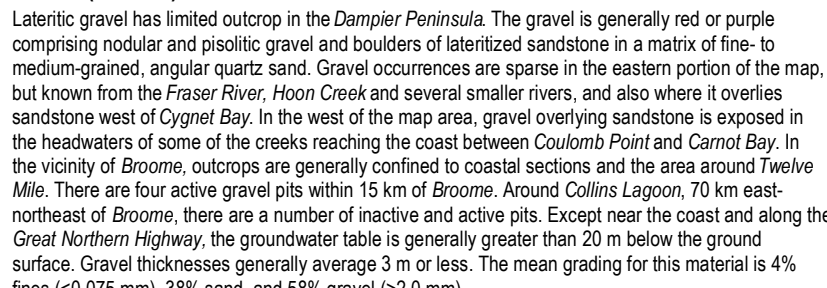


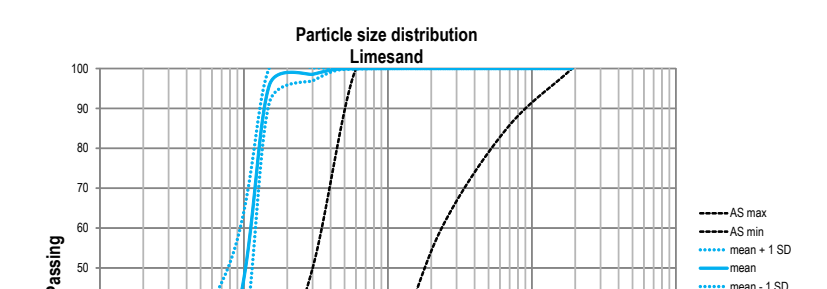
Surficial materials

Gravel (lateritic)



Limesand

Limesand occurs as narrow, discontinuous strips of closely spaced, low-relief, coastal dunes. These range from 200 m to 2500 m wide, are composed of pale pinkish grey quartz sand and shell debris, and occur between Broomes and the northerly tip of the Dampier Peninsula, and on the west side of King Sound. These longitudinal and parabolic dunes are generally unstable with foredunes and floral dunes susceptible to wave and wind erosion and large areas of blowouts along much of the coast. The mean grading for this material is 30% fines (<0.075 mm) and 70% sand (0.075 – 2.0 mm). Known CaCO₃ values range between 14% and 49%. For all deposits, the groundwater table is generally less than 10 m below the ground surface. There has been no recorded production of limesand from the Shire of Derby – west Kimberley and very minimal production from the Shire of Broome.



Limestone

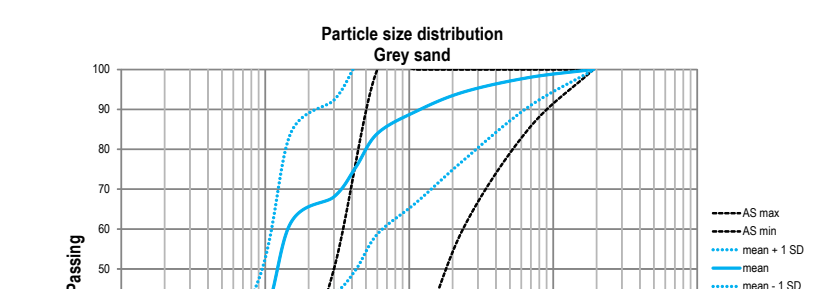
Shore-parallel, rounded limestone ridges between Broome and Cape Boileau, and scattered occurrences further north to Cape Leveque, are the major limestone resource of the region. The limestone is pale yellowish brown, contains quartz and shell debris, and is variably lithified. Known CaCO_3 values range between 51% and 72%. There are no active workings but this limestone has been worked in the past between Coconut Wall and Willie Creek.

Sand and gravel

Four main categories of sand are defined: gray sand, red sand, reddish brown sand, and yellow sand. A separate category of sand and gravel is described.

Grey sand

The landward margin of the supratidal flats of Millies Creek, Cable Beach, Dampier Creek and Aroobuck Plains include a narrow band of pale-grey to grey, fine-grained silty sand composed of subrounded to well-rounded quartz with fine-grained silt debris and occasional white shells. This grey sand is also found as discontinuous bands in some bays around the Dampier Peninsula, including, Pender, Goodenough, and Disaster. Lateritic grading is a significant component in some deposits. Pits have not been developed in this material. Thickness of the grey sand ranges from 0.3 m to 1 m in water bays. The groundwater table in these areas is very shallow and saline. The mean grading for this material is 27% fines (<0.075 mm), 67% sand, and 6% gravel (>2.0 mm).

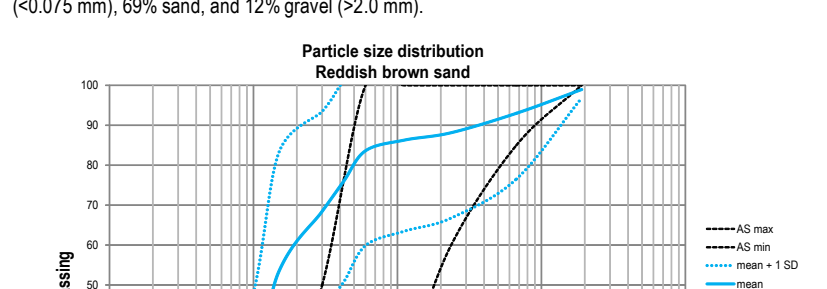


Red sand

Parallel eolian dunes oriented east-west and up to 1 km apart, are found in the east to southeastern part of the map area. These dunefields consist of red, loose, siliceous, fine- to medium-grained sands, with minor silt and can be up to 20 m thick. No quarries are found in areas mapped as red sand.

Reddish brown sand

The greater part of the relict consists of extensive, gently undulating, low-relief sandplains with areas of through-going drainage. The material is reddish brown, heterogeneous, fine-grained, comprising subrounded quartz grains in a variably silty matrix. It is known locally as *pendin*. Many inactive and several active pits have been developed in this sand, especially within a 20 km radius of Broome and along the Broome – Cape Leveque Road. Borehole evidence shows that thicknesses vary markedly, even on the local scale, but are generally in the order of 5–10 m, although material up to 20 m thick has been proved. The groundwater table is generally greater than 20 m below the ground surface except closer to the coast and between Roebuck Bay and Millabubba, where it is generally less than 10 m below the ground surface, but is often much shallower. The mean grading for these material is 15% fines

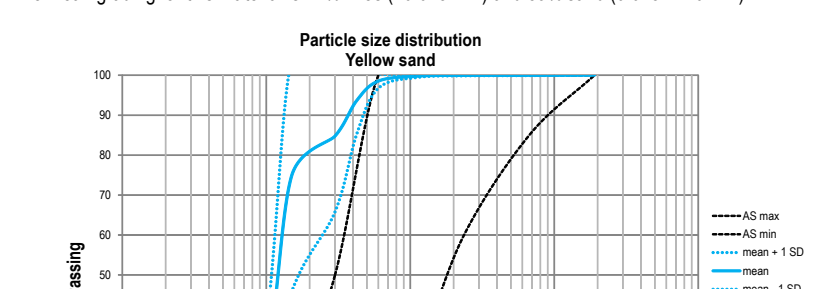


Sand and gravel

Stream channels with bedloads of sand and some gravel are found in several areas across the Dempster map area. Valley flats that reach the coast between Coulbault Point and Camel Bay are generally less than 400 m wide and contain grey and brown sands and silty sands. Sand and gravel is found in drainage areas flowing into Biagle and Porter Bays and the river catchments flowing into the west side of King Sound. Drainage floors that enter Redoubt Plains contain brown silt sands resting on isotonic gravels, and localized areas of groundwater colcrete. Thicknesses of this material are generally less than 1 m. All streams are prone to flash flooding.

Yellow sand

Residual sand derived from the weathering of the coastal limestone is found as a cover to the limestone between Broome and Coconut Well. The material is pale yellowish brown, occasionally pink because of included ferruginous dust, fine- to medium-grained, moderately sorted quartz sand. Pits have not been developed in this material. The groundwater table is generally less than 10 m below the ground surface. The mean grading for this material is 11% fines (<0.075 mm) and 89% sand (0.075 – 2.0 mm).



Hard rocks

Sandstone is the bedrock to the region. The dominant rock types are sub-horizontal or gently dipping, fine- to coarse-grained, locally thin bedded to laminated sandstone, siltly sandstone, and siltstone. Sandstone outcrops. These rocks are the only sources of high-length hard rock for crushed-rock aggregate. Sandstone is found in the following areas: (1) along the coast where the shoreline is exposed; (2) within and surrounding the Pointe à la Peste area where the sandstone is only exposed in very narrow channels eroded through the low-lying plain sandstone. A prominent northwest-southeast trending ridge of hills between Mount Jorjensborg and Nellikudbarra, 10 km east of the town along the Great North Highway, has sandstone well exposed for dimensions suitable for aggregate. (3) In the south, the sandstone is exposed in a series of smaller series of sandstone outcrops which trend northwest-southeast and have been quarried periodically for aggregate and dimension stone. A single operating quarry 3 km southwest of Nellikudbarra supplies concrete and aggregate. (4) In the north, the sandstone is exposed in a broad outcrop of sandstone around Coyne Bay and the ridge line to the east of Cape Point.

