

Age	Formation or deposit	Thickness (feet)	Unweathered material		Weathered material	
			Lithology	Mining terminology	Lithology	Mining terminology
Recent or Pleistocene	Terrace deposits	0-58	Unconsolidated quartz sand and swamp deposits (muck and peat)	Overburden	Unconsolidated quartz sand and swamp deposits (muck and peat)	Overburden
Pliocene	Bone Valley Formation	Upper unit	Gray or tan clayey sand and sandy clay and sand. Some red and white mottled sandy clay. Beds are lenticular. Minor phosphate nodules, increasing toward base.	Overburden	White slightly clayey sand. May contain some soft dull-white phosphate nodules, particularly at the base.	Overburden
		Lower unit	Phosphorite, sandy and clayey, gray and gray green. Phosphate nodules are sand-to granule-sized, white, gray, and tan. In many places a loose sand or conglomerate of quartz and phosphate at base.	Matrix Calcium phosphate zone Drift rock	White clayey vesicular sand, with nodules of soft, dull-white phosphate. Grades irregularly downward to: Gray or gray-green clayey sand or sandy clay, with abundant sand- and granule-sized phosphate nodules.	Leached zone Aluminum phosphate zone
Miocene	Hawthorn Formation	Upper part	Olive-green micaceous clayey sand. Contains black sand-to fine granule-sized phosphate nodules.		The upper part, known only from a few drill holes, is not altered.	Calcium phosphate zone
		Lower part	Limestone, sandy and clayey, interbedded with sand and clay. All units contain sand-sized black, brown, gray, and amber phosphate nodules.	Bedrock	Where limestone of the lower part underlies the lower unit of the Bone Valley Formation, the limestone may be altered to calcareous sandy clay with brown and black phosphate nodules. The calcareous clay grades downward to limestone.	Bedclay matrix ³
	Tampa Limestone	0-105	Limestone, sandy and clayey, with chert nodules and traces of phosphate.	Bedrock	Calcareous gray-green sandy clay, with chert nodules and up to 20 percent of phosphate nodules. Grades downward to limestone.	The calcareous clay may be a part of the calcium phosphate zone; the limestone, then, is the bedrock
Oligocene	Suwannee Limestone	0-170	Limestone, trace chert, clay, and silt.	Known only from deep drilling—no local terminology	Limestone	
Eocene	Ocala Limestone	160-265	Limestone, pure.		Limestone	

¹ The base of the upper unit, where unweathered, contains calcium phosphate nodules.

² Contact determined by chemical analysis or gamma-ray log.

³ Matrix only when bedclay directly underlies the phosphorite of the Bone Valley Formation when the upper part of the Hawthorn Formation is not present. The upper part of the Hawthorn does not contain enough phosphate to be considered a part of the matrix.

SUMMARY OF STRATIGRAPHY, LITHOLOGY, AND MINING TERMINOLOGY, LAKE LAND QUADRANGLE, FLORIDA