

# Ground Water Resources of FRANKLIN COUNTY

by James J. Schmidt



## Well Yields

AREAS IN WHICH YIELDS OF 500 TO 1000 OR MORE GALLONS PER MINUTE MAY BE DEVELOPED.

Areas having greatest potential for development of municipal and industrial ground water supplies. Extensive test drilling necessary to locate relatively thick, permeable deposits at depths ranging from 60 to 115 feet. Yields in excess of 1000 gallons per minute developed from large diameter wells.

AREAS IN WHICH YIELDS OF 100 TO 500 GALLONS PER MINUTE MAY BE DEVELOPED.

Limestone-dolomite bedrock is the principal source of supply in the western third of the county. Yields of as much as 250 gallons per minute are developed at depths of less than 300 feet, with greater yields but usually poorer quality at depths of more than 400 feet. Domestic and small industrial supplies of 15 to 25 gallons per minute are available at depths of 65 to 175 feet. Overlying glacial deposits of sand and gravel may yield as much as 20 gallons per minute at depths of about 90 feet.

Regionally extensive, thick, permeable deposits of sand and gravel may yield as much as 500 gallons per minute to large diameter screened wells. Extensive test drilling is recommended to locate coarse deposits at depths of 30 to 200 feet. Bedrock is non-water-bearing shale.

Ground water is obtained from permeable sand and gravel deposits overlying limestone bedrock. Wells may be developed at depths of 50 to 120 feet or developed in the bedrock at depths of 225 feet to yield as much as 350 gallons per minute.

AREAS IN WHICH YIELDS OF 25 TO 100 GALLONS PER MINUTE MAY BE DEVELOPED.

Lenses of sand and gravel thinly scattered in the thin to thick layers of clayey till, yields of 5 to 25 gallons per minute may be developed at depths of 25 to more than 150 feet. Exceptional yields are logged at depths of 130 feet. Thick deposits of fine sand and silt clay often prevent the development of domestic supplies at depths of 200 to 300 feet. Wells in Perry Township not encountering a usable aquifer in the glacial deposits may obtain a ground water supply from the limestone bedrock which occurs at depths of 110 to 250 feet below the surface.

AREAS IN WHICH YIELDS OF 5 TO 25 GALLONS PER MINUTE MAY BE DEVELOPED.

Ground water supplies developed at depths of 60 to 75 feet in the Mississippian sandstone or sandstone and shale bedrock. Yields seldom exceed 20 gallons per minute, although exceptional yields to large diameter wells have exceeded 100 gallons per minute at depths of about 170 feet.

Thin lenses of sand and gravel sparsely interbedded in thick deposits of clayey till, yields of 5 to 25 gallons per minute may be developed at depths of 25 to more than 150 feet. Exceptional yields are logged at depths of 130 feet. Thick deposits of fine sand and silt clay often prevent the development of domestic supplies at depths of 200 to 300 feet. Wells in Perry Township not encountering a usable aquifer in the glacial deposits may obtain a ground water supply from the limestone bedrock which occurs at depths of 110 to 250 feet below the surface.

AREAS IN WHICH YIELDS OF 3 TO 10 GALLONS PER MINUTE MAY BE DEVELOPED.

Basal portion of shaly sandstone fringe zone of the Berea sandstone yields 4 to 6 gallons per minute from a very limited area at depths of less than 65 feet.

Very limited and often quite shallow glacial deposits of sand and gravel overlying shale bedrock of eroded ancestral drainage channel. Potential yields may not exceed 5 gallons per minute at depths of 15 to 35 feet.

AREAS IN WHICH YIELDS OF LESS THAN 2 GALLONS PER MINUTE MAY BE DEVELOPED.

Devonian and Mississippian shale bedrock yields less than 2 gallons per minute at depths of less than 100 feet. Occasionally, thin lenses of sand and gravel may be encountered near the surface of the weathered shale at depths of 18 to 45 feet and yield as much as 5 gallons per minute. If sand and gravel is not present, home owners rely upon cisterns and additional storage to develop a supply for peak demand. Devonian limestone beneath the shale in Perry and Sharon Townships yield larger supplies. Proper well construction may deter presence of hydrogen sulfide.

Areas which may contain hydrogen sulfide in the limestone bedrock and Berea sandstone. Ground water in the limestone bedrock may also be highly mineralized, however, this water is potable and free of excessive chlorides.

Ancestral buried bedrock channels partially filled with clay and sand and gravel as much as 250 feet overlying limestone bedrock.

Relatively thick lenses of fine silty sand in buried valley deposits.

## Well Site Symbols

### WELL INFORMATION (SEE NOTE)

DEPTH (ft.)  
Total depth of well in feet

WELL SITE  
Approximate well location

WELL TYPES  
● Well Site  
○ Municipal/Industrial Well  
□ Observation Well Site  
△ Test Well  
A Chemical Analyses

AQUIFER TYPE  
Water-bearing formation

YIELD (gpm)  
Amount of water a well produces in gallons per minute

DEPTH TO BEDROCK (ft.)  
Depth to bedrock, in feet

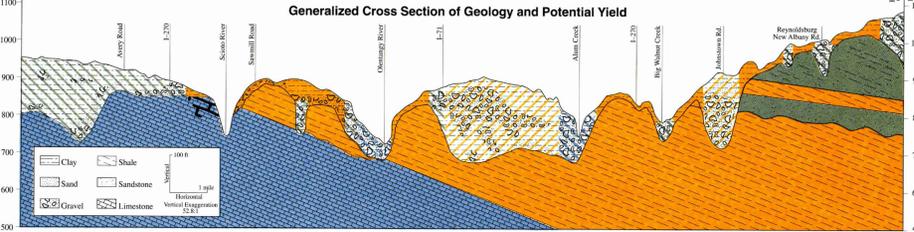
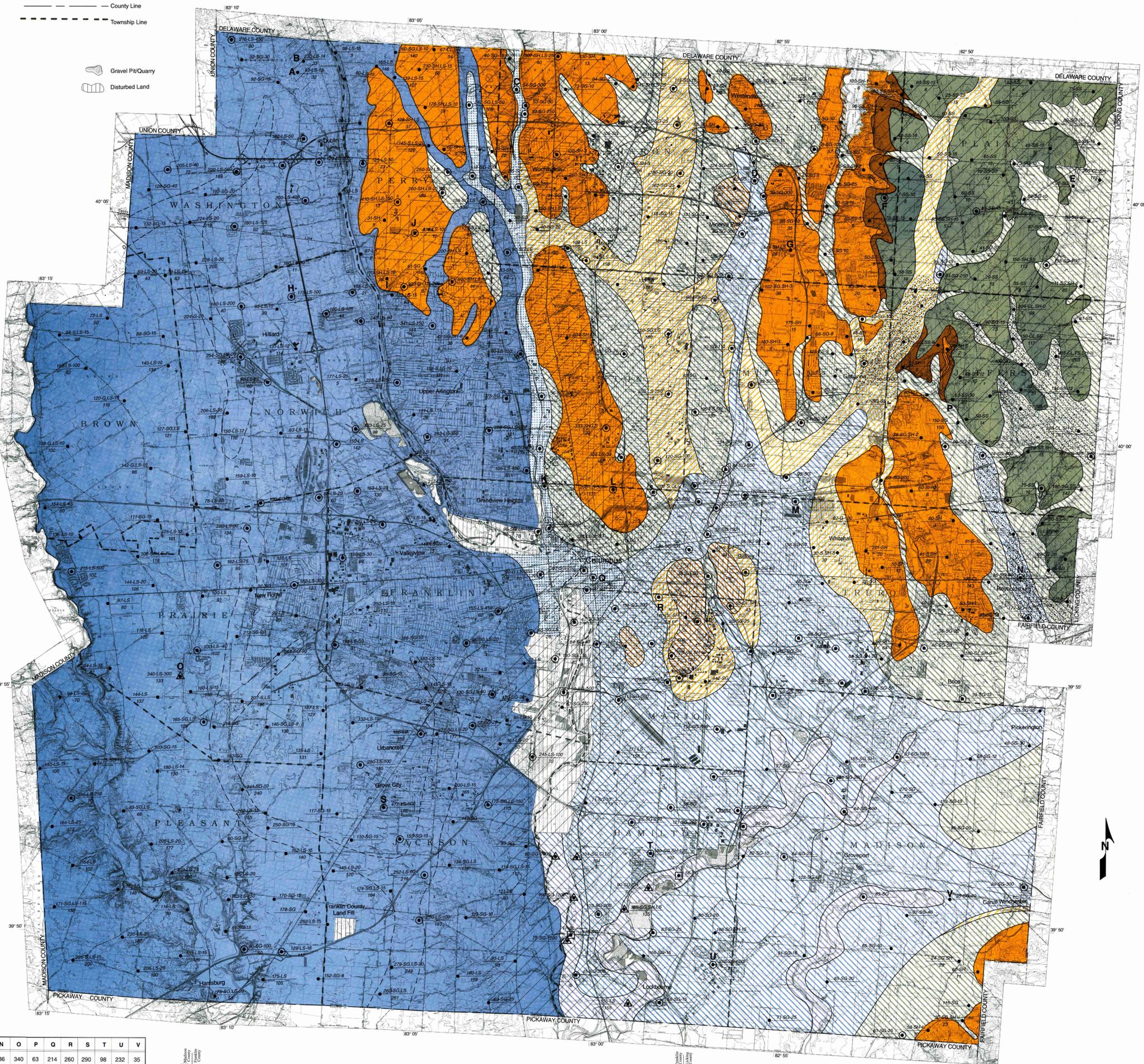
### AQUIFER TYPES

S - Sand  
G - Gravel  
SG - Sand & Gravel  
SS - Sandstone  
SH - Shale  
LS - Limestone  
CL - Clay  
FS - Fine Sand

## Chemical Analysis Table

Well Site	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
Depth	93	230	-	40	92	67	444	175	211	175	180	400	81	86	340	63	214	260	290	98	232	35
Aquifer	LS	LS	S&G	S&G	-	SS	LS	LS	LS	LS	LS	S&G	S&G	LS	SS	LS	LS	LS	S&G	S&G	S&G	S&G
Iron	6.1	2.7	5.8	3.0	4.0	2.8	.04	.55	.59	3.6	.58	.77	2.4	4.2	1.0	.39	1.6	1.2	-	2.9	1.9	.75
Hardness as CaCO <sub>3</sub>	1930	1500	574	452	501	279	2090	443	317	384	530	1730	390	560	620	528	925	1305	745	316	390	302
Dissolved Solids	-	-	-	600	591	364	4950	500	595	519	662	2462	425	740	831	718	1428	1716	986	354	434	390
Sulfate	1520	870	-	155	116	98	1180	102	85	124	229	1451	50	-	400	250	594	942	520	53	28	24
Chloride	-	12	36	21	2.5	4.3	1820	2.0	11	3.0	14	45	7.5	77	1.7	5.2	137	38	5.0	2.4	6.0	2.8
Fluoride	-	-	-	.4	.6	.3	.9	1.1	1.0	2.1	1.1	1.8	.5	.2	1.8	.2	.5	1.4	.6	1	.4	1.4
Hydrogen Sulfide	-	-	-	-	-	-	Trace	-	-	1.7	-	-	.7	-	-	-	3.4	3.0	22	-	-	-

Chemical constituents as milligrams per liter (mg/l)  
A - casing set @ 36 feet  
B - casing set @ 175 feet ( thru Columbus Limestone)  
G - sodium 967



\*Observation well sites indicate the location of wells used to collect ground water level information. These wells are part of the state observation well network. Hydrographs of the water levels recorded in these and other State observation wells can be obtained through ODNR-Division of Water.

\*\*Test well sites indicate the location of a test well that was part of a regional ground water study. Detailed lithologic logs, water quality analysis and pumping test information for these wells may be available from ODNR-Division of Water.

NOTE  
The ground water characteristics have been mapped regionally, based upon interpretations of water well records and the area's geology and hydrology. Mapped well sites were selected as typical for the areas shown. Information regarding specific sites may be obtained from ODNR-Division of Water.

Published 1958  
Revised 1993  
Ohio Department of Natural Resources  
Division of Water  
Ground Water Resources Section  
1939 Fountain Square  
Columbus, Ohio 43224

David S. Orr, Cartographer

