

## Upper Castle Hayne Aquifer–Lower Unit

Contours at the base of the Local confining unit also represent the top of the Lower unit of the Upper Castle Hayne aquifer. The structure of the surface of the Lower unit of the Upper Castle Hayne aquifer is similar to the top of the Local confining unit with lower altitudes. Maximum altitudes occur in the vicinity of Montford Point and Tarawa Terrace at about

–40 ft. The surface declines relatively uniformly to the south-east with minor interruptions at local highs or depressions in the vicinity of Brewster Boulevard and near the southeastern margin of the study area. Minimum altitude is about –130 ft and occurs north of the headwaters of Wallace Creek near the southeastern limit of the study area (Table B9, Figure B17).

Maximum thickness of the Lower unit of the Upper Castle Hayne aquifer is about 45 ft and is centered on a zone of high

**Table B9.** Altitude at the top of the Upper Castle Hayne aquifer–Lower unit, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.

[NGVD 29, National Geodetic Vertical Datum of 1929]

Site name <sup>1</sup>	Location coordinates <sup>2</sup>		Unit altitude, in feet below NGVD 29
	East	North	
C2	2490793	364902	–37
C5	2491233	364107	–33
C11	2492130	362300	–66
HP-614 (new)	2512180	353670	–113
HP-619 (new)	2515870	352640	–104
HP-621 (new)	2505510	354290	–106
HP-622	2494248	353323	–97
HP-623	2495617	350860	–98
HP-627 (new)	2508310	354030	–108
HP-629 (new)	2504800	355152	–112
HP-641	2504106	353016	–122
HP-643	2494346	356083	–101
HP-645	2497333	356430	–91
HP-646	2497870	357826	–88
HP-647	2499461	356343	–106
HP-648	2506809	355200	–99
HP-649	2508630	354860	–112
HP-663	2510881	352712	–124
HP-698	2492410	355870	–81
HP-699	2490430	355560	–83
HP-703	2496450	358140	–82
HP-704	2495650	359580	–85
HP-705	2501260	356200	–104
HP-706	2502990	355940	–112

Site name <sup>1</sup>	Location coordinates <sup>2</sup>		Unit altitude, in feet below NGVD 29
	East	North	
HP-708	2514450	353090	–111
HP-711	2509200	352130	–130
LCH-4009	2499585	358589	–97
M-161	2477550	362560	–42
M-197	2477626	361621	–49
M-267	2476609	359232	–53
M-628	2479434	362735	–56
ON-T2-87	2487495	353878	–100
S190A	2487640	353870	–103
T-1	2507870	355030	–113
T-9	2490489	364648	–53
T-10	2487680	364960	–41
T-11	2485278	365352	–47
T-12	2476550	355830	–88
T-13	2481170	363930	–58
T-14	2476788	364170	–37
TT-23	2491024	363208	–46
TT-25	2491984	364042	–51
TT-52	2489060	362321	–53
TT-67	2490160	362730	–46
X24C2	2490640	363540	–44

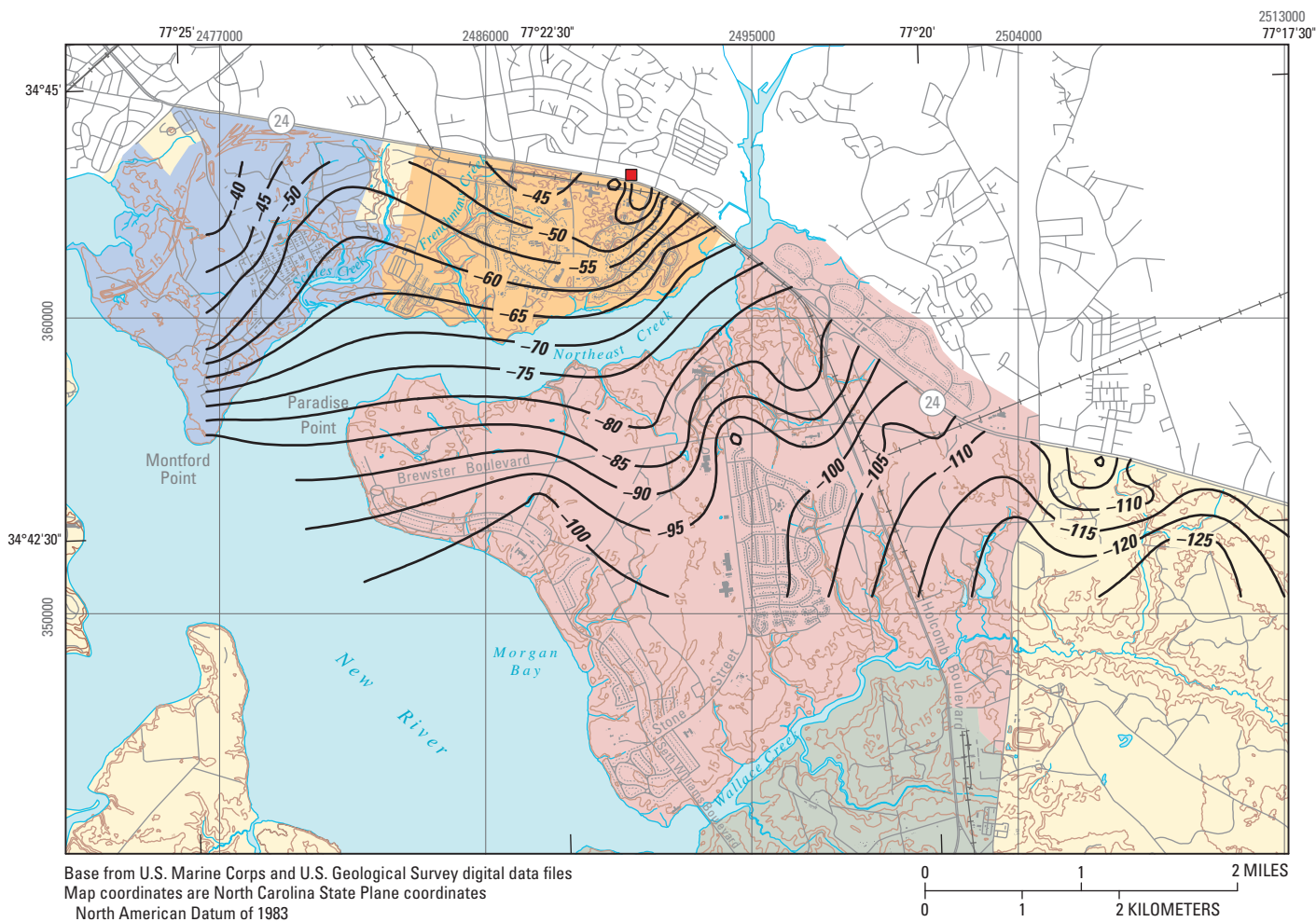
<sup>1</sup>See Plate 1 for location

<sup>2</sup>Location coordinates are North Carolina State Plane coordinates, North American Datum of 1983

## Geohydrologic Framework

thickness near Brewster Boulevard, about midway between Paradise Point and Holcomb Boulevard (Figure B18). Thickness declines relatively rapidly east, west, and southeast of this zone to a minimum of about 10 ft south of Brewster Boulevard and north of the headwaters of Wallace Creek. Thickness trends are somewhat to highly irregular, and a consistent directional trend does not occur.

The lithology of the Lower unit of the Upper Castle Hayne aquifer north and west of Tarawa Terrace, in the vicinity of SR 24, was described as a calcareous, fossiliferous, somewhat silty sand (Roy F. Weston, Inc. 1992, 1994). In the same area, in the vicinity of borehole T-10, the unit is described as “shellrock and fine sand in streaks.” In the vicinity of well TT-25, located north and slightly east of



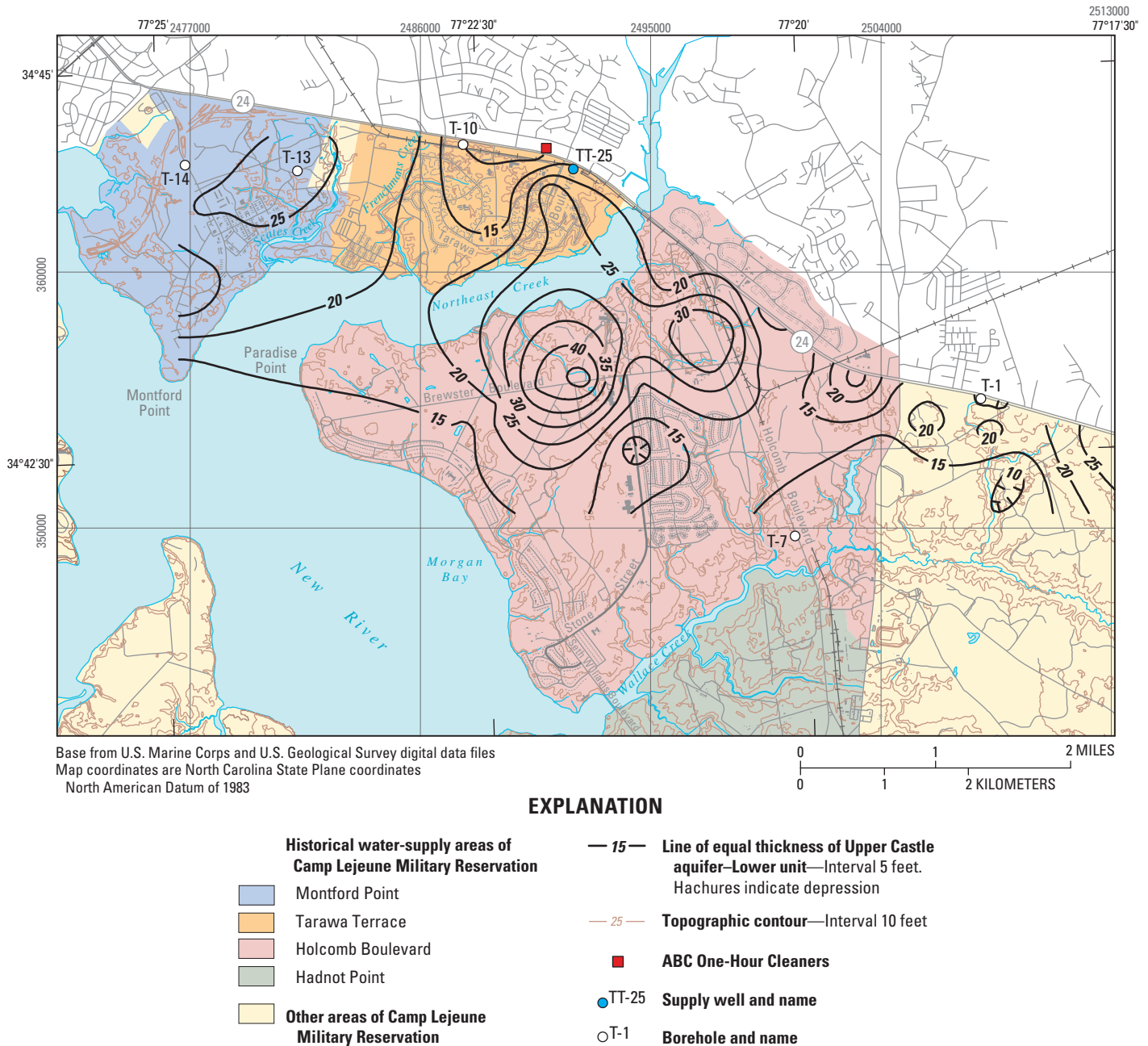
### EXPLANATION

- |   |   |
|---|---|
| <p><b>Historical water-supply areas of Camp Lejeune Military Reservation</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #add8e6; border: 1px solid black; margin-right: 5px;"></span> Montford Point</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #ffcc99; border: 1px solid black; margin-right: 5px;"></span> Tarawa Terrace</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #f08080; border: 1px solid black; margin-right: 5px;"></span> Holcomb Boulevard</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #c8e6c9; border: 1px solid black; margin-right: 5px;"></span> Hadnot Point</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #fff9c4; border: 1px solid black; margin-right: 5px;"></span> Other areas of Camp Lejeune Military Reservation</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>-100-</b> <b>Line of equal altitude</b>—Shows top of Upper Castle Hayne aquifer—Lower unit. Contour interval 5 feet. Datum is National Geodetic Vertical Datum of 1929</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>-25-</b> <b>Topographic contour</b>—Interval 10 feet</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border: 1px solid black; margin-right: 5px;"></span> <b>ABC One-Hour Cleaners</b></li> </ul> |
|---|---|

**Figure B17.** Altitude at the top of the Upper Castle Hayne aquifer—Lower unit, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.

Tarawa Terrace, the unit is described as a gray, fine sand containing shells and “shell hash.” North of Montford Point, in the vicinity of boreholes T-13 and T-14, the Lower unit of the Upper Castle Hayne aquifer is described as a fine- to medium-grained sand. Between Northeast and Wallace Creeks, this unit is poorly differentiated in drillers’ logs. In the vicinity of borehole T-1, near SR 24 in the southeastern part of the study area, the Lower unit is described as “medium soft shellrock

and sand.” North of Wallace Creek near the center of the study area in the vicinity of borehole T-7, the unit is described as a medium-grained, gray sand containing loose shells and “streaks” of shellrock. The Lower unit of the Upper Castle Hayne aquifer of this study is equivalent to the unit variously described by Roy F. Weston, Inc. (1992, 1994) as the Castle Hayne Formation, “Castle Hayne aquifer,” and “Castle Hayne limestone.”



**Figure B18.** Thickness of the Upper Castle Hayne aquifer—Lower unit, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.

## Middle Castle Hayne Confining Unit

Contours of equal altitude at the top of the Middle Castle Hayne confining unit are shown in Figure B19. Maximum surface altitudes of about –55 or –60 ft occur north of Tarawa Terrace in the vicinity of borehole T-10 and SR 24 and in the northern part of Montford Point in the vicinity of borehole T-14 (Table B10). Surface altitude decreases somewhat irregu-

larly northwest to southeast. Minimum surface altitudes are less than –140 ft and are associated with several minor depressions in the vicinity and south of SR 24 in the east-central part of the study area and north of the headwaters of Wallace Creek in the southeastern part of the study area.

Thickness of the Middle Castle Hayne confining unit is somewhat to highly variable and ranges from a minimum thickness of about 14 ft to a maximum thickness of about 26 ft

**Table B10.** Altitude at the top of the Middle Castle Hayne confining unit, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.

[NGVD 29, National Geodetic Vertical Datum of 1929]

Site name <sup>1</sup>	Location coordinates <sup>2</sup>		Unit altitude, in feet below NGVD 29
	East	North	
C1	2490503	365232	–69
CCC-1	2483873	360997	–66
CCC-2	2483431	362506	–73
HP-607 (new)	2496820	352510	–114
HP-614 (new)	2512180	353670	–140
HP-619 (new)	2515870	352640	–124
HP-621 (new)	2505510	354290	–129
HP-622	2494248	353323	–104
HP-623	2495617	350860	–116
HP-627 (new)	2508310	354030	–131
HP-629 (new)	2504800	355152	–129
HP-641	2504106	353016	–132
HP-643	2494346	356083	–121
HP-645	2497333	356430	–123
HP-646	2497870	357826	–122
HP-647	2499461	356343	–124
HP-648	2506809	355200	–117
HP-649	2508630	354860	–126
HP-650	2510615	354300	–149
HP-651	2503790	348090	–129
HP-663	2510881	352712	–144
HP-698	2492410	355870	–129
HP-699	2490430	355560	–123
HP-700	2488520	355270	–124
HP-701	2487690	353540	–119
HP-703	2496450	358140	–116
HP-704	2495650	359580	–103
HP-705	2501260	356200	–124

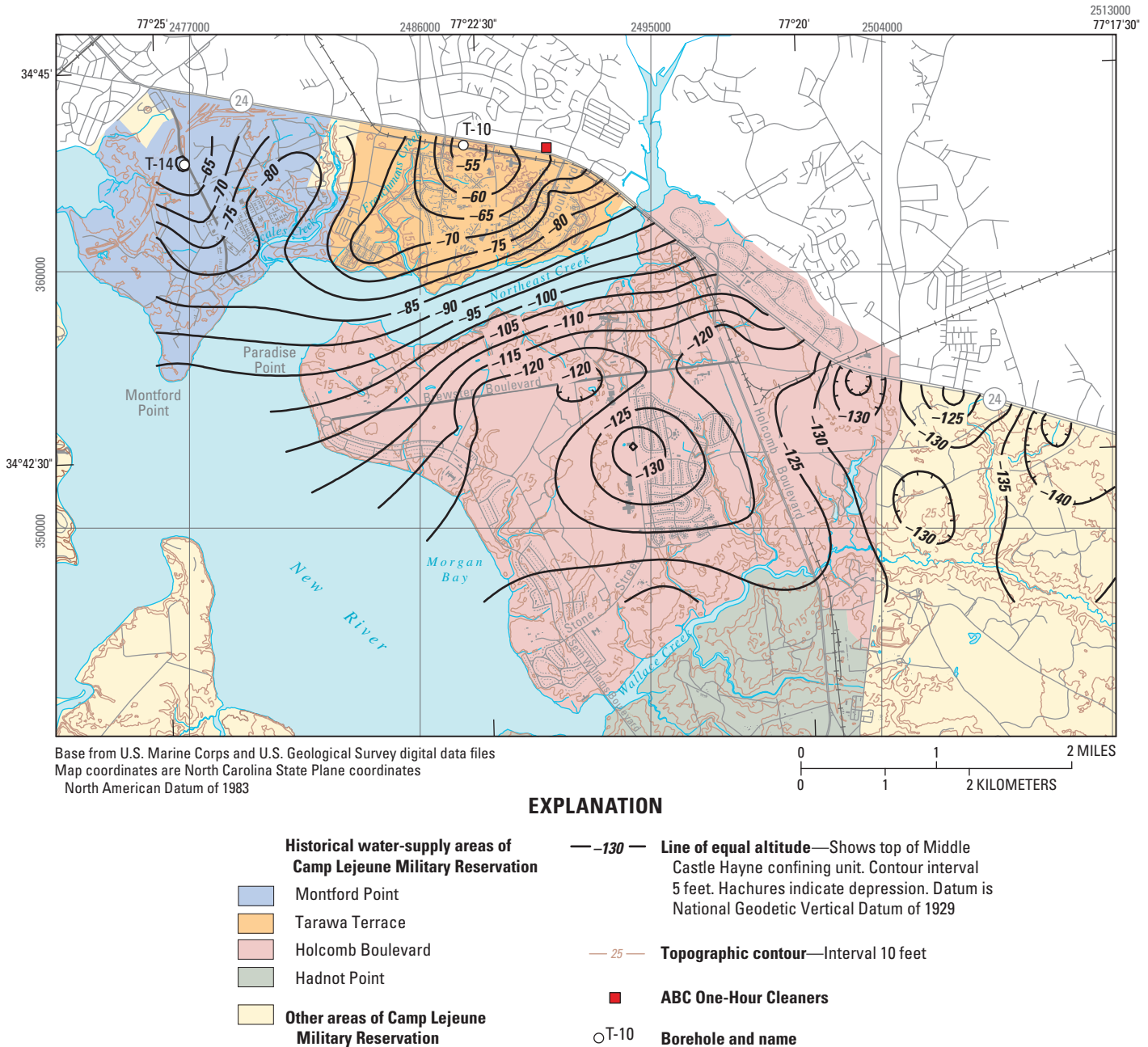
Site name <sup>1</sup>	Location coordinates <sup>2</sup>		Unit altitude, in feet below NGVD 29
	East	North	
HP-706	2502990	355940	–145
HP-708	2514450	353090	–143
HP-709	2505650	351270	–140
HP-710	2507770	351490	–130
HP-711	2509200	352130	–138
LCH-4009	2499585	358589	–108
M-161	2477550	362560	–68
M-168	2477500	362910	–66
M-197	2477626	361621	–71
M-244	2475713	361306	–81
M-267	2476609	359232	–83
M-628	2479434	362735	–82
ON-T2-87	2487495	353878	–115
S190A	2487640	353870	–116
T-1	2507870	355030	–127
T-7	2500628	349685	–120
T-9	2490489	364648	–61
T-10	2487680	364960	–51
T-11	2485278	365352	–71
T-12	2476550	355830	–98
T-13	2481170	363930	–84
T-14	2476788	364170	–59
TT-23	2491024	363208	–76
TT-25	2491984	364042	–67
TT-52	2489060	362321	–65
TT-67	2490160	362730	–66
X24C2	2490640	363540	–66
X24S2	2495523	347221	–133

<sup>1</sup>See Plate 1 for location

<sup>2</sup>Location coordinates are North Carolina State Plane coordinates, North American Datum of 1983

(Figure B20). Contours of equal thickness indicate local areas of greater or lesser thickness rather than a consistent trend in a single direction across the study area, particularly south and east of Brewster Boulevard. In the vicinity of well TT-25, northeast of Tarawa Terrace, unit lithology is described as a “gray silty clay with shell.” At borehole T-12, near the southern extremity of Montford Point, the Middle Castle Hayne confining unit is comprised of soft clay and “streaks”

of rock. In the northern part of Montford Point, in the vicinity of borehole T-13, the unit is described as a “medium soft clay.” At Paradise Point, in the vicinity of well HP-700 and Brewster Boulevard, the unit is a green clay with “limestone.” Elsewhere the unit is poorly differentiated or not differentiated at all in drillers’ logs. The Middle Castle Hayne confining unit is also recognized as a relatively thick zone of low resistivity in borehole electric logs of appropriate depth. Harned et al. (1989)

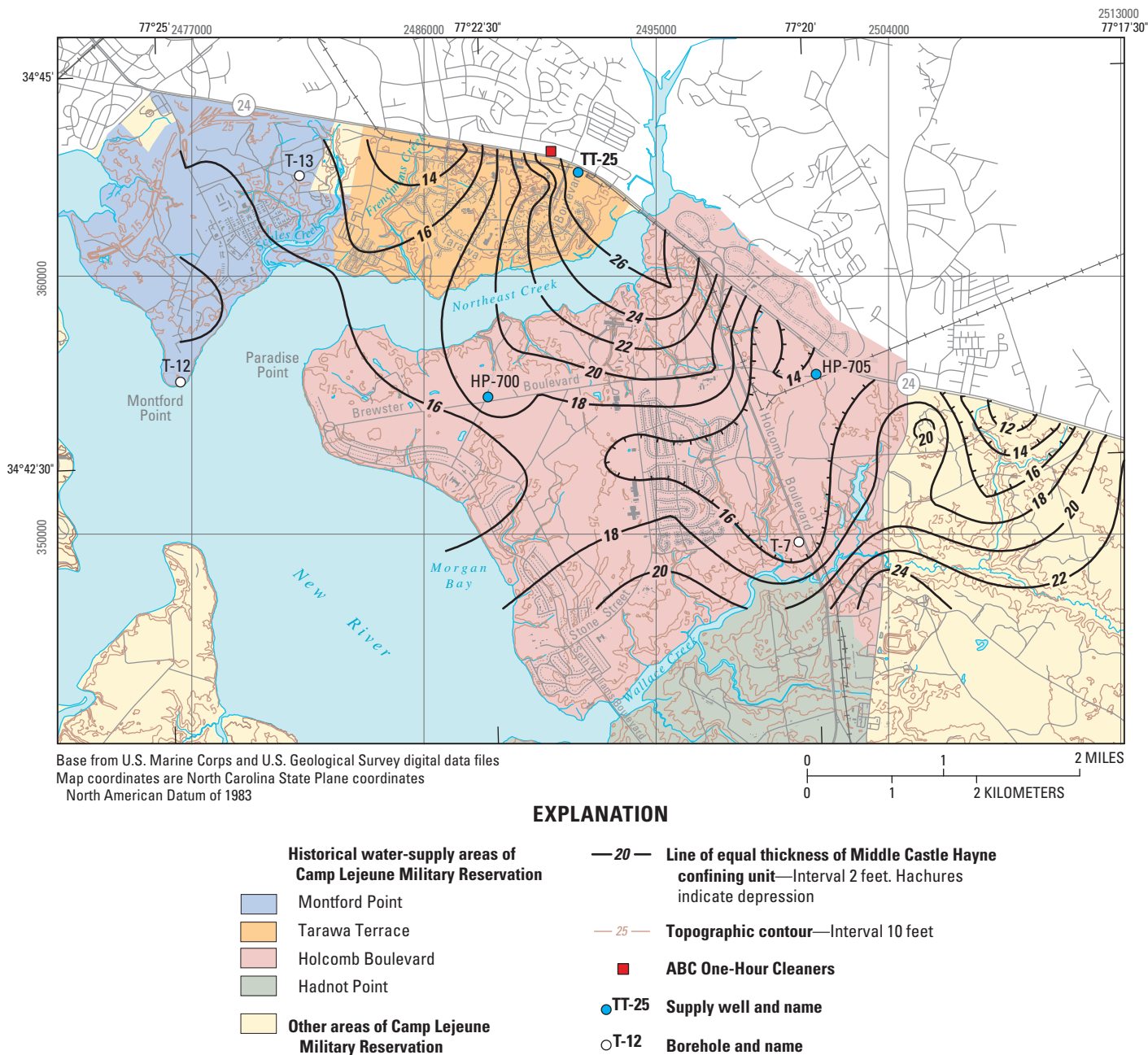


**Figure B19.** Altitude at the top of the Middle Castle Hayne confining unit, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.

## Geohydrologic Framework

and Cardinell et al. (1993, Section A–A') recognized this low-resistivity zone in geophysical logs of several wells and, with minor differences compared to interpretations by this study, correlated the clay identified herein as the Middle Castle Hayne confining unit from well TT-25 near Tarawa Terrace, continuously across Northeast Creek to borehole T-7 and, from there, continuously southeastward across Wallace Creek to the vicinity of Frenchs Creek (Figure B3). On Section B–B'

of Cardinell et al. (1993), the low-resistivity zone identified herein as the Middle Castle Hayne confining unit was recognized at a depth of about 100 ft at borehole T-12, near the southernmost extremity of Montford Point, and correlated continuously from well site to well site eastward to the vicinity of well HP-705, east of Brewster Boulevard near SR 24 (Figure B3).



**Figure B20.** Thickness of the Middle Castle Hayne confining unit, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.

## Middle Castle Hayne Aquifer

The Middle Castle Hayne aquifer is recognized in borehole electric logs as a thick zone of relatively high resistivity and is comprised within most of the study area of fine- to medium-grained, probably calcareous, sand interbedded with silt, clay, and limestone. Northwest of Tarawa Terrace in the vicinity of SR 24 the aquifer is described as a fine sand or fine gray sand in the vicinity of boreholes T-10 and T-11. At Montford Point in the vicinity of well M-267 aquifer lithology is described as a gray, fine- to medium-grained sand with shells and shell fragments. Drillers' logs at several wells in the vicinity of Brewster Boulevard describe the Middle Castle Hayne aquifer as comprised almost entirely of sand and limestone. At borehole T-1, near SR 24 in the southeastern part of the study area, aquifer lithology between 180 and 233 ft below ground surface is described as a fine- to medium-grained gray sand. A loss of drilling fluid is reported across the bottom half of the aquifer at this site, indicating the occurrence of cavernous or highly fractured limestone. At borehole T-7, north of Wallace Creek and near the center of the study area, aquifer lithology is described as "fine gray sand and loose shells."

Contours of equal altitude at the top of the Middle Castle Hayne aquifer are shown in Figure B21. The surface generally declines northwest to southeast but is irregular in the vicinity of several depressions near and south of Brewster Boulevard and to the southeast near SR 24. Maximum altitude occurs northwest of Tarawa Terrace at about -65 ft (Table B11). A minimum altitude of less than -155 ft occurs near the center of a relatively large depression, generally south of SR 24 near the eastern limit of the study area.

Contours of equal thickness of the Middle Castle Hayne aquifer are shown in Figure B22. Thickness varies lesser to greater northwest to southeast and from east to west across the study area toward a maximum of about 120 ft near SR 24 and east southeast of the intersection of Brewster and Holcomb Boulevards. A minimum thickness of about 35 ft occurs just east of Montford Point.

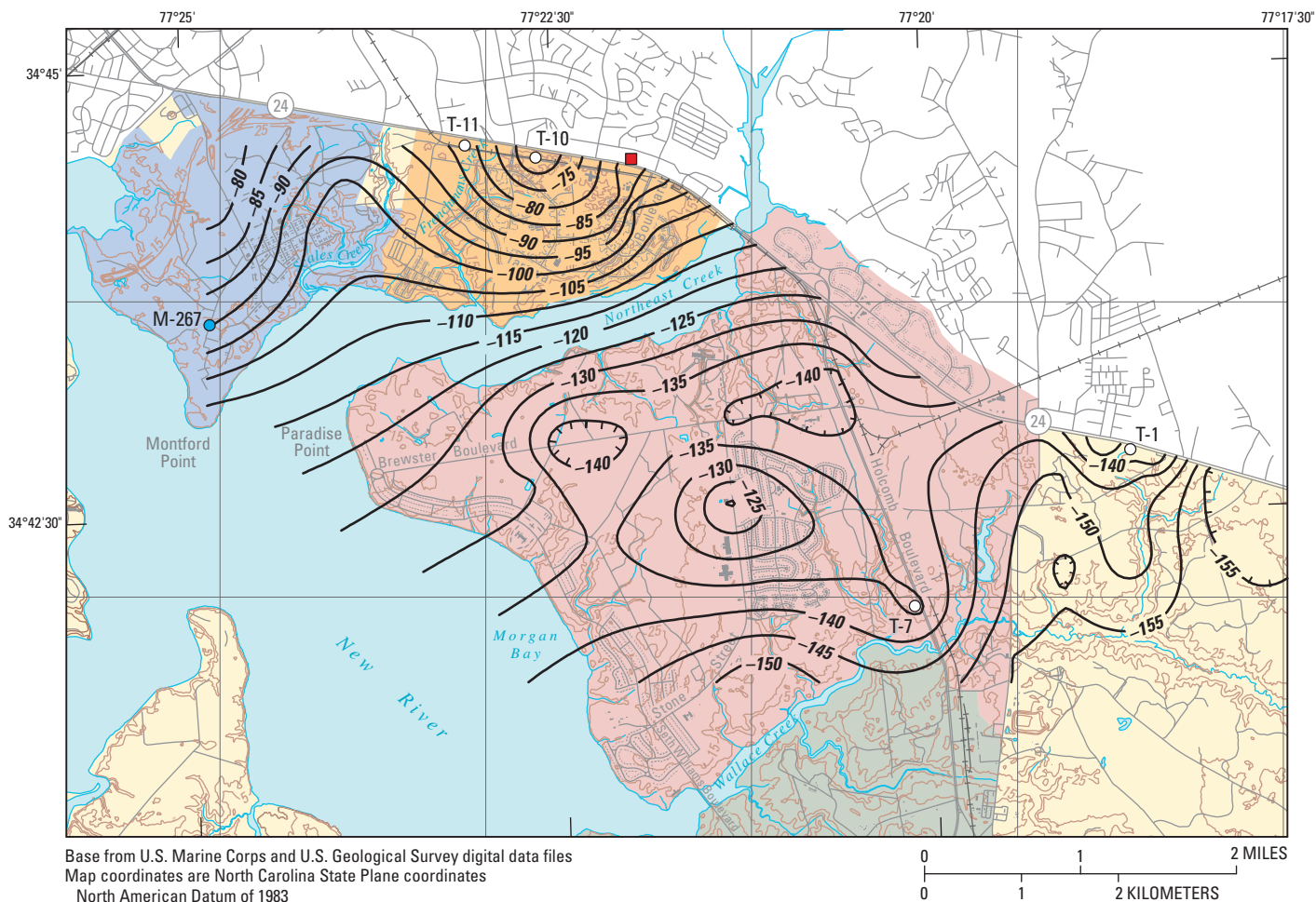
**Table B11.** Altitude at the top of the Middle Castle Hayne aquifer, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.

[NGVD 29, National Geodetic Vertical Datum of 1929]

Site name <sup>1</sup>	Location coordinates <sup>2</sup>		Unit altitude, in feet below NGVD 29
	East	North	
HP-607 (new)	2496820	352510	-129
HP-614 (new)	2512180	353670	-160
HP-619 (new)	2515870	352640	-144
HP-621 (new)	2505510	354290	-150
HP-622	2494248	353323	-119
HP-623	2495617	350860	-134
HP-627 (new)	2508310	354030	-147
HP-629 (new)	2504800	355152	-147
HP-643	2494346	356083	-141
HP-645	2497333	356430	-143
HP-646	2497870	357826	-140
HP-647	2499461	356343	-138
HP-648	2506809	355200	-131
HP-649	2508630	354860	-136
HP-650	2510615	354300	-163
HP-651	2503790	348090	-155
HP-663	2510881	352712	-162
HP-699	2490430	355560	-141
HP-700	2488520	355270	-144
HP-703	2496450	358140	-138
HP-704	2495650	359580	-129
HP-708	2514450	353090	-167
HP-709	2505650	351270	-156
HP-710	2507770	351490	-146
HP-711	2509200	352130	-154
LCH-4009	2499585	358589	-122
M-161	2477550	362560	-82
M-197	2477626	361621	-87
M-267	2476609	359232	-95
M-628	2479434	362735	-98
ON-T2-87	2487495	353878	-129
S190A	2487640	353870	-130
T-1	2507870	355030	-139
T-7	2500628	349685	-134
T-9	2490489	364648	-86
T-10	2487680	364960	-65
T-11	2485278	365352	-83
T-12	2476550	355830	-114
T-13	2481170	363930	-102
T-14	2476788	364170	-75
TT-23	2491024	363208	-101
TT-25	2491984	364042	-95
TT-67	2490160	362730	-88
X24C2	2490640	363540	-86
X24S2	2495523	347221	-155

<sup>1</sup>See Plate 1 for location

<sup>2</sup>Location coordinates are North Carolina State Plane coordinates, North American Datum of 1983

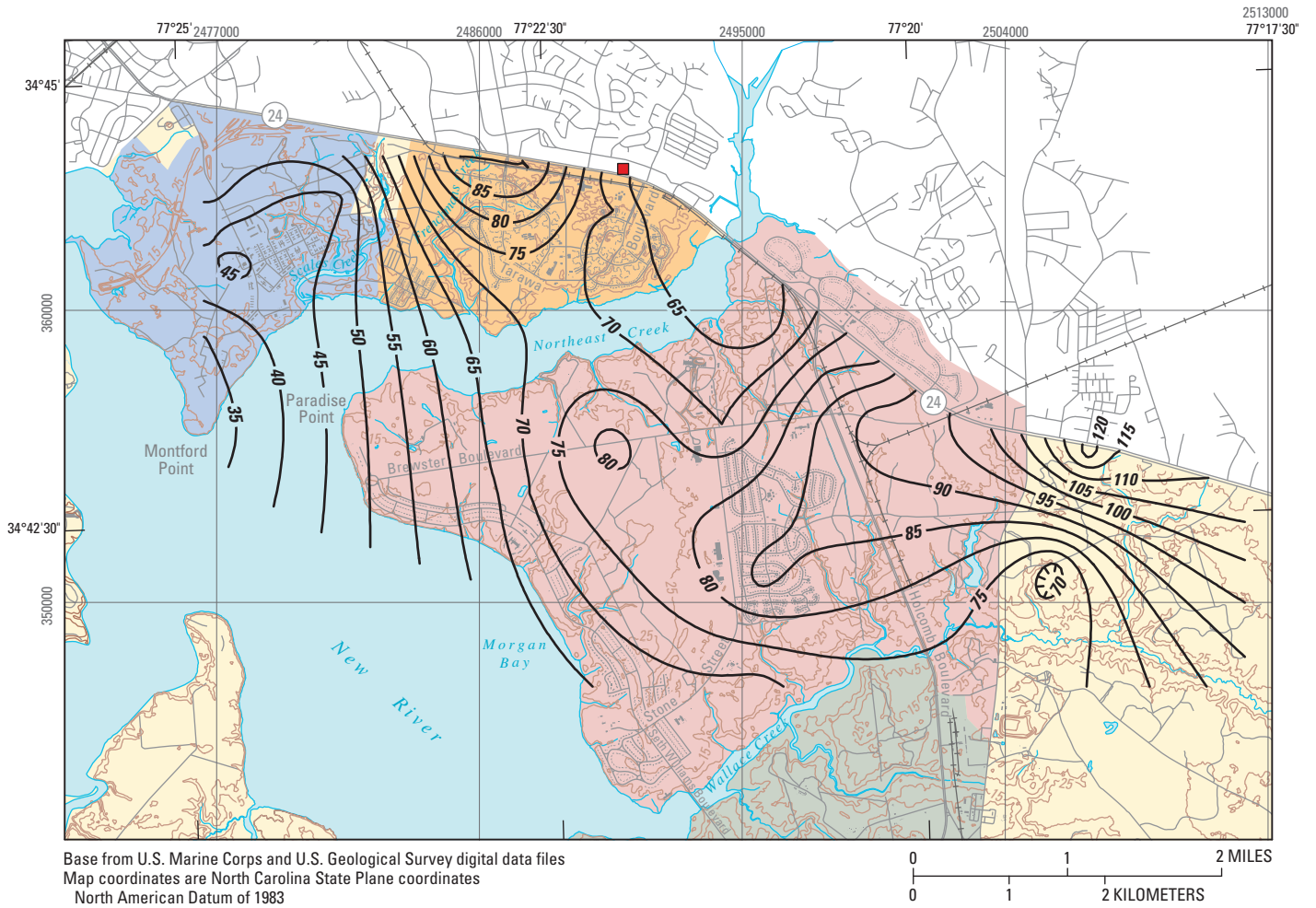


**EXPLANATION**

- |   |  |
|---|--|
| <p><b>Historical water-supply areas of Camp Lejeune Military Reservation</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> Montford Point</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> Tarawa Terrace</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFA07A; border: 1px solid black; margin-right: 5px;"></span> Holcomb Boulevard</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Hadnot Point</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFF00; border: 1px solid black; margin-right: 5px;"></span> Other areas of Camp Lejeune Military Reservation</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>—140—</b> <b>Line of equal altitude</b>—Shows top of Middle Castle Hayne aquifer. Contour interval 5 feet. Hachures indicate depression. Datum is National Geodetic Vertical Datum of 1929</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>—25—</b> <b>Topographic contour</b>—Interval 10 feet</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border: 1px solid black; margin-right: 5px;"></span> <b>ABC One-Hour Cleaners</b></li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid blue; border-radius: 50%; margin-right: 5px;"></span> <b>M-267</b> <b>Supply well and name</b></li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; border-radius: 50%; margin-right: 5px;"></span> <b>T-11</b> <b>Borehole and name</b></li> </ul> |
|---|--|

**Figure B21.** Altitude at the top of the Middle Castle Hayne aquifer, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.





**EXPLANATION**

- |   |   |
|---|---|
| <p><b>Historical water-supply areas of Camp Lejeune Military Reservation</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #a0c0ff; border: 1px solid black; margin-right: 5px;"></span> Montford Point</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #ffcc99; border: 1px solid black; margin-right: 5px;"></span> Tarawa Terrace</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #e0b0b0; border: 1px solid black; margin-right: 5px;"></span> Holcomb Boulevard</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #c0d0c0; border: 1px solid black; margin-right: 5px;"></span> Hadnot Point</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #fff2cc; border: 1px solid black; margin-right: 5px;"></span> Other areas of Camp Lejeune Military Reservation</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>70</b> — Line of equal thickness of Middle Castle Hayne aquifer—Interval 5 feet. Hachures indicate depression</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>25</b> — Topographic contour—Interval 10 feet</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border: 1px solid black; margin-right: 5px;"></span> <b>ABC One-Hour Cleaners</b></li> </ul> |
|---|---|

**Figure B22.** Thickness of the Middle Castle Hayne aquifer, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.

## Lower Castle Hayne Confining Unit

Contours of equal altitude at the top of the Lower Castle Hayne confining unit indicate the top of the unit declines relatively uniformly northwest to southeast and ranges from a maximum altitude of about –125 ft (Table B12) north of Montford Point to about –265 ft near the southeastern limit of the study area (Figure B23). Confining unit thickness also declines gradually northwest to southeast in a pattern somewhat similar to that of surface altitude (Figure B24). Confining unit thickness ranges from a maximum of about 32 ft in the northern part of Tarawa Terrace to a minimum of about 20 ft north of the confluence of Wallace and Northeast Creeks and near the southeastern limit of the study area in the vicinity of SR 24.

The lithology of the Lower Castle Hayne confining unit in the vicinity of Tarawa Terrace and Montford Point is generally described as a gray, sandy or silty, “medium hard,” clay containing shells and shell fragments. At borehole T-12, in the southern part of Montford Point, the confining unit is described as a “greenish,” soft, sandy clay. At borehole T-1, near SR 24 and the southeastern corner of the study area, the unit is described as a soft sandy clay containing “soft rock.” Elsewhere the confining unit is poorly differentiated in drillers’ logs and specific descriptions are not available. Cardinell et al. (1993, Section A–A’) recognized the clay described herein as the Lower Castle Hayne confining unit at a depth of about 190 ft in the electric log obtained at well TT-25 northeast of Tarawa Terrace and extrapolated this unit to well HP-645 located near the intersection of Brewster and Holcomb Boulevards (Figure B3). Section B–B’ of Cardinell et al. (1993) shows a continuous correlation of the zone of low resistivity designated herein as the Lower Castle Hayne confining unit beginning at borehole T-12 in the southern part of Montford Point eastward and southeastward to the vicinity of borehole T-1, near the southeastern corner of the study area.

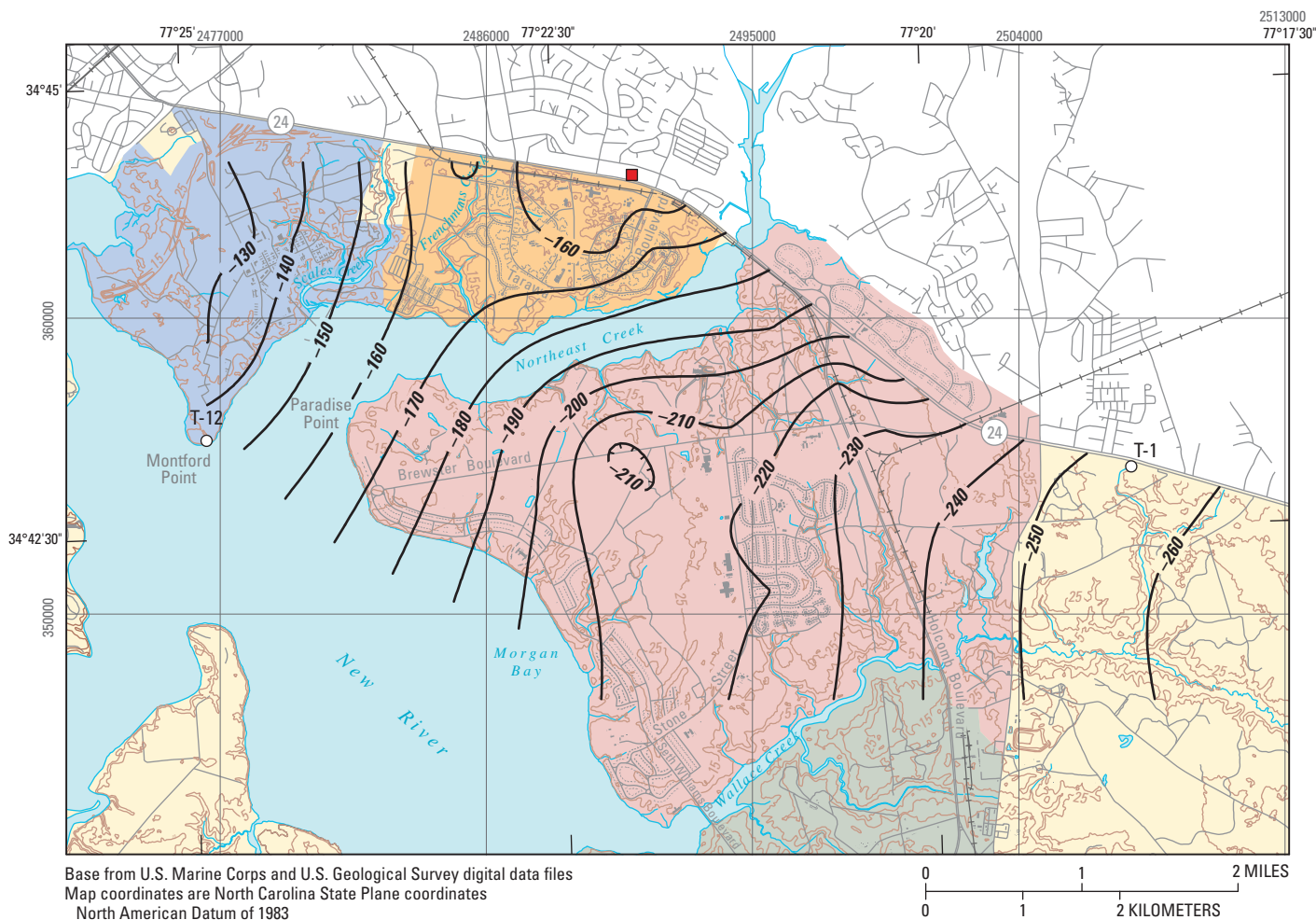
**Table B12.** Altitude at the top of the Lower Castle Hayne confining unit, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.

[NGVD 29, National Geodetic Vertical Datum of 1929]

Site name <sup>1</sup>	Location coordinates <sup>2</sup>		Unit altitude, in feet below NGVD 29
	East	North	
HP-614 (new)	2512180	353670	–268
HP-621 (new)	2505510	354290	–252
HP-623	2495617	350860	–220
HP-643	2494346	356083	–211
HP-645	2497333	356430	–227
HP-646	2497870	357826	–221
HP-647	2499461	356343	–230
HP-648	2506809	355200	–253
HP-649	2508630	354860	–250
HP-699	2490430	355560	–223
HP-704	2495650	359580	–191
LCH-4009	2499585	358589	–200
M-161	2477550	362560	–125
M-197	2477626	361621	–134
M-267	2476609	359232	–130
M-628	2479434	362735	–140
ON-T2–87	2487495	353878	–197
S190A	2487640	353870	–200
T-1	2507870	355030	–252
T-9	2490489	364648	–153
T-10	2487680	364960	–155
T-11	2485278	365352	–173
T-12	2476550	355830	–146
T-13	2481170	363930	–146
T-14	2476788	364170	–127
TT-23	2491024	363208	–170
TT-25	2491984	364042	–155
TT-67	2490160	362730	–156
X24C2	2490640	363540	–156
X24S2	2495523	347221	–223

<sup>1</sup>See Plate 1 for location

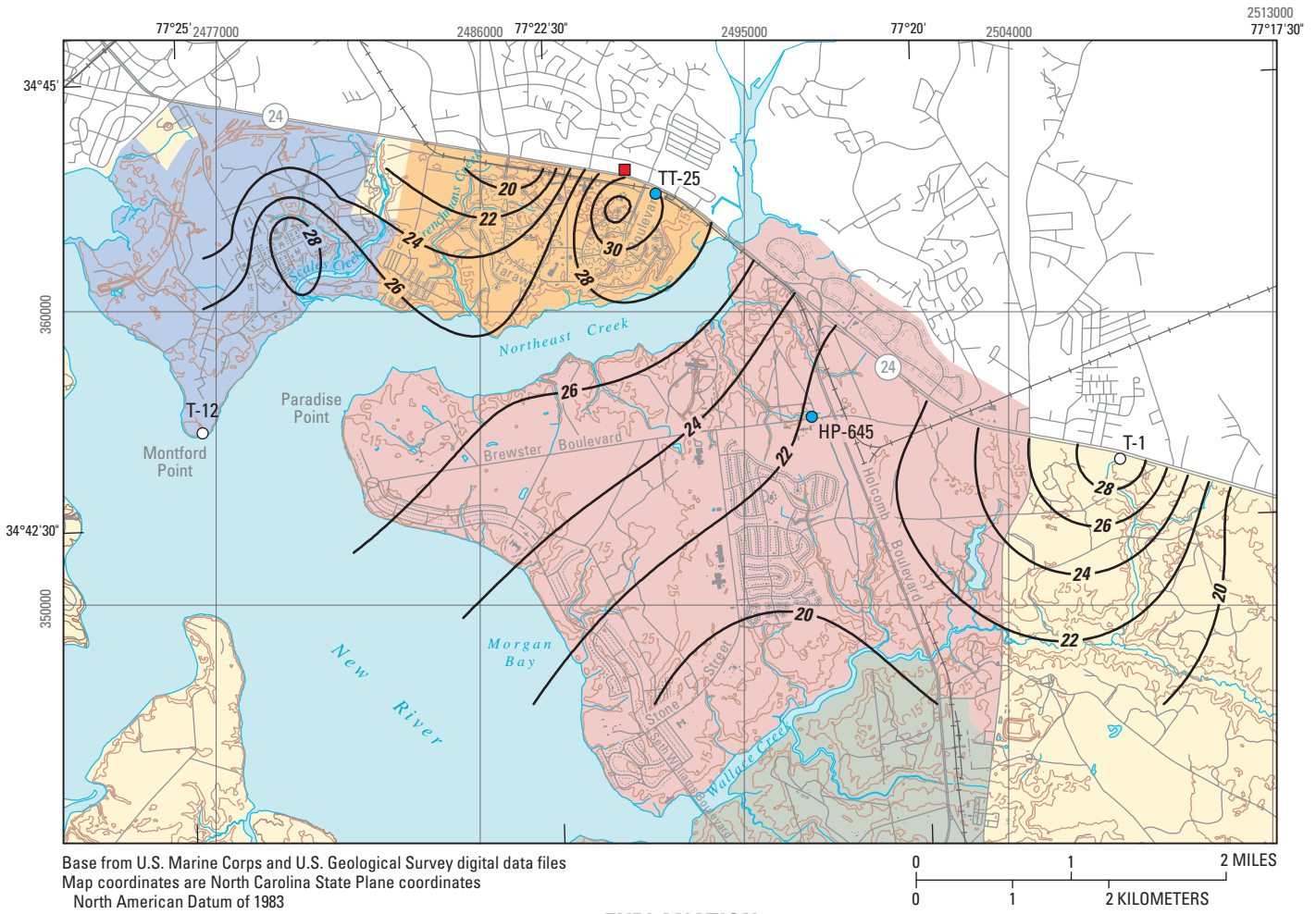
<sup>2</sup>Location coordinates are North Carolina State Plane coordinates, North American Datum of 1983



**EXPLANATION**

- |   |   |
|---|---|
| <p><b>Historical water-supply areas of Camp Lejeune Military Reservation</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> Montford Point</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFD700; border: 1px solid black; margin-right: 5px;"></span> Tarawa Terrace</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFB6C1; border: 1px solid black; margin-right: 5px;"></span> Holcomb Boulevard</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Hadnot Point</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #FFFFE0; border: 1px solid black; margin-right: 5px;"></span> Other areas of Camp Lejeune Military Reservation</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>-220-</b> <b>Line of equal altitude</b>—Shows top of Lower Castle Hayne confining unit. Contour interval 10 feet. Hachures indicate depression. Datum is National Geodetic Vertical Datum of 1929</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>-25-</b> <b>Topographic contour</b>—Interval 10 feet</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border: 1px solid black; margin-right: 5px;"></span> <b>ABC One-Hour Cleaners</b></li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; border-radius: 50%; margin-right: 5px;"></span> <b>T-1</b> <b>Borehole and name</b></li> </ul> |
|---|---|

**Figure B23.** Altitude at the top of the Lower Castle Hayne confining unit, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.



**EXPLANATION**

- |   |  |
|---|--|
| <p><b>Historical water-supply areas of Camp Lejeune Military Reservation</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #ADD8E6; border: 1px solid black; margin-right: 5px;"></span> Montford Point</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFA500; border: 1px solid black; margin-right: 5px;"></span> Tarawa Terrace</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFB6C1; border: 1px solid black; margin-right: 5px;"></span> Holcomb Boulevard</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #90EE90; border: 1px solid black; margin-right: 5px;"></span> Hadnot Point</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #FFFFE0; border: 1px solid black; margin-right: 5px;"></span> Other areas of Camp Lejeune Military Reservation</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>20</b> Line of equal thickness of Lower Castle Hayne confining unit—Interval 2 feet</li> <li><span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> <b>25</b> Topographic contour—Interval 10 feet</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; border: 1px solid black; margin-right: 5px;"></span> <b>ABC One-Hour Cleaners</b></li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: blue; border-radius: 50%; border: 1px solid black; margin-right: 5px;"></span> <b>TT-25 Supply well and name</b></li> <li><span style="display: inline-block; width: 10px; height: 10px; border: 1px solid black; border-radius: 50%; margin-right: 5px;"></span> <b>T-1 Borehole and name</b></li> </ul> |
|---|--|

**Figure B24.** Thickness of the Lower Castle Hayne confining unit, Tarawa Terrace and vicinity, U.S. Marine Corps Base Camp Lejeune, North Carolina.