

**Supplement 2.** Description of the studied thin sections of clasts and matrix samples

Complex	Sample	Lithology	Bioclasts (main stratigraphic indicators are underlined)	Other components	Age
A	PA A	Štramberg-type limestone (intraclastic-coated rudstone)	Calcimicrobes, corals, larger benthic forams, dasycladalean green algae, echinoderm elements, gastropod shells, calcified sponges, <u>calcareous dinocysts</u> ( <i>Cadosina fusca fusca</i> Wanner), chitinoidea?	Intraclasts, cortoids	Latest Jurassic–earliest Cretaceous (the most probably Tithonian or Berriasian)
	PA B	Laminated radiolarian-foraminiferal wackestone; partly silicified	<u>Planktic forams</u> , radiolarians, sponge spicules, holothurian sclerites; bioclasts are silicified	–	late Early Cretaceous–early Late Cretaceous
	PA C	Fine-grained sandstone with calcareous-clay cement	<u>Planktic forams</u> , small benthic calcareous forams, calcareous dinocysts, sponge spicules, radiolarians, holothurian sclerites; bioclasts are silicified	Mainly quartz, glauconite, muscovite	Late Cretaceous
	PA D	Microsparitic limestone	No recognizable fossils were found	Peloids	?
	PA E	Bioclastic wackestone/ packstone with nummulites	<u>Nummulites</u> and smaller benthic forams, planktic forams, fragments of red coralline algae and bryozoan colonies, crinoid trochites, echinoid spines, serpulids, ostracod carapaces	–	Paleogene
	PA F	Štramberg-type limestone (reef-delivered bioclastic rudstone)	Fragments of corals, calcified sponges, bivalve and brachiopod shells, incrusting bryozoans, crinoid trochites, echinoid spines, <i>Crescentiella morronensis</i> (Crescenti), <i>Carpathocancer triangulatus</i> (Mišík et al.), <i>Thaumatoporella parvovesiculifera</i> (Raineri), agglutinated and calcareous benthic forams (including <i>Protopenneropsis cf. striata</i> Weynschenk, lagenids, miliolids, spirillinids), ostracod carapaces, calcareous dinocysts	Intraclasts, peloids	Late Jurassic, the most probably Tithonian
	PA G	Fine-grained sandstone with siliceous cement	No recognizable fossils were found	Mainly quartz, glauconite, feldspars, muscovite, heavy minerals	?
	PA H	Štramberg-type limestone (intraclastic-bioclastic grainstone); partly silicified	Bivalve shells, crinoid elements, coral and calcified sponge fragments, <i>C. morronensis</i> , serpulids, echinoid spines, dasycladalean algae, calcareous and agglutinated benthic forams (including lagenids, trocholinids, miliolids), ostracod carapaces, calcareous dinocysts	Intraclasts, ooids	Latest Jurassic–earliest Cretaceous (the most probably Tithonian or Berriasian)
	PA I	Štramberg-type limestone (intraclastic rudstone); partly silicified	Crinoid elements, <i>C. morronensis</i> , dasycladalean algae, fragments of calcified sponges, bivalve shells and brachiopods, gastropod shells, bryozoan colonies, serpulids, holothurian sclerites, <i>Mercierella? dacica</i> Dragastan, calcareous and agglutinated benthic forams (including miliolids, trocholinids), calcareous dinocysts, <u>chitinoideidells</u> , ostracod carapaces	Intraclasts, peloids	Early late Tithonian (Boneti Subzone of Chitinoidea Zone according to calpionellid zonation)
	PA IA	Laminated siliceous, muddy marl	Fragments of unrecognizable shells	Mainly quartz grains	?
	PA IB	Laminated mudstone with ferruginous cement	No recognizable fossils were found	Mainly quartz, muscovite, heavy minerals	?
	PA IC	Siltstone with siliceous cement	No recognizable fossils were found	Mainly quartz, muscovite, glauconite	?
	PA ID	Štramberg-type limestone (coral boudstone)	Corals encrusted by, among others, bryozoans, <i>C. morronensis</i> , <i>Terebella lapilloides</i> Münster, <i>Koskinobullina socialis</i> Cherchi et Schroeder, <i>M.? dacica</i> , crinoid elements, calcareous and agglutinated benthic forams (including lagenids, spirillinids), ostracod carapaces.	–	Latest Jurassic–earliest Cretaceous (the most probably Tithonian or Berriasian)

Complex	Sample	Lithology	Bioclasts (main stratigraphic indicators are underlined)	Other components	Age
	PA J	Fine-grained quartz sandstone	No recognizable fossils were found	Quartz, subordinately glauconite, heavy minerals	?
A	PA 2	Medium-grained sandstone with over-sized grains up to 7 mm and calcareous-clay cement	<u>Planktic forams</u> , benthic calcareous forams, echinoid spines, calcareous dinocysts, ostracod carapaces, rare fragments of bivalve shells.	Quartz, glauconite, subordinately heavy minerals, muscovite, clasts of Štramberg-type limestones and clastic rocks	Paleogene
	PA 12A	Marly, sandy limestone (mudstone)	Poorly preserved calcified sponge spicules?, <u>planktic forams</u> , calcareous benthic forams, calcareous dinocysts	Quartz, glauconite	Paleogene
	PA 12B	Štramberg-type limestone (microbialite and peloid-bioclastic wackestone to packstone)	Serpulids, <i>C. morronensis</i> , bryozoan colonies, calcified sponge spicules, ostracod carapaces, <i>C. triangulatus</i> , <i>K. socialis</i> , <i>M.? dacica</i> , calcareous and agglutinated benthic forams (including lagenids, trocholinids, miliolids, spirillinids), <u>chitinoideids</u> , <i>Globochaete alpina</i> Lombard, calcareous dinocysts.	Ooids and other coated grains, peloids	Early late Tithonian (Boneti Subzone of Chitinoideella Zone according to calpionellid zonation)
	PA 13A	Sandy, partly silicified crinoid limestone	Fine fragments of crinoid elements, fragments of bryozoan colonies, calcareous benthic forams (including miliolids, <u>neotrocholinids</u> ).	Quartz, calcite, glauconite, heavy minerals, small clast with <i>Crassicollaria</i> sp. (age: J/K)	Early Cretaceous
	PA 13B	Štramberg-type limestone (peloid-bioclastic packstone/grainstone)	Crinoid plates, fragments of bivalve shells and corals, calcified sponge spicules, <i>C. morronensis</i> , <i>Labes atramentosa</i> Eliášová, <i>M.? dacica</i> , <i>T. lapilloides</i> , dasycladalean algae, gastropods, <i>Saccocoma</i> , ophiuroid vertebrae, calcareous and agglutinated benthic foraminifera (including trocholinids, neotrocholinids, miliolids, lagenids), <i>G. alpina</i> , ostracod carapaces, calcareous dinocysts, <u>chitinoideids</u> , <u>calpionellids</u>	Peloids, ooids	Early late Tithonian (base of Crassicollaria Zone according to calpionellid zonation)
	PA 13C	Brecciated Štramberg-type limestone	Fragments of bivalve shells and echinoderm elements, echinoid spines, calcareous benthic forams, <u>calcareous dinocysts (including poorly preserved <i>Committosphaera pulla</i> (Borza))</u> , <i>C. morronensis</i>	Ooids, peloids	Tithonian
Above Complex A	PA 14 – sample of matrix	Fine-grained sandstone with calcareous cement	<u>Planktic forams</u> , calcareous benthic forams, holothurian sclerites, calcareous dinocysts, echinoid spines	Quartz, glauconite, subordinately muscovite, heavy minerals	Paleogene
B	PA 17 – sample of matrix	Medium-grained sandstone with over-sized grains up to 8 mm and calcareous-clay cement	<u>Planktic forams</u> , calcareous benthic forams, echinoid spines	Quartz, glauconite, subordinately heavy minerals, muscovite, clasts mainly of Štramberg-type limestones	Paleogene
E	UK 1	Fine-grained sandstone, poor in cement	No recognizable fossils were found	Quartz, muscovite, glauconite, subordinately plagioclases, heavy minerals	?
	UK 2	Fine-grained sandstone with calcareous-clay cement	<u>Planktic forams</u> , calcareous benthic forams, fragments of bivalve shells, sponge spicules, holothurian sclerites, echinoid spines	Quartz, glauconite, muscovite, heavy minerals, feldspars, small lithoclasts	Paleogene
	UK 3	Štramberg-type limestone (coral boundstone); partly silicified	<i>C. morronensis</i> , crinoid plates, echinoid spines, ostracod carapaces, gastropods, <i>G. alpina</i> , <i>M.? dacica</i> , bryozoan colonies, corals, “Lithocodium”, calcareous and agglutinated benthic forams (including miliolids, neotrocholinids, spirillinids), <i>Saccocoma</i> , calcareous dinocysts	Peloids	Tithonian

Complex	Sample	Lithology	Bioclasts (main stratigraphic indicators are underlined)	Other components	Age
E	UK 4	Štramberg-type limestone (microbial-sponge boundstone)	Bivalve and gastropod shells, calcified sponge spicules, fragments of corals, <i>T. lapilloides</i> , bryozoans zooecia, <u><i>Saccocoma</i></u> , calcareous benthic forams (including lagenids, miliolids, neotrocholinids), ostracod carapaces, <i>G. alpina</i> , <i>M.?</i> <i>dacica</i> , calcareous dinocysts	Coated grains	Tithonian
	UK 5	Laminated, fine- to thick-grained sandstone with calcareous-clay cement	<u>Planktic forams</u> , calcareous benthic forams, echinoid spines, fragments of bivalve shells, sponge spicules	Quartz, glauconite, subordinately muscovite	Paleogene
	UK 6	Štramberg-type limestone (poorly washed bioclastic-coated grainstone)	Bivalve and brachiopod shells, crinoid, echinoids and holothurian elements, <i>C. morronensis</i> , <i>M.?</i> <i>dacica</i> , <i>G. alpina</i> , bryozoan zooecia and colonies, <i>K. socialis</i> , ostracod carapaces, calcareous dinocysts, agglutinated and <u>calcareous benthic forams</u> (including lagenids, neotrocholinids, miliolids), <u>calpionellids – <i>Crassicollaria intermedia</i> (Durand Delga)</u>	Ooids, cortoids	Late Tithonian (Crassicollaria Zone according to calpionellid zonation)
	UK 7	Sandy peloid-foraminiferal grainstone	Calcareous benthic forams, <u>planktic forams</u> , fragments of undeterminable shells, coralline red algae and bryozoan colonies, echinoid spines	Quartz, glauconite, peloids	Paleogene
	UK 8	Calcareous gaize	Sponge spicules, poorly preserved fragments of calcareous benthic forams, bryozoans, undeterminable shells and crinoids plates	Quartz, glauconite	?
	UK 9	Sandy spiculite packstone	Sponge spicules (occasionally calcified), calcareous benthic and agglutinated forams (including miliolids, spirillinids), <u>planktic forams</u> , fragments of bryozoan colonies and bivalve shells, crinoid plates, ostracod carapaces, echinoid spines, algae, holothurian sclerites; bioclasts partly silicified.	Quartz, glauconite	Not older than late Early Cretaceous
	UK 10	Laminated fine-grained sandstone with calcareous-clay cement	<u>Planktic forams</u> , calcareous benthic forams, fragments of bivalve shells, crinoid plates, echinoid spines, sponge spicules	Quartz, glauconite, subordinately muscovite, feldspars, lithoclasts	Paleogene
	UK 11	Štramberg-type limestone (coral boundstone and microbial-fine-peloid bindstone), partly silicified; void filled with younger sediment with planktic forams	Corals, “Lithocodium” and other microencrusters, <i>T. lapilloides</i> , <i>C. morronensis</i> , echinoid spines, bivalve shells, crinoid elements, <i>G. alpina</i> , Bacinella-type structures, <i>M.?</i> <i>dacica</i> , fragments of bryozoan colonies, <i>K. socialis</i> , calcareous benthic and agglutinated forams (including neotrocholinids, miliolids, spirillinids, <i>Protomarssonella kummi</i> (Zedler), <i>Uvigerinammina uvigeriniformis</i> (Seibold et Seibold), <i>Quinqueloculina multicostata primitiva</i> (Neagu)), <u>calcareous dinocysts (<i>Colomisphaera tenuis</i> (Nagy))</u>	Fine-peloid fabric	Late Tithonian or Berriasian (deposit in void: not older than mid Cretaceous)
	UK 12	Laminated fine- to medium-grained sandstone with calcareous-clay cement	<u>Planktic forams</u> , calcareous benthic forams, holothurian sclerites, fine fragments of undeterminable shells, echinoid spines, sponge spicules, calcareous dinocysts	Quartz, glauconite, subordinately muscovite	Paleogene
	UK 13	Medium- to thick-grained sandstone with calcareous-clay cement	Sponge spicules, calcareous benthic forams, <u>planktic forams</u> , holothurian sclerites	Quartz, glauconite, subordinately clasts of Štramberg-type limestones and marls with planktic forams	Paleogene