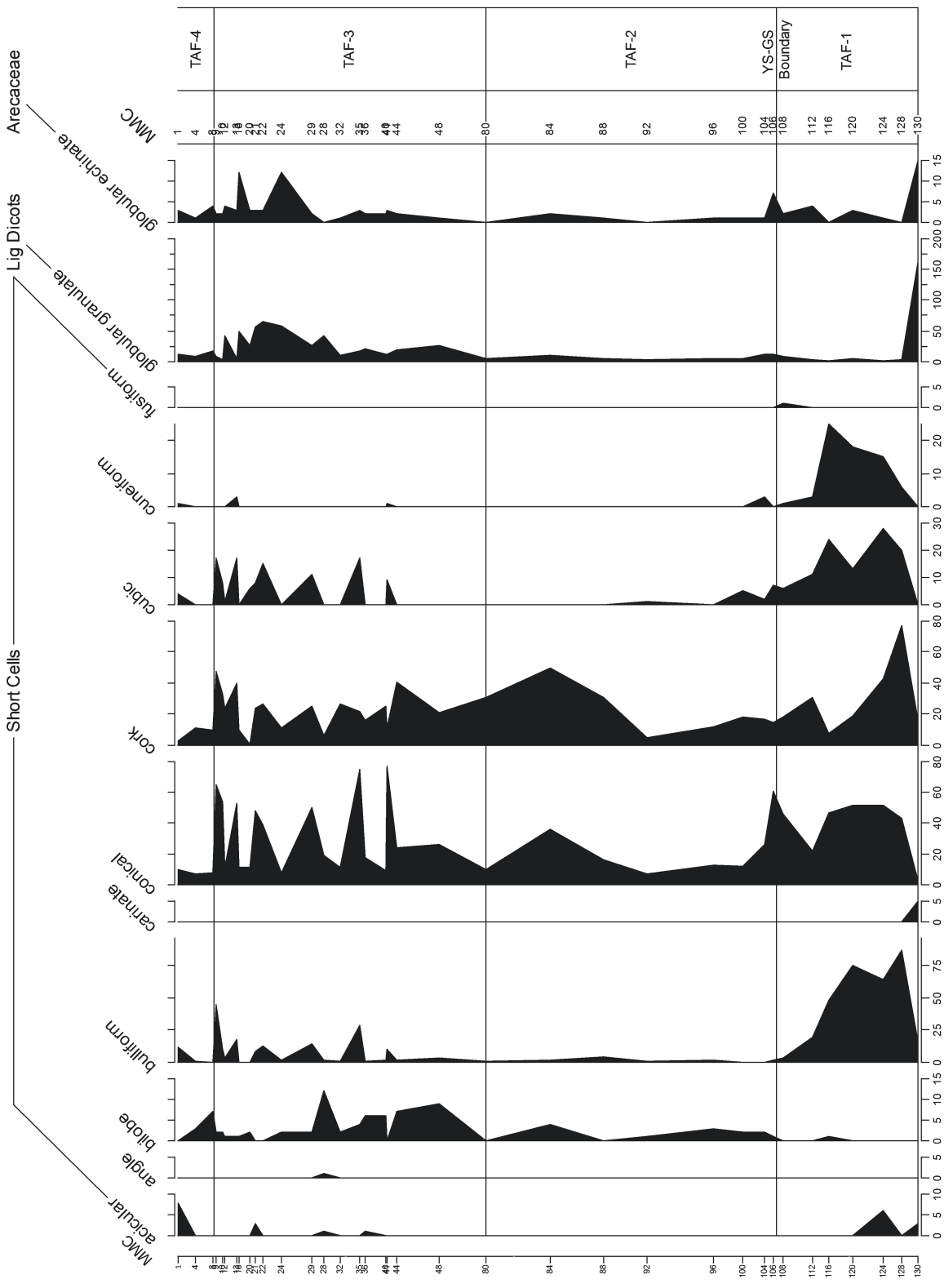
	Grey Series-G sample column											Grey Series-MMC sample column													
unit	G90-2	G90-2	G90-2	G90-2	G90-1	G90-1	G90-1	G89	G89	G88	G88	2	3	4	5	6	9	10	13	14	15	16	17	18	19
square	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23	B23														
volume of sediment (in litre)	7	6	5	6.5	5.2	6		5.5	4.5	16.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Avena sp. (wild oat), seed	-	-	1	-	-	-	-	-	-	1		-	-	1	-	-	-	-	1	-	-	1	-	1	-
cf. *Bromus* sp. (large seeded grass), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-
Cariophyllaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Chenopodiaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Cistaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ephedra sp., cone bract	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fabaceae (wild pulse), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fumaria sp. (fumitory), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Galium sp. (bedstraw), seed	4	1	-	2	-	2	-	-	4	4	1	-	1	-	1	1	-	-	1	4	-	-	-	3	1
Juniperus phoenicea L., seed	6	4	7	5	1	2	1	1		2	-	1	1	1	-	2	-	-	1	2	2	1	1	2	1
Lens cf. *nigricans* (M. Bieb.) Godr., seed	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Pinus pinaster Ait., seed	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	1
Pinus pinaster Ait., seed scale	11	14	18	10	2	1	-	2	1	3	1	-	1	2	1	2	-	1	3	6	10	4	4	-	6
Pistacia terebinthus L., seed	2	1	6	-	2	4	-	3	5	1	-	3	1	3	1	1	-	-	2	1	2	1	-	1	-
Poaceae, seed	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus ilex L., cupule	-	-	-	-	1	1	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus sp (acorn), cotyledon	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-	3	1	1	1	-	-	-	-	-	-
Quercus sp. (acorn), cupule	3	3	10	7	4	3	-	4	4	4	-	-	-	1	-	1	-	-	-	-	3	-	-	-	1
Quercus sp. (acorn), abscission scar	2	7	6	1	-	1	1	1	2	2	-	-	1	3	1	1	-	-	2	-	-	-	1	2	
Quercus sp. (acorn), pericarp	2	-	1	-	-	-	-	-	1	-	1	-	-	1		1	-	-	-	1	-	-	-	-	-
Rosaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubiaceae, seed	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sambucus nigra/ebulus L., seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Small seeded legume, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Stipa tenacissima L., rhizome	2	2	-	-	-	1	-	1	5	4	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-
Tetraclinis articulata (arar), leaf	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vicia/Lathyrus sp. (wild pulse), seed	1	-	1	-	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Woody legume, seed	4	-	1	-	-	-	-	-	-	3	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Indet type rosaceae, seed	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet type rosaceae, fruit	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet seed	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	3	2	-	-	-	-
Indet fruit	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Indet nut	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	1
total	39	34	52	25	12	16	2	13	23	32	3	9	7	12	6	14	1	2	11	19	20	10	6	12	12
seed density per litre of sediment	5.57	5.66	10.4	3.84	2.3	2.66		2.36	5.1	1.93	3	9	7	12	6	14	1	2	11	19	20	10	6	12	12

Appendix 6 (part c) Macro-botanical remains from occupational levels in Sector 8, with numbers of seeds unless otherwise stated.

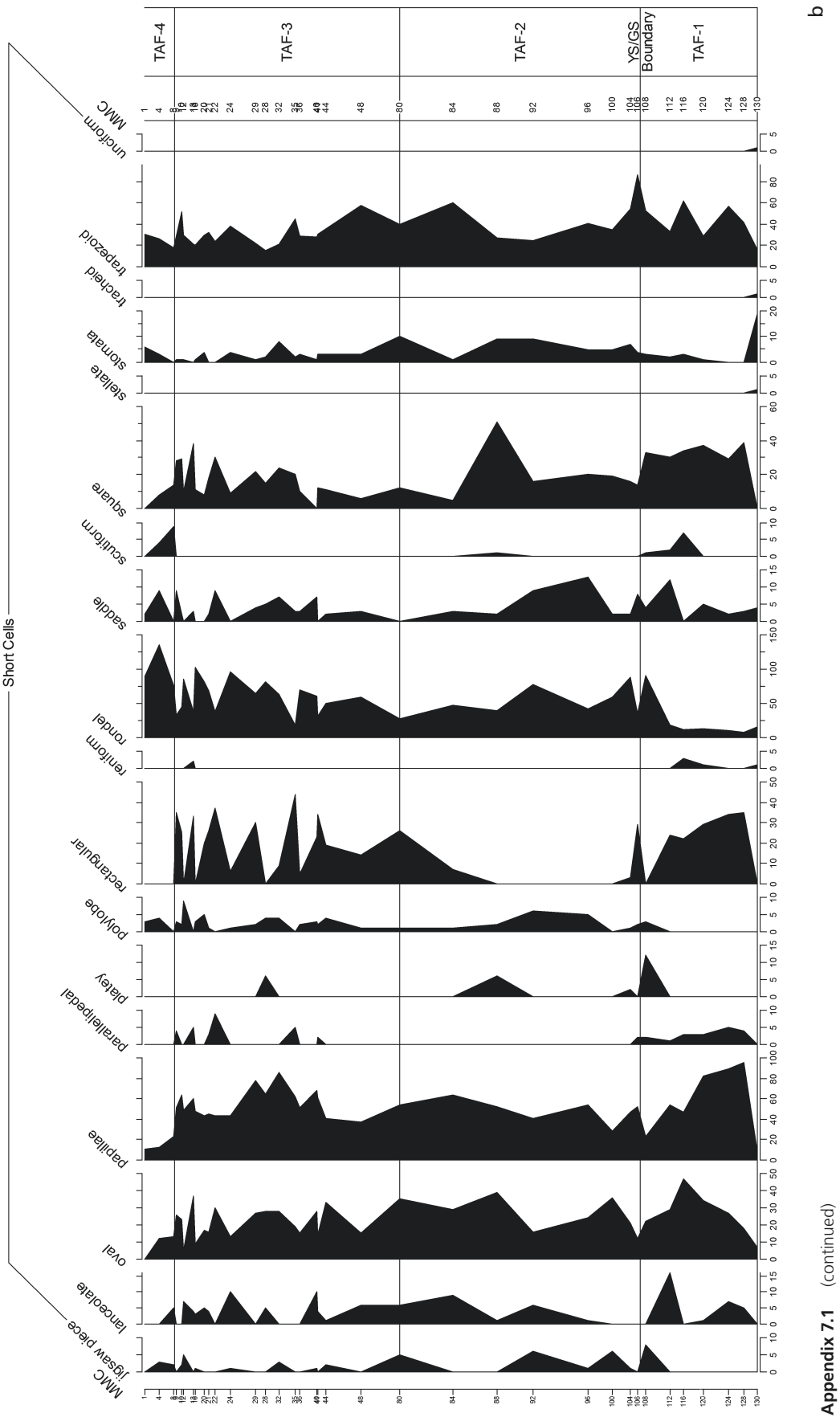
	Grey Series- MMC sample column																											YS-MMC	
unit	20	21	22	23	24	25	26	27	28	29	30	34	37	38	39	40	41	45	80	83	85	87	90	95	100	103	105	107	108
volume of sediment (in litre)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	1	1	1	1	1	1	1	1
Avena sp. (wild oat), seed	-	2	1	-	-	-	-	-	-	1	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
cf. *Bromus* sp. (large seeded grass), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cariophyllaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chenopodiaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cistaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ephedra sp., cone bract	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fabaceae (wild pulse), seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Fumaria sp. (fumitory), seed	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Galium sp. (bedstraw), seed	-	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-	1
Juniperus phoenicea L., seed	3	4	2	3	1	3	2	1	-	4	-	-	-	2	1	2	1	1	-	-	-	-	-	-	-	-	-	-	-
Lens cf. *nigricans* (M. Bieb.) Godr., seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pinus pinaster Ait., seed	-	1	1	1	2	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
Pinus pinaster Ait., seed scale	4	4	3	3	4	5	5	3	1	2	1	5	2	2	3	2	2	2	1	3	1	2	3	1	1	1	-	-	-
Pistacia terebinthus L., seed	1	-	-	1	1	1	1	1	-	2	4	-	1	2	-	1	3	-	-	-	-	-	-	-	-	-	-	-	-
Poaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus ilex L., cupule	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus sp (acorn), cotyledon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus sp. (acorn), cupule	5	6	2	3	1	2	2		-	2	-	-	-	-	2	1	1	-	1	3	3	5	-	7	-	2	2	-	-
Quercus sp. (acorn), abscission scar	-	4	2	2	1	2	1	3	-	2	-	1	1	1	2	1	2	-	2	-	-	-	1	-	-	-	1	-	-
Quercus sp. (acorn), pericarp	-	-	1	-	-	-	1	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Rosaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubiaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sambucus nigra/ebulus L., seed	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Small seeded legume, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stipa tenacissima L., rhizome	-	2	-	1	1	1	3	2	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Tetraclinis articulata (arar), leaf	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vicia/Lathyrus sp. (wild pulse), seed	-	-	-	-	-	-	1	-	-	-	-	-	-	1	2		1	-	-	-	-	-	-	1	-	-	-	-	-
Woody legume, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet type rosaceae, seed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
Indet type rosaceae, fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet seed	-	-	-	-	1	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet fruit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indet nut	-	-	-	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
total	13	25	13	17	14	14	17	12	1	14	6	6	7	11	12	8	14	3	5	7	4	8	4	9	1	3	3	2	1
seed density per litre of sediment	13	25	13	17	14	14	17	12	1	14	6	6	7	11	12	8	14	3	5	7	8	8	4	9	1	3	3	2	1

Appendices 6 (part d) Macro-botanical remains from occupational levels in Sector 8, with numbers of seeds unless otherwise stated.

APPENDIX 7: PHYTOLITH DETAILS

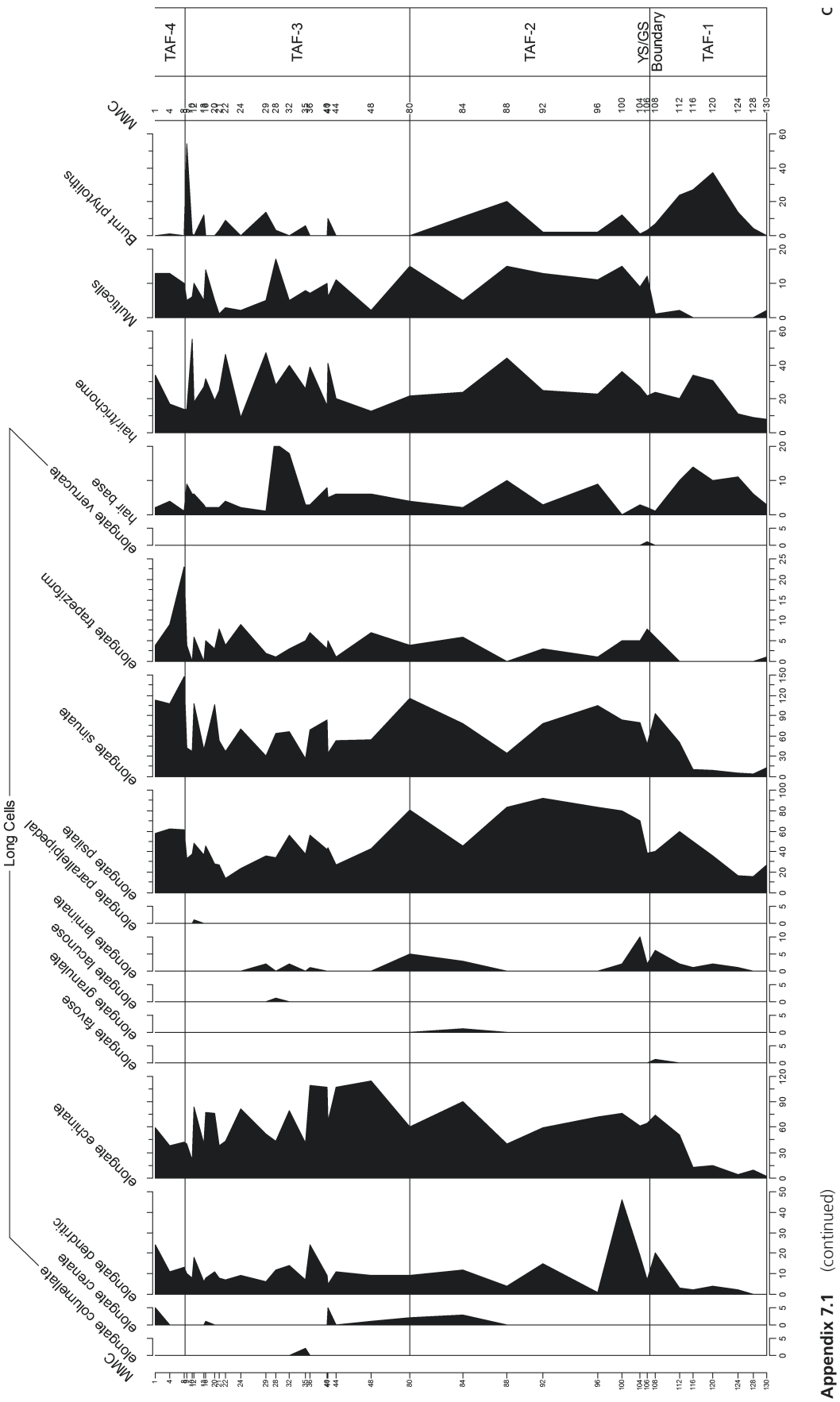


Appendix 7.1 **a-c** Complete phytolith diagram showing morphotypes expressed as counts.



Appendix 7.1 (continued)

b



Appendix 7.1 (continued)

Sample	acicular	angle	bilobe	bulliform	carinate	conical	cork	cubic
MMC1	8	0	0	12	0	10	3	4
MMC4	0	0	3	1	0	7	11	0
MMC8	0	0	7	0	0	8	10	0
MMC9	0	0	2	45	0	65	48	17
MMC10	0	0	2	10	0	54	33	8
MMC12	0	0	1	3	0	11	24	1
MMC13	0	0	1	18	0	53	40	17
MMC16	0	0	1	0	0	11	10	0
MMC20	0	0	2	0	0	11	1	6
MMC21	3	0	0	8	0	48	24	8
MMC22	0	0	0	13	0	39	27	15
MMC24	0	0	2	2	0	8	11	0
MMC29	0	0	2	14	0	50	25	11
MMC28	1	1	12	2	0	19	6	0
MMC32	0	0	2	1	0	11	27	0
MMC35	0	0	4	29	0	75	22	17
MMC36	1	0	6	1	0	18	16	0
MMC40	0	0	6	2	0	9	25	0
MMC41	0	0	0	10	0	77	11	9
MMC44	0	0	7	2	0	24	41	0
MMC48	0	0	9	3	0	26	21	0
MMC52	0	0	4	0	0	22	16	0
MMC56	0	0	3	3	0	27	22	1
MMC57	0	0	1	21	0	40	4	14
MMC80	0	0	0	1	0	10	31	0
MMC84	0	0	4	2	0	36	50	0
MMC88	0	0	0	4	0	16	31	0
MMC92	0	0	1	1	0	7	5	1
MMC96	0	0	3	2	0	13	12	0
MMC100	0	0	2	0	0	12	18	5
MMC104	0	0	2	0	0	26	17	2
MMC106	0	0	1	2	0	61	15	7
MMC108	0	0	0	3	0	46	18	6
MMC112	0	0	0	19	0	22	31	11
MMC116	0	0	1	48	0	47	8	24
MMC120	0	0	0	75	0	52	19	13
MMC124	6	0	0	64	0	52	43	28
MMC128	0	0	0	87	0	43	77	20
MMC130	3	0	0	16	5	3	16	0
Total	22	1	91	524	5	1169	869	245

Appendix 7.2 Raw phytolith data.

Sample	cuneiform	fusiform	globular echinate	globular granulate	jigsaw piece	lanceolate	oval	papillae
MMC1	1	0	3	13	0	0	0	11
MMC4	0	0	1	8	3	0	12	12
MMC8	0	0	4	18	2	5	13	23
MMC9	0	0	2	8	0	0	26	51
MMC10	0	0	2	3	2	0	23	64
MMC12	0	0	4	43	5	7	5	49
MMC13	3	0	3	6	0	4	37	60
MMC16	0	0	12	49	1	3	9	48
MMC20	0	0	3	27	0	5	17	43
MMC21	0	0	3	57	0	4	16	45
MMC22	0	0	3	66	0	0	30	43
MMC24	0	0	12	58	1	10	13	43
MMC29	0	0	2	26	0	0	27	78
MMC28	0	0	0	42	0	5	28	65
MMC32	0	0	1	11	3	0	28	86
MMC35	0	0	3	18	0	0	19	62
MMC36	0	0	2	21	0	0	15	51
MMC40	0	0	2	12	1	10	28	68
MMC41	1	0	3	12	0	4	14	61
MMC44	0	0	2	19	2	1	33	41
MMC48	0	0	1	26	0	6	15	37
MMC52	0	0	4	53	6	4	30	58
MMC56	0	0	1	30	3	6	23	54
MMC57	2	0	4	16	0	1	12	43
MMC80	0	0	0	6	5	6	35	54
MMC84	0	0	2	11	0	9	29	64
MMC88	0	0	1	5	0	1	39	52
MMC92	0	0	0	3	6	6	16	41
MMC96	0	0	1	5	1	1	24	54
MMC100	0	0	1	5	6	0	36	28
MMC104	3	0	1	12	1	0	21	47
MMC106	0	0	7	13	0	0	12	52
MMC108	1	1	2	8	8	0	22	23
MMC112	3	0	4	4	0	16	29	54
MMC116	25	0	0	1	0	0	47	47
MMC120	18	0	3	6	0	1	34	82
MMC124	15	0	1	2	0	7	27	89
MMC128	6	0	0	4	0	5	18	96
MMC130	0	0	15	163	0	0	7	8
Total	**78**	**1**	**115**	**890**	**56**	**127**	**869**	**1987**

Appendix 7.2 (continued)

Sample	parallelipedal	platey	polylobe	rectangular	reniform	rondel	saddle	scutiform
MMC1	0	0	3	0	0	89	2	0
MMC4	0	0	4	0	0	135	9	4
MMC8	0	0	0	0	0	76	0	9
MMC9	4	0	3	35	0	33	9	0
MMC10	0	0	2	25	0	45	2	0
MMC12	0	0	9	0	0	86	0	0
MMC13	5	0	0	33	2	38	3	0
MMC16	0	0	3	0	0	102	0	0
MMC20	0	0	5	20	0	82	0	0
MMC21	3	0	1	26	0	68	2	0
MMC22	9	0	0	37	0	38	9	0
MMC24	0	0	1	6	0	96	0	0
MMC29	0	0	2	30	0	64	4	0
MMC28	0	6	4	0	0	81	5	0
MMC32	0	0	4	9	0	63	7	0
MMC35	5	0	0	44	0	19	3	0
MMC36	0	0	2	5	0	70	3	0
MMC40	0	0	3	23	0	60	7	0
MMC41	2	0	2	34	0	32	0	0
MMC44	0	0	4	19	0	50	2	0
MMC48	0	0	1	14	0	59	3	0
MMC52	0	1	1	10	0	50	2	0
MMC56	0	1	6	24	0	47	4	0
MMC57	11	0	0	35	0	35	0	0
MMC80	0	0	1	26	0	28	0	0
MMC84	0	0	1	7	0	47	3	0
MMC88	0	6	2	0	0	39	2	1
MMC92	0	0	6	0	0	78	9	0
MMC96	0	0	5	0	0	42	13	0
MMC100	0	0	0	0	0	59	2	0
MMC104	0	2	1	3	0	88	2	0
MMC106	2	0	2	29	0	36	8	0
MMC108	2	12	3	0	0	91	4	1
MMC112	1	0	0	24	0	19	12	2
MMC116	3	0	0	22	3	12	0	7
MMC120	3	0	0	29	1	13	5	0
MMC124	5	0	0	34	0	11	2	0
MMC128	4	0	0	35	0	8	3	0
MMC130	0	0	0	0	1	16	4	0
Total	59	28	81	638	7	2105	145	24

Appendix 7.2 (continued)

Sample	square	stellate	stomata	tracheid	trapezoid	unciform	unidenti-fied 1	elongate columellate
MMC1	0	0	6	0	31	0	9	0
MMC4	8	0	3	0	26	0	0	0
MMC8	14	0	0	0	18	0	0	0
MMC9	28	0	1	0	29	0	0	0
MMC10	29	0	1	0	52	0	0	0
MMC12	10	0	1	0	30	0	0	0
MMC13	38	0	0	0	21	0	0	0
MMC16	11	0	1	0	20	0	0	0
MMC20	8	0	4	0	30	0	0	0
MMC21	18	0	0	0	32	0	0	0
MMC22	30	0	0	0	24	0	0	0
MMC24	9	0	4	0	38	0	1	0
MMC29	22	0	1	0	22	0	0	0
MMC28	15	0	2	0	15	0	0	0
MMC32	24	0	8	0	21	0	0	0
MMC35	20	0	2	0	45	0	0	2
MMC36	10	0	3	0	29	0	0	0
MMC40	0	0	1	0	28	0	0	0
MMC41	12	0	3	0	31	0	0	0
MMC44	11	0	3	0	36	0	0	0
MMC48	6	0	3	0	58	0	0	0
MMC52	12	0	2	0	33	0	0	0
MMC56	17	0	2	0	58	0	2	0
MMC57	12	0	2	0	65	0	0	0
MMC80	12	0	10	0	40	0	0	0
MMC84	5	0	1	0	60	0	0	0
MMC88	51	0	9	0	27	0	8	0
MMC92	16	0	9	0	25	0	8	0
MMC96	20	0	5	0	41	0	3	0
MMC100	19	0	5	0	35	0	0	0
MMC104	16	0	7	0	54	0	2	0
MMC106	14	0	4	0	87	0	0	0
MMC108	33	0	3	0	53	0	5	0
MMC112	30	0	2	0	33	0	0	0
MMC116	34	0	3	0	62	0	2	0
MMC120	37	0	1	0	29	0	0	0
MMC124	29	0	0	0	57	0	0	0
MMC128	39	0	0	0	42	0	0	0
MMC130	0	1	19	1	16	1	174	0
Total	719	1	131	1	1453	1	214	2

Appendix 7.2 (continued)

Sample	elongate crenate	elongate dendritic	elongate echinate	elongate favose	elongate granulate	elongate lacunose	elongate laminate	elongate par-allelpipedal
MMC1	5	24	59	0	0	0	0	0
MMC4	0	11	38	0	0	0	0	0
MMC8	0	13	42	0	0	0	0	0
MMC9	0	10	40	0	0	0	0	0
MMC10	0	8	21	0	0	0	0	0
MMC12	0	18	84	0	0	0	0	1
MMC13	0	6	40	0	0	0	0	0
MMC16	1	8	77	0	0	0	0	0
MMC20	0	11	76	0	0	0	0	0
MMC21	0	8	38	0	0	0	0	0
MMC22	0	7	44	0	0	0	0	0
MMC24	0	9	82	0	0	0	0	0
MMC29	0	6	52	0	0	0	2	0
MMC28	0	12	44	0	0	1	0	0
MMC32	0	14	80	0	0	0	2	0
MMC35	0	7	41	0	0	0	0	0
MMC36	0	24	109	0	0	0	1	0
MMC40	0	9	107	0	0	0	0	0
MMC41	5	5	67	0	0	0	0	0
MMC44	0	11	107	0	0	0	0	0
MMC48	1	9	115	0	0	0	0	0
MMC52	2	10	36	0	0	0	3	0
MMC56	0	5	62	0	0	0	5	0
MMC57	0	6	114	0	0	0	0	0
MMC80	2	9	61	0	0	0	5	0
MMC84	3	12	90	0	1	0	3	0
MMC88	0	4	40	0	0	0	0	0
MMC92	0	15	59	0	0	0	0	0
MMC96	0	1	72	0	0	0	0	0
MMC100	0	46	76	0	0	0	2	0
MMC104	0	19	62	0	0	0	10	0
MMC106	0	7	65	0	0	0	2	0
MMC108	0	20	74	1	0	0	6	0
MMC112	0	3	51	0	0	0	2	0
MMC116	0	2	13	0	0	0	1	0
MMC120	0	4	15	0	0	0	2	0
MMC124	0	2	4	0	0	0	1	0
MMC128	0	0	10	0	0	0	0	0
MMC130	0	0	2	0	0	0	0	0
Total	19	395	2269	1	1	1	47	1

Appendix 7.2 (continued)

Sample	elongate psilate	elongate sinuate	elongate trapeziform	elongate verrucate	hair base	hair/ trichome	Multicells	TOTAL
MMC1	58	113	4	0	2	34	13	509
MMC4	62	108	9	0	4	17	13	509
MMC8	61	147	23	0	1	14	10	518
MMC9	33	43	4	0	9	14	5	564
MMC10	38	37	0	0	6	55	6	528
MMC12	48	108	6	0	6	18	10	588
MMC13	37	40	0	0	3	27	5	540
MMC16	46	51	5	0	2	32	14	517
MMC20	28	106	3	0	2	19	5	514
MMC21	27	53	8	0	2	25	1	525
MMC22	14	37	4	0	4	46	3	542
MMC24	24	70	9	0	2	9	2	522
MMC29	36	31	2	0	1	47	5	562
MMC28	34	64	1	0	21	28	17	529
MMC32	56	67	3	0	18	40	5	591
MMC35	38	27	5	0	3	26	8	544
MMC36	56	69	7	0	3	39	7	567
MMC40	42	84	3	0	8	16	10	564
MMC41	44	35	5	0	5	41	6	531
MMC44	27	53	1	0	6	20	11	533
MMC48	43	55	7	0	6	13	2	539
MMC52	62	62	13	0	10	18	9	533
MMC56	63	82	7	0	9	36	13	616
MMC57	41	25	8	0	3	20	12	547
MMC80	81	116	4	0	4	22	15	584
MMC84	46	78	6	0	2	24	5	601
MMC88	83	35	0	0	10	44	15	525
MMC92	92	78	3	0	3	25	13	526
MMC96	83	105	1	0	9	23	11	550
MMC100	80	84	5	0	0	36	15	577
MMC104	70	80	5	0	3	27	9	592
MMC106	39	48	8	1	2	22	12	558
MMC108	40	93	6	0	1	24	1	611
MMC112	60	51	0	0	10	20	2	515
MMC116	50	10	0	0	14	34	0	520
MMC120	36	9	0	0	10	31	0	528
MMC124	17	5	0	0	11	11	0	517
MMC128	16	4	0	0	6	9	0	532
MMC130	27	13	1	0	3	8	2	522
Total	1838	2376	176	1	224	1014	292	21290

Appendix 7.2 (continued)

Sample	Unidentified phytoliths	Silica aggregate	Burnt phytoliths	Biogenic Silica	Diatoms	Pollen	% dendritics	% multicells
MMC1	27	0	0	0	0	14	4.72	2.55
MMC4	38	0	1	0	0	3	2.16	2.55
MMC8	35	0	0	0	0	4	2.51	1.93
MMC9	4	0	54	3	0	0	1.77	0.89
MMC10	12	0	1	4	0	0	1.52	1.14
MMC12	44	0	0	0	0	0	3.06	1.70
MMC13	4	0	12	3	0	0	1.11	0.93
MMC16	23	0	0	0	0	4	1.55	2.71
MMC20	37	0	0	0	0	5	2.14	0.97
MMC21	9	0	3	1	0	0	1.52	0.19
MMC22	10	0	9	0	0	0	1.29	0.55
MMC24	28	0	0	0	0	2	1.72	0.38
MMC29	7	0	14	1	0	0	1.07	0.89
MMC28	45	0	3	0	0	0	2.27	3.21
MMC32	48	0	0	0	0	0	2.37	0.85
MMC35	15	0	6	11	0	0	1.29	1.47
MMC36	40	0	0	4	0	2	4.23	1.23
MMC40	46	0	0	0	0	1	1.60	1.77
MMC41	7	0	10	2	0	0	0.94	1.13
MMC44	25	0	0	0	0	0	2.06	2.06
MMC48	34	0	0	0	0	0	1.67	0.37
MMC52	30	0	1	0	0	3	1.88	1.69
MMC56	26	0	0	0	0	6	0.81	2.11
MMC57	10	0	8	3	0	0	1.10	2.19
MMC80	9	0	0	0	0	0	1.54	2.57
MMC84	7	0	11	0	0	0	2.00	0.83
MMC88	13	0	20	0	0	0	0.76	2.86
MMC92	3	0	2	0	0	0	2.85	2.47
MMC96	11	0	2	0	0	0	0.18	2.00
MMC100	18	3	12	5	6	0	7.97	2.60
MMC104	16	0	1	2	0	0	3.21	1.52
MMC106	9	0	3	4	0	0	1.25	2.15
MMC108	15	2	7	1	0	0	3.27	0.16
MMC112	46	0	24	9	3	4	0.58	0.39
MMC116	19	0	27	1	0	0	0.38	0.00
MMC120	21	4	37	5	0	0	0.76	0.00
MMC124	23	1	14	9	0	0	0.39	0.00
MMC128	12	0	4	26	0	0	0.00	0.00
MMC130	51	0	0	8	0	34	0.00	0.38
Total	**877**	**10**	**286**	**102**	**9**	**82**		

Appendix 7.2 (continued)

Sample	% short cells	% long cells	C4 %	C3 %	D/P	Iph (%)	Ic (%)	Fs (%)
MMC1	38.70334	34.38114	0.392927	33.79175	0.093567	40	95.37037	6.896552
MMC4	48.52652	35.16699	2.357564	43.222	0.040724	56.25	91.01124	0.431034
MMC8	39.96139	44.59459	1.351351	33.97683	0.127168	0	94.0678	0
MMC9	71.98582	14.1844	1.950355	68.08511	0.028818	64.28571	93.69369	11.39241
MMC10	67.61364	14.20455	0.757576	65.34091	0.015823	33.33333	96.84211	2.86533
MMC12	49.14966	27.55102	0.170068	39.96599	0.221698	0	91.86992	1.271186
MMC13	70.74074	14.25926	0.740741	68.33333	0.027027	75	98.22222	4.825737
MMC16	54.35203	19.72921	0.193424	41.97292	0.293269	0	97.08029	0
MMC20	51.36187	26.6537	0.389105	44.35798	0.131004	0	95.36424	0
MMC21	69.14286	16.7619	0.380952	57.90476	0.212766	66.66667	98.42105	2.614379
MMC22	70.66421	10.1476	1.660517	56.27306	0.240418	100	95.65217	4.140127
MMC24	60.34483	19.7318	0.383142	45.4023	0.307018	0	97.77778	0.83682
MMC29	67.61566	12.27758	1.067616	61.3879	0.08589	50	96.22642	3.988604
MMC28	58.03403	18.71456	3.213611	45.74669	0.166008	23.80952	87.19512	0.772201
MMC32	51.77665	21.3198	1.522843	46.3621	0.046875	53.84615	91.21622	0.353357
MMC35	71.13971	12.86765	1.286765	65.625	0.061404	42.85714	96.60194	7.967033
MMC36	44.44444	23.28042	1.587302	38.44797	0.109005	27.27273	91.47287	0.440529
MMC40	50.53191	22.87234	2.304965	45.39007	0.057377	43.75	88.23529	0.743494
MMC41	59.88701	15.81921	0	56.49718	0.051903	0	98.9011	3.333333
MMC44	55.72233	15.197	1.688555	49.15572	0.091304	15.38462	91.33333	0.738007
MMC48	53.43228	19.48052	2.226345	45.64007	0.113924	23.07692	90.22556	1.162791
MMC52	57.78612	25.70356	1.125704	44.27767	0.252212	28.57143	94.65649	0
MMC56	54.22078	24.67532	1.136364	46.75325	0.113553	30.76923	91.44737	1.016949
MMC57	58.13528	13.52834	0.182815	53.93053	0.068493	0	99.375	7.094595
MMC80	45.37671	34.41781	0	41.78082	0.028169	0	99.10714	0.409836
MMC84	55.07488	21.63062	1.164725	51.5807	0.048689	37.5	93.93939	0.630915
MMC88	56	22.47619	0.380952	50.09524	0.025641	50	97.31544	1.509434
MMC92	45.24715	32.88973	1.901141	38.40304	0.014493	56.25	88.0597	0.471698
MMC96	44.54545	34.36364	2.909091	38.90909	0.027523	61.90476	82.5	0.869565
MMC100	40.38128	29.28943	0.693241	36.74177	0.030303	50	97.03704	0
MMC104	51.85811	26.18243	0.675676	46.95946	0.049057	40	96.89441	0
MMC106	63.08244	17.2043	1.612903	57.16846	0.063898	72.72727	93.60465	0.609756
MMC108	56.46481	22.74959	0.654664	49.59083	0.034602	57.14286	96.61836	0.977199
MMC112	61.35922	21.5534	2.330097	57.08738	0.029091	100	91.89189	6.20915
MMC116	76.15385	11.53846	0.192308	74.80769	0.002618	0	99.47368	12.30769
MMC120	79.73485	8.522727	0.94697	76.89394	0.022959	100	97.31183	18.24818
MMC124	90.1354	4.255319	0.386847	90.32882	0.007042	100	98.93617	13.64606
MMC128	91.54135	3.759398	0.56391	90.22556	0.009852	100	98.23529	18.01242
MMC130	89.27203	7.854406	0.766284	18.00766	2.197531	100	86.66667	16.49485

Appendix 7.2 (continued)

Sample	% globular granulate	% globular echinate	Novello/Barboni 2015
MMC1	2.554028	0.589391	12.30769231
MMC4	1.571709	0.196464	4.74137931
MMC8	3.474903	0.772201	6.989247312
MMC9	1.41844	0.35461	2.801120448
MMC10	0.568182	0.378788	2.469135802
MMC12	7.312925	0.680272	7.826086957
MMC13	1.111111	0.555556	1.769911504
MMC16	9.477756	2.321083	3.703703704
MMC20	5.252918	0.583658	4.583333333
MMC21	10.85714	0.571429	2.75862069
MMC22	12.17712	0.553506	2.380952381
MMC24	11.11111	2.298851	3.797468354
MMC29	4.626335	0.355872	1.807228916
MMC28	7.939509	0	4.528301887
MMC32	1.861252	0.169205	5.185185185
MMC35	3.308824	0.551471	2.005730659
MMC36	3.703704	0.352734	10.21276596
MMC40	2.12766	0.35461	3.557312253
MMC41	2.259887	0.564972	1.700680272
MMC44	3.564728	0.375235	4.564315353
MMC48	4.823748	0.185529	3.658536585
MMC52	9.943715	0.750469	4.237288136
MMC56	4.87013	0.162338	1.798561151
MMC57	2.925046	0.731261	2.013422819
MMC80	1.027397	0	4.054054054
MMC84	1.830283	0.332779	4.301075269
MMC88	0.952381	0.190476	1.680672269
MMC92	0.570342	0	6.756756757
MMC96	0.909091	0.181818	0.456621005
MMC100	0.866551	0.17331	18.85245902
MMC104	2.027027	0.168919	6.690140845
MMC106	2.329749	1.25448	2.1875
MMC108	1.309329	0.327332	6.472491909
MMC112	0.776699	0.776699	1.079136691
MMC116	0.192308	0	0.520833333
MMC120	1.136364	0.568182	1.01010101
MMC124	0.386847	0.193424	0.46728972
MMC128	0.75188	0	0
MMC130	31.22605	2.873563	0

Appendix 7.2 (continued)