

Surficial Geology of the Yonkers and Nyack Quadrangles, Bergen County, New Jersey

New Jersey Geological Survey
Open-File Map 50
2002

text to accompany map

Appendix 1.--Selected Well and Boring Logs

Well Identifier ¹ No.	Driller's Log	
	Depth ²	Description ³
1 26-6059	0-8	dirt (Qr)
	8-250	red shale
2 26-828	0-4	fill
	4-19	black muck (Qm)
	19-47	gray clay (Qhkl)
	47-68	red clay (Qhkl)
	68-71	red hard sand (Qr)
	71-180	sandstone in all colors
180-200	trap	
3 26-2237	0-98	gray clay (Qm over Qhkl)
	98-115	red hardpan (Qr)
	115-298	soft red rock
4 26-4066	0-47	clay (Qhkl)
	47-57	red hardpan (Qr)
	57-300	red rock
5 26-4421	0-20	sand (Qhkl or Qal)
	20-120	clay (Qhkl)
	120-324	red rock
6 26-4422	0-20	sand (Qhkl or Qal)
	20-120	clay (Qhkl)
	120-450	red rock
7 26-810	log by Frank Markewicz, NJGS, abbreviated here	
	0-10	light pinkish gray, very fine-to-fine sand (Qhkl or Qal)
	10-70	light pinkish gray to pale red clayey silt (Qhkl)
	70-83	pale red silt with pebbles (Qr)
	83-99	pale red clayey silt and angular red shale fragments (Qr)
	99-380	pale red sandstone
	380-410	gray argillite and sandstone
410-470	light gray sandstone and trap fragments	
8 26-4328	0-20	sand (Qhkl or Qal)

		20-120	clay (Qhkl)
		120-356	red rock
9	26-5434	0-4	sand, gravel, cinder fill
		4-23	brown and red-brown coarse-to-fine sand, some coarse-to-fine gravel, trace silt, clay, cobbles (Qhk)
10	26-461	0-20	clay (Qhkl)
		20-55	hardpan (Qr)
		55-250	red shale
		250-400	sand rock
		400-410	trap
11	26-2781	0-46	muck with clay (Qm over Qhkl)
		46-396	red rock
12	26-4357	0-8	backfill overburden
		8-35	clay (Qhkl)
		35-370	sandstone and trap
13	26-791	0-5	brown sand and clay (Qhkl or Qal)
		5-11	gray sand and clay (Qhkl or Qal)
		11-22	brown sand, clay, quick sand (Qhkl or Qal)
		22-32	gray clay (Qhkl)
		32-42	gray and red clay, mixed (Qhkl)
		42-64	gray clay (Qhkl)
		64-126	reddish brown clay (Qhkl)
		126-135	hardpan (Qr)
		135-354	sandstone
14	26-6111	0-5	sandy soil (Qal or fill)
		5-20	yellow sandy clay (Qhkl)
		20-80	fine sandy gray clay (Qhkl)
		80-120	gray clay (Qhkl)
		120-145	fine silty sand (Qhkf)
		145-146	gravel (Qhkf)
		146-242	sandstone
15	26-7000	0-3	fill
		3-62	gray clay (Qhkl)
		62-96	red sticky clay with fine sand (Qhkl)
		96-112	fine silty sand (Qhkf)
		112-121	sand and gravel (Qhkf)
		at 121	red shale
		screened 100-112,	yield 300 gpm
16	26-2742	0-110	gray clay (Qhkl)
		110-145	sand and gravel (Qhkf)
		screened 135-145,	yield 150 gpm
17	26-2427	0-130	NR (probably clay, Qhkl)
		130-140	sand (Qhkf)
		140-380	shale
18	26-6142	0-110	clay (Qhkl)
		110-155	fine sand (Qhkf)
		155-300	red rock
		screened 145-155,	yield 70 gpm

19	26-7359	0-2	fill--sand, brick, concrete
		2-5	brown clay, trace sand (Qhkl)
		5-13	brown medium-to-fine sand, trace silt (Qhkl)
		13-18	brown silty sand (Qhkl)
		18-20	brown silt (Qhkl)

20	26-6901	abbreviated log	
		0-19	red-brown medium-to-fine sand, some silt, little gravel (Qhkl or Qal)

21	26-3519	0-20	gravel overburden, red clay (Qr)
		20-345	trap rock

22	26-3430	0-18	overburden (Qr)
		18-570	trap rock

23	26-4043	0-18	overburden (Qr)
		18-265	trap rock

24	26-4716	0-5	cinders, soil
		5-60	brown and red sand (Qhk)
		60-120	red sand (Qhk over Qhkl)
		120-140	red sand and clay (Qhkl)
		140-142	red gravel (Qhkf or Qr)
		142-151	red sand (Qhkf or Qr)
		151-202	red shale

25	26-2436	0-5	fill
		5-30	sand (Qic)
		30-300	sandstone

26	26-4489	0-22	hardpan (Qic)
		22-300	red rock

27	26-4217	0-50	red shale
		50-230	sandstone

28	26-5079	0-21	red sand, gravel, clay (Qr)
		21-200	red rock

29	26-785	0-76	glacial fill (Qhk over Qr)
		76-158	red rock

30	26-6040	0-4	orange silt, clay, fine sand (fill)
		4-15	red silt, sand, trace clay, cobbles (Qhk)
		15-32	red fine, medium, coarse sand, little silt (Qhk)
		32-50	red silty fine sand (Qhkl)

31	26-3429	0-20	overburden with boulders (Qr)
		20-161	red rock

32	26-6675	0-4	fill--sand, gravel, silt, cobbles
		4-16	red brown coarse-to-fine sand and coarse-to-fine gravel, little silt, occasional cobbles (Qr)

33	26-4752	0-5	fill
		5-20	sand (Qtk2)
		20-25	gravel with some water (Qtk2)
		25-70	red shale

34	26-3853	0-27 27-200	sand and gravel (Qr) sandstone and shale ledges
35	26-3271	0-15 15-198	hardpan (Qr) shale
36	26-145	0-20 20-200	sand and gravel (Qr) red rock
37	26-3730	0-20 20-25 25-230	unconsolidated overburden (Qr) soft red shale red sandstone
38	26-3491	0-24 24-96	red overburden (Qr) red rock
39	26-3898	0-47 47-96	red sand, clay, and gravel (Qic) white and purple sandstone
40	26-3691	0-21 21-210 210-235	coarse sand and gravel (Qr) trap rock red or pink trap rock
41	26-1357	0-29 29-176 176-180	yellow hardpan (Qr) conglomerate dark gray trap rock
42	26-1798	0-52 52-202	silty sand (Qtn) red rock
43	26-1615	0-19 19-100	sand and dirt (Qtn) sand rock
44	26-4394	0-16 16-28 28-107	sand and gravel (Qtn) red hardpan (Qr) red sandstone
45	26-2787	0-38 38-107	sand and gravel (Qtn) red sandstone
46	26-4103	0-40 40-73 73-145	sandy clay (Qtnl) dry sand and gravel (Qtn or Qic) red sandstone
47	26-3825	0-12 12-38 38-125	sand (Qr) shale red rock and sandstone mixed
48	26-663	0-37 37-50	clay--sand and clay and clay and gravel matrix (Qtnl over Qr?) brown stone
49	26-1169	0-10 10-20 20-75	dirt and boulders (Qic) sand and gravel (Qic) red rock
50	26-6679	0-9 9-16	fill--sand, gravel, cobbles, boulders gray and red-brown silt, trace fine sand, trace clay (Qtn)
51	26-533	0-74	sand and silt, water and coarse sand at top of rock (Qtnl over Qic)

		74-125	red sandstone
52	26-11742	0-3 3-20	fill brown medium-to-fine sand (Qtnl)
53	26-4336	0-10 10-25 25-30 30-165	overburden fill clay, gray (Qtnl) clay, reddish gray (Qtnl) trap rock, some reddish fine sandstone
54	26-3492	0-10 10-97	overburden (Qr) trap rock
55	26-5817	0-8 8-740 740-1000	hardpan and boulders (Qry) granitic rock (diabase)
		red shale	
56	23-8340	0-15 15-243 243-367	sandy soil (Qr) trap rock red shale
57	23-8314	0-40 40-800	sand, clay (Qr) trap rock
58	23-463	0-4 4-31 31-68	sand (fill or Qr) hardpan (Qr) sandstone
59	23-2348	0-72 72-276	sand and clay (Qtnl) sandstone
60	23-2273	0-72 72-279	sand and clay (Qtnl) sandstone
61	23-5056	0-10 10-30 30-60 60-76 76-164	sand fill marsh clay (Qal over Qtnl) fine sand (Qtnl) hardpan (Qr) red sandstone
62	23-4388	0-21 21-185	red hardpan (Qr) red rock
63	23-4533	0-21 21-170	overburden (Qr) red sandstone
64	23-7583	abbreviated log 0-14 at 14	red-brown medium-to-fine sand, some medium-to-fine gravel, cobbles, and boulders, little to some silt (Qr) shale
65	23-4657	0-16 16-150	unconsolidated overburden, red sandy clay (Qr) red sandstone
66	23-7108	0-12 12-114	red hardpan (Qr) red sandstone
67	23-7404	abbreviated log	

		0-34	reddish brown very fine sand, little silt, little gravel and boulders (Qr)
		34-50	shale
68	23-7190	0-30	red stony hardpan (Qr)
		30-150	red shale
69	23-7174	0-30	red stony hardpan (Qr)
		30-159	red shale
70	23-8956	0-83	sand and gravel (Qtnl over Qtn)
		83-85	hardpan (Qr)
		85-118	sandstone
71	23-4597	0-3	soil (Qr)
		3-93	badly fissured sandstone
		93-200	red rock
72	23-4232	0-10	clay, gravel (Qry)
		10-670	trap rock
73	23-7743	0-3	overburden (Qry)
		3-1085	granite (diabase)
74	23-6889	0-40	clay and sand (Qr)
		40-200	shale and sandstone
75	23-4637	0-24	sand, gravel (Qic)
		24-110	white rock
		110-137	trap
76	23-4424	0-34	sand and gravel (Qic)
		34-150	red and white sandstone
77	23-5397	0-3	clay (fill)
		3-65	sand and gravel (Qic)
		65-69	red clay (Qr)
		69-160	red sandstone
78	23-4596	0-3	soil (Qtn)
		3-15	shale (maybe Qtnl)
		15-125	brown sandstone
		125-200	red rock
79	23-4801	0-10	unconsolidated clay overburden (Qst over Qtnl)
		10-30	clay hardpan (Qr)
		30-165	red sandstone
80	23-6344	0-50	clay, red shale (Qst over Qtnl)
		50-167	red rock
81	23-4259	0-35	hardpan (Qtn)
		35-45	sand (Qtn)
		45-150	red rock
82	23-7586	0-15	sand and fine gravel (Qtn)
		15-28	coarse sand and pea gravel (Qtn)
		28-170	red sandstone

83	BWA files 23-44-536	0-8	coarse gravel and sand (Qtn)
		8-93	fine sand with some water (Qtn)
		93-101	stony hardpan (Qr)
		101-142	red shale

84	23-1139	0-26	stony hardpan (Qr)
		26-106	red sandstone

85	23-1138	0-26	stony hardpan (Qr)
		26-109	red sandstone

86	23-1117	0-35	red hardpan (Qr)
		35-106	red sandstone

87	23-6255	0-18	hardpan (Qr)
		18-150	red rock

88	23-556	0-5	black loam (Qal)
		5-11	stony hardpan (Qal)
		11-47	fine sand (Qtnl)
		47-56	hardpan (Qr)

89	23-7279	0-72	sand (Qtnl over Qtn)
		72-76	red hardpan (Qr)
		76-90	red shale
		90-160	brown fine sandstone
		160-386	brown shale

90	23-6475	0-40	stony hardpan (Qr)
		40-90	red sandstone

91	23-4570	0-17	hardpan (Qr)
		17-125	red rock

92	23-4876	0-8	clay and hardpan (Qor)
		8-20	sandy clay (Qhkl)
		20-41	hardpan (Qr)
		41-200	red sandstone

93	23-5631	0-3	backfill
		3-5	sand, red (Qr)
		5-16	clay, red (Qr)
		16-185	red sandstone

94	23-4409	0-30	sandy clay (Qr)
		30-185	sandstone and red shale

95	23-499	0-5	clay (fill or Qor)
		5-44	sand and gravel (Qor over Qhk)
		44-100	red rock

96	23-8200	0-4	fill
		4-20	sandy soil (Qor)
		20-44	red hardpan (Qhkl over Qr)
		44-150	red sandstone

97	23-1302		abbreviated log
		0-11	brown sand and gravel (Qor)
		11-45	gray to brown clay (Qhkl)

		45-54	brown sandy clay (Qhkl)
		54-72	sand, large gravel, clay, no water (Qr)
		72-75	red rock
98	23-1184	0-8	fine sand (Qor)
		8-29	gray clay (Qhkl)
		29-45	brown clay (Qhkl)
		45-48	sand and gravel with clay (Qhkf)
		48-54	coarse sand and gravel (Qhkf)
		54-63	hardpan (Qr or Qhkf)
		63-66	sand and gravel with clay (Qr or Qhkf)
		66-84	hardpan (Qr)
		84-88	brown sandstone
		88-95	red shale
99	23-1981	0-6	grayish brown clay (Qor or fill)
		6-7	coarse sand and gravel (Qor)
		7-24	gray clay (Qhkl)
		24-45	red clay (Qhkl)
		45-65	brown clay (Qhkl)
		65-85	red hardpan (Qr)
		85-90	red sandstone
100	23-6434	0-20	fine sand (Qe over Qor)
		20-55	clay (Qhkl)
		55-83	gravel (Qhkf)
			screened 69-82, yield 226 gpm
101	23-6433	0-18	sand, boulders (Qe over Qor)
		18-65	clay (Qhkl)
		65-85	sand, gravel (Qhkf)
			screened 72-88, yield 89 gpm
102	23-1260		log by Frank Markewicz, NJGS, abbreviated here
		0-21	tan fine-to-coarse sand and clay (Qor over Qhkl)
		21-36	light gray silty clay (Qhkl)
		36-53	pale red silty clay (Qhkl)
		53-60	pale red silt (Qhkl)
		60-69	pale red silt and gravel (Qhkl over Qhkf)
		69-77	gray coarse sand and pebbles (Qhkf)
		77-82	pale red fine-to-coarse sand with scattered pebbles (Qhkf)
		82-96	dusky red micaceous sandstone
103	23-1451	0-16	gray to brown clay with a little sand (Qst)
		16-17	coarse sand with a clay binder (Qst)
		17-27	gray clay (Qhkl)
		27-52	reddish brown clay (Qhkl)
		52-62	hardpan (Qr)
		62-64	sand and gravel with clay binder (Qr)
		64-79	hardpan (Qr)
		79-89	red sandstone
104	23-1971	0-12	brown clay (Qor)
		12-17	brown clay, gritty (Qor)
		17-34	gray clay (Qhkl)
		34-65	brown clay (Qhkl)
		65-77	brown clay, livery (Qhkl)
		77-87	small medium and large gravel with some fine and coarse sand, making water (Qhkf)

		87-102	red hardpan (Qr)
		102-106	red rock
		screened 77-87, yield 123 gpm	
105	23-7381	0-12	red hardpan (Qr)
		12-120	red sandstone
106	23-4442	0-30	sandy clay, sand (Qhk)
		30-88	sand, gravel (Qhkf)
		88-475	sandstone
107	23-6058	0-4	backfill
		4-30	gray clay (Qr)
		30-43	red clay (Qb or Qr)
		43-175	red sandstone
108	23-7908	0-28	brown sand (Qst over Qhk)
		28-44	red sand (Qhk)
		44-50	red hardpan (Qr)
		50-120	red shale
109	23-878	0-5	black loam (fill or Qst)
		5-15	sand (Qst)
		15-38	stony hardpan (Qr)
		38-122	red sandstone
110	23-4446	0-32	thick white clay (Qhkl)
		32-34	clean gravel (Qr or Qhkf)
		34-50	red rock
111	23-5838	0-10	clay (Qal over Qhkl)
		10-20	red clay (Qhkl)
		20-348	red rock
112	23-5940	0-10	hardpan (Qhk)
		10-33	red shale (Qr?)
		33-346	red rock
113	23-5939	0-11	hardpan (Qhk)
		11-33	red shale (Qr?)
		33-348	red rock
114	23-6267	0-40	stony hardpan (Qor over Qhk)
		40-81	sandy soil with some boulders (Qhk over Qic)
		81-252	sandstone
115	23-6345	0-49	fine sand and boulders (Qic over Qr)
		49-171	red rock
116	23-4284	0-30	boulders (Qr)
		30-76	hardpan (Qr)
		76-167	red rock
117	23-838	0-55	started in clay, then hit hardpan (Qr)
		55-268	red sandstone
118	23-2471	0-52	clay over sand and gravel (Qr over Qsp)
		52-150	red sandstone

119	23-1664	0-5	fill
		5-14	sandy red clay (Qe over Qr)
		14-33	hardpan with some coarse sand (Qr)
		33-35	rock, soft sandstone
		35-54	rock, hard sandstone

120	23-1672	0-10	yellow clay, sand and gravel (Qe over Qr)
		10-15	brown clay, sand and gravel (Qr)
		15-25	red hardpan, sand and gravel (Qr)
		25-53	red till, sand and gravel (Qr)
		53-77	red sandy clay (Qr or Qsp)
		77-79	red till (Qr)
		79-83	red sandy clay (Qr or Qsp)
		83-93	red sandy clay, not as much clay as previous (Qsp or weathered rock)
		93-105	red sand and clay (Qsp or weathered rock)
		105-113	sandy red clay, drills hard (Qsp or weathered rock)
		113-128	red sand and clay (Qsp or weathered rock)
		128-138	sand, quartz, and some clay (Qsp or weathered rock)
		138-401	red and brown shale and sandstone

121	23-5133	0-61	hardpan (Qr)
		61-500	red shale

122	23-4196	0-31	hardpan (Qhk)
		31-36	boulders, sand (Qhk or Qr)
		36-248	red rock

123	23-3807	0-18	clay (Qal over Qhkl)
		18-27	sand (Qhk or Qr)
		27-300	red rock and shales

124	23-7143	abbreviated log	
		0-5	fill--brown fine sand, little silt, trace brick and gravel
		5-12	brown medium-to-fine sand, little silt, hard packed (Qr)
		12-23	red brown coarse-to-fine sand, some silt, little medium-to-fine gravel (Qr)

125	23-2906	0-3	black muck (Qal)
		3-30	stony hardpan (Qr)
		30-33	gravel, some water (Qr)
		33-114	sandstone

126	23-4674	0-51	sand and gravel (Qhk)
		51-142	red rock

127	23-6320	0-38	stony sand and hardpan (Qic)
		38-102	soft red sandstone

128	23-2099	0-22	soft clay (Qhkl)
		22-40	sand and coarse gravel (Qtn)
		40-85	red rock

129	23-8004	0-5	clay (Qr)
		5-36	red rock
		36-205	red sandstone

130	23-501	0-10	sandy clay (Qr)
		10-16	coarse sand (Qr or weathered sandstone)
		16-25	fine sand (Qr or weathered sandstone)

		25-34	red sand (Qr or weathered sandstone)
		34-110	red sandstone
131	23-5977	0-25	sand, clay (Qic)
		25-31	white sandstone, coarse
		31-150	white and red sandstone
		at 150	trap rock
132	23-4689	0-20	sand (Qr)
		20-35	large gravel (Qr)
		35-38	clay (Qr)
		38-100	white sandstone
		100-140	trap mixed with white sandstone
133	23-6767	0-3	dirt (Qry)
		3-1205	trap rock
134	N 23-44-322	0-4	black muck and roots (Qs)
		4-19	stiff, reddish brown clay (Qhkl)
		19-27	brown clay, sand and gravel (Qr)
		27-47	reddish brown clay, sand and fine gravel (Qr)
		47-594	red sandstone
135	N 23-44-213	0-35	clay and silt, very hard white clay at base, no gravel (Qhkl over Qr)
136	23-5860	0-5	brown sandy hardpan (Qhk)
		5-30	brown sand, wet (Qhk)
		30-35	soft red shale
		35-53	soft red sandstone
		53-120	hard red sandstone
137	23-7297	0-14	bouldery dirt (Qhk)
		14-48	sandy soil (Qhk)
		48-60	red hardpan (Qr)
		60-125	red sandstone
138	23-7335	0-40	sandy soil with some boulders (Qic)
		40-96	sandy hardpan (Qic or Qr)
		96-174	red shale with some streaks of sandstone
139	23-7844	0-35	light brown sand (Qhk)
		35-40	pea gravel (Qhk)
		40-45	red hardpan (Qr)
		45-68	red shale
		68-205	sandstone and shale
140	23-1063	0-64	drilled by another driller (probably sand, Qhk)
		64-76	fine sand (Qhk)
		76-102	red sandstone
141	23-6873	0-63	sand and gravel (Qic over Qr)
		63-200	argillite
142	23-6818	0-45	brown soil with boulders (Qhk)
		45-73	red hardpan (Qr)
		73-130	red sandstone
143	23-971	0-33	glacial fill (Qr)

		33-82	red rock
144	23-5521	0-26 26-145	clay overburden (Qr) red sandstone
145	23-1446	0-24 24-75	sand hardpan with stones (Qr) red sandstone
146	23-4108	0-5 5-7 7-9 9-27 27-31 31-35 35-38 38-42 42-43 43-364	sand and gravel (Qic) gravel and sand (Qic) boulders, clay, gravel (Qic) gravel streaks, sand and clay (Qic) gravel (Qic) clay mixed with gravel (Qic) coarse gravel, clay and cobbles (Qic) gravel and clay (Qic) clay and gravel (Qic) shale and sand rock
147	23-1497	0-15 15-24 24-65 65-102	stony hardpan (Qic) sand (Qic) hard red sandstone red shale
148	23-7788	0-50 50-160	red hardpan and soft rock (Qr) red rock
149	23-3127	0-4 4-35 35-100	sandy overburden (Qr) sand (Qr) red sandstone
150	23-5228	0-28 28-500	overburden (Qr) red shale and sandstone
151	23-5590	0-30 30-50 50-250	hardpan, boulders (Qr) shale red rock
152	23-5879	0-11 11-23 23-33 33-125	sand (Qr) clay hardpan (Qr) hardpan--red sandstone (Qr over bedrock) red sandstone
153	23-3034	0-9 9-37 37-130	brown sandy hardpan (Qr) soft red shale hard red shale
154	23-6831	0-6 6-51 51-200	clay (Qr) sand (Qr or Qsp) red rock
155	23-927	0-12 12-24 24-36 36-72	sand (Qr) hardpan (Qr) sand with some water (Qsp) red sandstone
156	23-7828	0-9 9-30 30-102	sandy soil (Qr) red hardpan (Qr) red shale

157	23-6642	0-12 12-19 19-96	sand (Qr) fine sand and fine gravel (Qr) red shale, red sandstone
158	23-4795	0-39 39-59 59-200	unconsolidated overburden composed of coarse sand and boulders (Qic over Qr) red clay (Qr) red sandstone
159	23-5520	0-15 15-25 25-145	sand (Qic) red clay (Qic) red sandstone
160	23-7662	0-8 8-180	red hardpan (Qr) red sandstone
161	23-7107	0-16 16-48 48-107	stony hardpan (Qr) red sandy hardpan (Qr) red sandstone
162	23-7099	0-25 25-54 54-120	hardpan with boulders (Qr) sand and gravel with some water (Qr or Qsp) red sandstone
163	23-153	0-35 35-82 82-88 88-185	dirt and boulders (Qr) sand and gravel (Qsp) hardpan (Qb?) red rock
164	23-4248	0-45 45-210	gray clay (Qhkl) red rock
165	23-4250	0-45 45-210	gray clay (Qhkl) red rock
166	23-3259	0-23 23-36 36-171	sand and gravel (Qor) hardpan (Qhkl or Qr) red rock
167	23-7902	0-20	red brown medium-to-fine sand, some gravel (Qor)
168	23-7905	0-5 5-7 7-13 13-17	gray medium-to-fine sand, some silt (Qor) brown medium-to-fine sand (Qor) brown medium-to-coarse sand (Qor) red brown clay (Qhkl)
169	23-4332	0-30 30-80 80-140 140-201	clay (Qs over Qhkl) sand (Qhkf) gravel (Qhkf) rock
170	23-6186	0-22 22-54 54-60 60-530	black mud (Qs) red clay (Qhkl) sand (Qr or Qhkf) red rock
171	23-6016	0-18 18-58 58-65 65-500	clay (Qs) red clay (Qhkl) boulders (Qr or Qhkf) red rock

172	23-4318	0-62 62-150	clay, sand, hardpan (Qhkl over Qhkf over Qr) red rock
173	23-4285	0-10 10-30 30-90 90-450	muck (Qs) hardpan (Qhkl) clay (Qhkl) red rock
174	23-321	0-70 70-145	sand (Qhkl or Qhkf) red shale
175	23-300	0-76 76-150	sand (Qhkl or Qhkf) red shale
176	23-984	0-12 12-50 50-60 cased to 60 feet, yield 25 gpm	sand hardpan (Qr) sand (Qsp) gravel (Qsp)
177	23-2590	0-30 30-80 80-88 88-180	sand (Qor) clay (Qhkl) gravel (Qr or Qhkf) red rock
178	23-3699	log by Frank Markewicz, NJGS 0-50 50-320	brownish red sandy silty overburden with boulders (Qor over Qr) siltstone and sandstone
179	23-2592	0-25 25-125	sand, clay, gravel (Qr) rock
180	23-7210	0-12 12-92 92-412	red hardpan (Qr) soft red rock red shale and sandstone
181	23-4438	0-19 19-25 25-78	sand and gravel (Qr) large gravel and small boulders (Qr) red rock
182	23-2107	0-38 38-79 79-130	hardpan with lots of small boulders (Qr) reddish trap rock gray trap rock
183	23-222	0-21 21-105	earth (Qry) diabase
184	23-7950	0-6 6-44 44-205	overburden (Qry) broken trap rock to solid trap mixture of various conglomerate rock
185	NJGS files 0-2 boring by P. J. Healey, Inc.	2-7 7-11 11-23 23-34 34-40 40-50	NJGS files topsoil and loam (af) meadow marsh and sand (Qm) gray clay and sand (Qm or Qhkl) brown clay and thin layers of sand (Qhkl) red clay (Qhkl) red silty sand (Qhkl) red sand and coarse gravel (Qhkf)
186	NJGS files boring by P. J. Healey, Inc.	0-3 3-13 13-15	cinders, brown sand and gravel fill brown sand (Qtn) gray sand (Qtn)

187	NJGS files	0-1	topsoil
	boring by P. J. Healey, Inc.	1-2 2-25	brown clay, sand, gravel, and boulders (Qr) red sand, gravel, clay, boulders (Qr)
188	NJGS files	0-7	medium-to-fine brown sand with trace of gravel (Qr)
	boring by P. J. Healey, Inc.	7-25	medium-to-fine reddish brown sand with shale fragments and trace of gravel and clay (Qr)
189	NJGS files		abbreviated log
	boring by P. J. Healey, Inc.	0-6 6-22 22-34 34-35 35-36	fine-to-coarse brown, gray, white sand and gravel (Qst) brown silt with some fine sand (Qtnl) fine brown silty sand (Qtnl or Qr) fine-to-medium multicolored sand (Qr) soft red and green sandstone

¹Numbers of the form 23-xxxx or 26-xxxx are well permit numbers issued by the N.J. Department of Environmental Protection, Bureau of Water Allocation. The notation “BWA files” followed by a number of the form 23-xx-xxx indicates N. J. Atlas Sheet grid locations of logs in the Bureau of Water Allocation files that do not have permit numbers. Notations of the form N 23-44-213 are N. J. Atlas Sheet grid locations of entries in the permanent note collection of the N. J. Geological Survey.

²Depth in feet below land surface.

³Inferred map units and comments by author in parentheses. All descriptions are reproduced as they appear in the original source, except for minor format, punctuation, and spelling changes. Logs identified as abbreviated have been condensed for brevity. Some bedrock descriptions have been condensed; these are not identified as abbreviated. The notation “NR” indicates “not reported”. For wells completed in surficial materials, the screened interval and reported yield (in gallons per minute, gpm) are reported beneath the log. Map units are inferred from the known extent of materials at the surface and from known depositional settings, in addition to driller’s descriptions.