

The primary mission of Fort Monmouth is to provide command, administrative, and logistical support for Headquarters, U.S. Army Communications and Electronics Command (CECOM). The support provided by the installation is used by tenant activities in the performance of research, development, procurement, and production of prototype communications and electronics equipment for use by the United States Armed Forces. The Main Post provides supporting administrative, training, and housing functions, as well as many of the community and industrial facilities for Fort Monmouth. These facilities are distributed across the property, with no distinct clustering of functions. The Charles Wood Area is used primarily for research and development, testing, housing, and recreation. Research, development and testing facilities occupy the southwest corner of the subpost, residential areas are located in the northwest corner and along the southeastern boundary, and the golf course occupies the northeast corner. Currently, the workforce population at Fort Monmouth numbers approximately 7,000 (military and civilian personnel). In addition, approximately 1,173 dependents live on the Main Post or Charles Wood Area in family housing, bringing the total combined installation population to more than 8,000.

Fort Monmouth is located in the central-eastern portion of New Jersey in Monmouth County, approximately 45 miles south of New York City, 70 miles northeast of Philadelphia, and 40 miles north of Trenton, the State Capital. The Atlantic Ocean is approximately 3 miles to the east. Fort Monmouth falls within the boroughs of Eatontown, Oceanport, and Tinton Falls. The areas surrounding Fort Monmouth are characterized by a mixture of residential, commercial, and light industrial uses. A review of the land use plans for the surrounding municipalities shows that land uses in the surrounding municipalities are compatible with those along the inside perimeter of the Site. Figure _____ includes a Site Location Map for the Site. Fort Monmouth occupies approximately 1,350 acres and is currently comprised of two operational areas, the Main Post and the Charles Wood Area. The two areas are located about 2 miles from one another.

The Main Post encompasses approximately 630 acres and contains a total of 397 buildings and structures. The Main Post is bounded by State Highway 35 to the west, Parkers Creek to the north, the New Jersey Transit Railroad to the east, and Main Street and State Highway 71 to the south. UTM coordinate locations for the Main Post include:

Northeast Corner:
Southeast Corner:
Northwest Corner:
Southwest Corner:

The Charles Wood Area, located 2 miles west of the Main Post, is composed of approximately 511 acres and contains a total of 241 buildings and structures. The Charles Wood Area is bounded by the Garden State Parkway to the west,

Tinton Avenue to the north, Maxwell Place and the New Jersey Transit Railroad to the east, and Pine Brook Road to the south. UTM coordinate locations for the Charles Wood area include:

Northeast Corner:

Southeast Corner:

Northwest Corner:

Southwest Corner:

Prior to 1996, Fort Monmouth also included a third operational area – the Evans Area – located approximately 12 miles south of the Main Post. The Evans Area is excluded from this assessment since it is being managed under the Base Realignment and Closure (BRAC) program, which was implemented in fiscal year (FY) 1993.

Both the Main Post and Charles Wood Area are nearly level except for short, steep slopes along streams and waterways. Topographic gradient slopes gently to the east in both areas, within the drainage network of local tributaries to the Shrewsbury River. Elevations at the Main Post range from about 6 feet above mean sea level (amsl) at stream edges to 30 feet amsl near the center of the post. Elevations at the Charles Wood Area range from about 27 to 60 feet amsl, the lowest elevations are along Wampum Brook near the eastern property boundary.


4.5.1 Climate

Fort Monmouth is situated in the temperate zone of the middle Atlantic states, creating a moderate temperature variation and range on a yearly basis. Humidity is high in the area because of the proximity to the Atlantic Ocean, and as a result, summers are relatively cooler and winters milder than elsewhere at the same latitude. Weather conditions are affected by northwest and southwest winds. Normal ocean temperatures range from an average near 37 degrees Fahrenheit (°F) in January to near 72 °F in August. The coldest temperatures occur in January, ranging from 23 to 41 °F, but winter temperatures rarely fall below 0 °F. Summer temperatures range from 65 to 84 °F and frequently reach 90 °F from late May through early September.

The precipitation at Fort Monmouth is considered moderate, with an average monthly rainfall or snow and rain mixture of 3.5 inches and an annual average of 45 inches. Summer thunderstorms occasionally combine high winds with heavy rainfall, though destructive storms are infrequent in Monmouth County. Heavy rains have occurred in connection with hurricanes, which sometime move northward along the mid-Atlantic coast. The average date of the last freezing

temperature in spring is 20 April and of the first freeze in autumn, 19 October. The average seasonal snowfall for Monmouth County is 25 inches; at least 1 inch of snow is present on the ground an average of 9 days a year.

4.5.2 Topography

Topography at the Main Post and CWA is characterized generally by level land areas. Elevations above mean sea level range from 5 to 34 feet and 26 to 60 feet, respectively. Topographic gradient slopes from west to east in both areas. Appendix  provides the Longbranch USGS 7.5 minute quadrangle map for Fort Monmouth and surrounding areas. Over the last 80 years, the natural topography of Ft Monmouth has been altered by excavation and filling activities by the military. The dominant topographic feature affecting contaminant transport and fate is the network of tributaries throughout Fort Monmouth that drain to the Shrewsbury River. The drainage network is discussed in detail in the next section. Wetland areas are discussed in Section 4.6.1.

4.5.3 Surface Water Hydrology



Fort Monmouth is in the Atlantic Coast Drainage Basin and the Shrewsbury River Watershed, which contains tributary streams with a low gradient. The Main Post is drained by a number of waterways that flow generally from west to east. Mill Brook enters Fort Monmouth along its southwestern boundary and flows partially through the post before turning north and meeting Lafetra Brook. Lafetra Brook originates off post and, along with Parkers Creek, forms the northern boundary to the Main Post. Parkers Creek originates at the confluence of Lafetra Brook and Mill Brook and flows along the northern boundary of Fort Monmouth until it discharges into the Shrewsbury River, directly to the east of the Main Post. Parkers Creek is a shallow tidal estuary having an average depth of 3 feet at mean tide. Parkers Creek is considered environmentally sensitive because it provides habitat for various species of indigenous wildlife. The northern half of the Main Post is located within the Parkers Creek sub-watershed.


Husky Brook, a fresh water stream originating off post, drains the southern half of the Main Post lying within the Husky Brook sub-watershed. A portion of the brook has been dredged, widened and dammed to form Husky Brook Lake that is used for recreational purposes. Husky Brook Lake mainly serves as a picnic area for Fort Monmouth personnel. Downstream from the lake, Husky Brook is piped underground for several hundred feet before it again surfaces and eventually runs into Oceanport Creek. Oceanport Creek, to the east of the Oceanport Avenue bridge, is periodically dredged by a NJDEP permitted contractor in order to maintain a marina for Fort Monmouth personnel. The creek is considered environmentally sensitive because it provides habitat for various species of indigenous wildlife. Oceanport Creek is a tidal stream that flows along the southern boundary of the Main Post before emptying into the Shrewsbury River. The Shrewsbury River is a tidal estuary that empties into Sandy Hook Bay and is separated from the Atlantic


Ocean by a narrow barrier beach ending at Sandy Hook. The Atlantic Ocean is within 3 miles of the Main Post.

The CWA is located approximately one mile southwest of the Main Post. It is separated from the Main Post by a portion of the borough of Eatontown. The southern portion of the CWA is drained by two streams that unite at a point near the eastern boundary. Its southernmost branch originates south of the CWA; the other stream originates within a lowland wooded area in the vicinity of the old sewage treatment plant. These two streams become the main stem of Wampum Brook, which flows through Eatontown and forms a small fresh water pond called Wampum Lake. Wampum Lake gives rise to Mill Brook, which eventually flows into the Main Post.

Another stream ("northern tributary to Wampum Brook") originates near the CWA's western boundary and flows through the area and into the golf course. This tributary unites with Wampum Brook at a point east of the CWA boundary.

Figure  presents the surface water network on Fort Monmouth. Figure  presents the BMP areas for stormwater management and stormwater outfall locations.

An extensive stormwater drainage system was constructed at Fort Monmouth about 55 years ago. The system was designed to supplement the natural drainage and prevent localized flooding. The stormwater drainage system discharges at various points into Wampum Brook, Husky Brook, Husky Brook Lake, Lafetra Creek, Mill Brook, Parkers Creek, and Oceanport Creek. Because of the age of the system, many pipes and catch basins are in need of repair. The storm drainage system in the 600 area of the Main Post adequately carries stormwater drainage and is not subject to flooding. Some of the stormwater drainage system outfalls on the Main Post are below the elevation of the mean high tide, particularly along Oceanport Creek and Parkers Creek. Thus, during high tides water backs up into the stormwater drainage system. The extreme southeastern portion of the Main Post is subject to flooding during high tides combined with heavy rains. 

. However, the 100-year base flood elevation for Wampum Creek at the eastern boundary of the CWA is 26 feet, while ground surface elevations at the CWA range from 27 to 60 feet amsl.

4.5.4 Geology

Fort Monmouth is located on the Outer Coastal Plain, one of five physiographic provinces in New Jersey. To the northwest is the boundary between the Outer and Inner Coastal Plains, marked by a line of hills extending southwest, from the Atlantic Highlands overlooking Sandy Hook Bay, to a point southeast of

Freehold, New York, and then across the State to the Delaware Bay. The Outer Coastal Plain is low, flat, cut by streams, and slopes gently to the east.

The earliest Atlantic Coastal Plain was formed by the deposition of sediments on metamorphic rocks. During the Cretaceous period and the Tertiary era, this land was successively inundated and exposed, and deposits were laid down. As a result, unconsolidated sediments characterize the geology of the region. Period formations have been identified in northern Monmouth County, to a depth of more than 1,200 feet below sea level. Bedrock is approximately 1,300 feet below sea level. The eastern half of the Main Post is underlain by the Red Bank formation, ranging in thickness from 0 to 140 feet. The western half of the Main Post is underlain by the Hornerstown formation, ranging in thickness from 20 to 30 feet. The predominant formation underlying the CWA is also Hornerstown, with small areas of the Vincentown formation intruding in the southwest corner. Sand and gravel deposited in recent geologic times lie above these formations. Interbedded sequences of clay serve as semi-confining beds for groundwater.

Udorthents-Urban land is the primary classification of soils on Fort Monmouth, which have been modified by excavating or filling. Soils at the Main Post include Freehold sandy loam, Downer sandy loam, and Kresson loam. Freehold and Downer are somewhat well drained, while Kresson is a poorly drained soil. The CWA has sandy loams of the Freehold, Shrewsbury, and Holmdel types. Shrewsbury is a hydric soil. Kresson and Holmdel are hydric due to inclusions of Shrewsbury. Downer is not generally hydric, but can be.

The water table is relatively shallow at the installation and fluctuates with the tidal action in Parkers and Oceanport creeks at the Main Post. The depth to groundwater on the installation is between 5 and 12 feet. [REDACTED] The Hornerstown formation acts as an upper boundary of the Red Bank aquifer, but it might yield enough water within its own outcrop to supply individual household needs. The Red Bank outcrops along the northern edges of Fort Monmouth. The Red Bank contains two members, an upper sand member and a lower clayey sand member. The upper sand member functions as the aquifer and is probably present on some of the surface of the Main Post and at a shallow depth below the CWA. The Red Bank supplied many domestic wells with water at one time. The Hornerstown and Red Bank formations overlay the larger Wenonah-Mount Laurel aquifer.

Eight (8) sites at Fort Monmouth have petitioned the NJDEP for classification of groundwater as Classification Exception Areas (CEAs) due to contaminants of concern at the sites exceeding the NJDEP Groundwater Quality Criteria. The following are the sites included in the petitions:

- M-12 Landfill site
- M-18 Landfill site
- Site 80/166

- Site 108
- Site 283
- Site 812
- Site 1122
- Site 2567

4.5.5 Demography and Land Use

Most of the Fort Monmouth workforce living off post resides in Middlesex, Monmouth, and Ocean counties. At the time of the 2000 Census, the total combined population in the three counties was approximately 1.88 million persons (Middlesex County, 750,162; Monmouth County, 615,301; and Ocean County, 510,916), compared to the total 2000 population of 8.4 million for the entire state of New Jersey. The population density in the counties surrounding Fort Monmouth averages 1,509 persons per square mile which is typical of northern New Jersey counties, the most densely populated state in the nation.

The Fort Monmouth population includes approximately 824 members of the active military; 6,113 civilians; 3,500 permanent contractors; 870 reserves; 1,648 family members; and 12,070 retirees.

Fort Monmouth is primarily suburban in character, being surrounded by the communities of Shrewsbury to the north, Oceanport to the east, and Eatontown to the south. The New Jersey Garden State Parkway forms the western boundary. Agricultural areas are found in the region, while recreational developments are along the ocean shore. The areas surrounding Fort Monmouth are characterized by a mixture of residential, commercial, and light industrial uses. Land uses in the surrounding municipalities are compatible with those along the inside perimeter of the Main Post and CWA.

The Main Post provides supporting administrative, training, and housing functions, as well as many of the community and industrial facilities for Fort Monmouth. These facilities are distributed across the property, with no distinct clustering of functions. The CWA is used primarily for research and development, testing, housing, and recreation. Research, development, and testing facilities occupy the southwest corner of the CWA, residential areas are located in the northwest corner and along the southeastern boundary, and the golf course occupies the northeast corner. Both the Main Post and the CWA contain ample green space.