

**RESPONSE 52**

Table III-4-1: Regional Geologic Units and Their Water Bearing Properties

System	Series	Group	Stratigraphic Unit	Hydrologic Unit	Approximate Maximum Thickness (feet)	Character-of-Rocks/Lithology	Water Bearing Properties/Hydraulic Conductivities	Depositional Environment
Quaternary	Recent		Alluvium	Alluvium and Terrace Deposits	60	Water-stratified deposits of unconsolidated calcareous gravel, sand, silt, and clay, with coarser materials usually concentrated in the lower section.	Yields small to very large quantities of fresh to slightly saline water, chiefly along the Colorado River in eastern Travis County. $K = \leq 2,400$ feet per day for gravel alluvium from the Brazos River (Hyder 1996).	Alluvial
		Pleistocene		Terrace Deposits High gravel		60 20	Water-stratified deposits of unconsolidated calcareous gravel, sand, silt, and clay, with the coarser materials at the base. Gravel and sand, sometimes mixed with clay from underlying formations.	Yields very small to moderate quantities of fresh to moderately saline water.
Tertiary	Eocene	Wilcox	Simsboro Sand Member	Wilcox	200	Fine-to-coarse sand and sandstone, sandy clay, with lenses of limestone and lignite.	Yields small to moderate quantities of fresh to moderately saline water. $K = 2-204$ ft/day (Thoroldsen and Price 1991).	Detrital sediments at or near a transgressive shoreline.

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System	Series	Group	Stratigraphic Unit	Hydrologic Unit	Approximate Maximum Thickness (feet)	Character-of-Rocks/Lithology	Water Bearing Properties/Hydraulic Conductivities	Depositional Environment	
Cretaceous		Navarro		Navarro and Taylor Groups	700	Massive beds of shale and marl with clayey chalk, clay, sand, and some nodular and phosphatic zones.	Yields very small quantities of fresh to moderately saline water.	Sediments deposited in a low-energy marine environment.	
		Taylor						Sediments deposited in a low-energy marine environment.	
		Gulf	Austin		Austin Chalk	200	Massive beds of chalk and marl with bentonitic seams, glauconite, pyrite nodules.	Yields small quantities of fresh water.	Sediments deposited in a low-energy open marine shelf environment.
			Eagle Ford		Confining Unit	40	Massive calcareous shale with thin interbeds of silty and sandy, flaggy limestone.	Not known to yield water in Bell County	Marginal (lagoonal) to open marginal marine.
			Washita	Buda Limestone		50	Massive, fine-grained, borrowed, shell-fragment limestone. The upper portion is harder and bluff-forming.	Not known to yield water Bell County.	Shallow subtidal and intertidal.
		Del Rio Clay		Confining Unit	60	Clay and marl with gypsum, pyrite, and a few thin siltstone and sandstone beds.	Not known to yield water in Bell County.	Lagoonal	
				Georgetown Formation	Edwards and associated limestones	75	Thin interbeds of richly fossiliferous, nodular, massive fine-grained limestone and marl.	Yields small to very large quantities of fresh water, especially from cavernous zones in the Edwards Limestone.	Open-shelf subtidal.

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System	Series	Group	Stratigraphic Unit	Hydrologic Unit	Approximate Maximum Thickness (feet)	Character of Reeks/Lithology	Water Bearing Properties/Hydraulic Conductivities	Depositional Environment
							$K = 0.01 - 30,000$ ft/day (mean of 9 ft/day) (Jones 2003).	
			Kiamichi Formation		100	Marl, thin limestone seams, clay, and shell aggregates. Not present in Bell County.	NA	Variety of carbonate marine environments (reef, lagoonal, shoal, basinal, and supratidal).
			Edwards Limestone		200	Massive, brittle, vugular limestone and dolomite with nodular chert, gypsum, anhydrite, and solution-collapse features.	Yields small to very large quantities of fresh water, especially from cavernous zones. $K = 0.01 - 30,000$ ft/day (mean of 9 ft/day) (Jones 2003).	Variety of carbonate marine environments (reef, lagoonal, shoal, basinal, and supratidal).
			Comanche Peak Limestone		50	Fine-grained, fairly hard, nodular, fossiliferous, marly, extensively burrowed limestone.	Yields little or no water in Bell County. $K = 0.01 - 30,000$ ft/day (mean of 9 ft/day) (Jones 2003).	Variety of carbonate marine environments (reef, lagoonal, shoal, basinal, and supratidal).
			Walnut Formation		100	Hard and soft limestones, marls, clays, and shell beds.	Yields little or no water in Bell County.	Lagoonal or subtidal.
		Trinity	Paluxy Formation	Upper Trinity	10	Fine-grained quartz sand, in part indurated by calcium carbonate cement. Locally contains thin beds of limestone and marl.	Yields very small to moderate quantities of fresh and occasionally slightly saline water. $K = 1-31$ ft/day for	Sand bar deposited in shallow marine environment.

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System	Series	Group	Stratigraphic Unit	Hydrologic Unit	Approximate Maximum Thickness (feet)	Character-of-Rocks/Lithology	Water Bearing Properties/Hydraulic Conductivities	Depositional Environment
							overall Trinity aquifer (Ryder 1996).	
			Upper Member		600	Alternating beds of limestone, dolomite, shale, and marl with some anhydrite and gypsum.	Yields very small to moderate quantities of fresh and occasionally slightly saline water. K= 1-31 ft/day for overall Trinity aquifer (Ryder 1996).	Marine.
			Lower Member		330	Massive, fossiliferous limestone and dolomite in the basal part grading upward into thin beds of limestone, shale, marl, and gypsum.	Yields very small to moderate quantities of fresh to moderately saline water. K= 1-31 ft/day for overall Trinity aquifer (Ryder 1996).	Marine.
			Hensell Sand Member	Middle Trinity	75	Sand gravel, conglomerate, sandstone, siltstone, and shale.		Fluvial.
			Cow Creek Limestone Member		80	Massive, often sandy, dolomitic limestone, frequently forming cliffs and water falls. Contains gypsum and anhydrite beds.		Marine.
			Hammitt Shale Member	Confining Unit	30	Shale and clay with some sand, dolomite, and limestone.	Not known to yield water in Bell County.	Marine.

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Pennsylvanian	Lower Pennsylvanian	Strawn	Sligo Member	Lower Trinity	300	Limestone, dolomite, occasionally sandy, and shale. Thins to the west.	Yields small to moderate, and with acidizing, large quantities of fresh to moderately saline water.	Subtidal to supratidal.	
			Hosston Member		800	Basal conglomerate grading upward into a mixture of sand, siltstone, and shale, with some limestone beds.	$K = 1-31 \text{ ft/day}$ for overall Trinity aquifer (Ryder 1996).	Fluvial.	
Pennsylvanian	Lower Pennsylvanian	Bend	Smithwick Shale		800	Alternating beds of sandstone and shale, with some conglomerates.	Not known to yield water in Bell County.	Subtidal.	
			Marble Falls Limestone			500	Shale with sandstone and siltstone in the upper portion. Metamorphosed to phyllites and quartzites in the Quachita Fold Belt.	Not known to yield water Bell County.	Open marine.
						400	Cavernous, massive, siliceous, fossiliferous limestone	Not known to yield water in Bell County, but may yield small to moderate quantities of slightly to moderately saline water.	Open marine and shoals.

Notes:  
 Modified from Duffin, G. and S.P. Musick. 1991. TWDB Report 326