

development density give the soil characteristics. The remaining wetlands found throughout the Township consist of finger-shaped wetlands associated with stream areas. The majority of wetlands found within Marlboro Township would be considered intermediate resource value wetlands. No tidal/coastal wetlands exist within the Township.

Wetlands are classified in a system of hierarchy proceeding from the general to the specific. The first broad level, the system, represents a complex of wetlands and deepwater habitats that share the influence of similar hydrologic and biological factors. The only wetland system located in Marlboro Township is the Palustrine system.

The Palustrine wetland system is the dominant wetland in New Jersey. It also represents the most diverse group of wetlands in the State. Considerable vegetation change in Palustrine wetlands can be observed from the north to the south due to changes in climate, hydrology and soils. Palustrine wetlands are further divided into classes based upon the diversity of the systems. There are five classes of Palustrine wetlands located in Marlboro Township. Presented below is a listing and descriptions of the classes found in the Township.

PEM – Palustrine Emergent Wetlands

Palustrine Emergent Wetlands are freshwater marshes dominated by persistent and non-persistent grasses, rushes, sedges, forbs and other herbaceous and grass-like plants. This non-tidal wetland is the most common in Northern New Jersey. Dominant vegetation of this wetland include cattails, arrow arum, sedge, rice cutgrass, water willow, blue joint, wool grass, common reed, soft rush, burreeds, pickerelweed, sweet flag, millet, purple loosestrife, smartweed, arrowheads, bulrushes and goldenrods.

PEM6 – Palustrine Emergent Wetland: Flooded

Palustrine Emergent Wetland Flooded is similar to PEM with regards to plant community characteristics. PEM6 wetland is unique in that it remains flooded or saturated with water for a majority of the year. This enables different types of wildlife to inhabit this type of wetland.

PFO1 – Palustrine Forested Wetland, Broad Leaf Deciduous

Palustrine Forested Wetland is the most dominant wetland class in the state. This type of wetland is located along rivers, streams and upland depressions. Forested wetlands typically contain woody vegetation greater than 20 feet in size. Vegetation common to this wetland type include Red Maple, White Ash, Silver Maple, Pin Oak, Black Willow, Sycamore and Sweetgum. These vegetation types will differ due to changes in soil, hydrology and land use pattern.

PSS1 – Palustrine Scrub-Shrub Wetlands, Broad Leaf Deciduous

Palustrine Scrub-Shrub Wetlands are shrub swamps containing vegetation less than 20 feet in height. Dominant vegetation includes Specked Alder, Smooth Alder, Willows, Buttonbush, Silky Dogwood, Arrowwood, Meadowsweet, Steeplebush, Blueberry and

Swamp Rose. Types of deciduous vegetation will vary due to soils, tree overstory and hydrology.

POW – Palustrine Open Water

Palustrine Open Water consists of wetlands of unknown bottoms, lakes, rivers and ponds. These wetlands are typically used for various types of recreational activities. This wetland also contains a wide variety of vegetation.

The above wetland systems and classes were prepared in conjunction with the National Wetlands Inventory Maps of 1977 and further mapped by the NJDEP in 1987. Precise locations of wetlands boundaries should be field located by an environmental specialist and then verified and approved in conjunction with the site plan or subdivision by NJDEP Bureau of Freshwater Wetland in the form of a Letter of Interpretation (LOI). The LOI will confirm the presence or absence of wetlands as well as assign a resource classification value as associated transition area to the wetlands.

As mentioned above, the Freshwater Wetlands Protection Act (N.J.A.C. 7:7A) protects the wetlands of Marlboro Township by requiring a permit from the NJDEP for nearly all activities which will be carried out either within a wetland, wetland transition area or State open water such as filling, excavation, placement of pavement and construction of structures. The Freshwater Wetlands Protection Act supercedes all municipal land use law and zoning ordinances.

VEGETATION

VEGETATION

The Township of Marlboro has a wide range of vegetation located within its boundary. Many factors, such as hydrology, climate, soil and slope affect the size and type of the vegetation communities that inhabit an area. The Township of Marlboro has seven forest types typical of the region. They are Oak Hickory, Tulip, Oak-Yellow Poplar, Sweetgum, Red Maple, Blackgum, Oak Pine and Pine Oak.

It should be noted that these stands consists of a diversity of vegetation and that the forest “types” used above are a classification system and do not represent the entire composition of the forest stand. In general, the first plant type in the name is the one of greatest abundance. While the second plant type (if listed) is somewhat less common.

Coastal plains and drier upland areas also contain an abundance of Maple, Locust, Wild Cherry, Mulberry and Oak. Flood plain areas include Black Willow, Blackgum, Sweetgum and Red Maple. *Phragmites australis*, or common reed, is a wetland plant species that is found in wetlands and disturbed areas throughout the United States. This plant is extremely invasive, choking out other wetland plants forming monospecific areas.

The following pages list the common and scientific names for vegetation found in Marlboro Township.

Scientific Name

Common Name

TREES

<i>Alnus sp.</i>	Alder
<i>Malus sp.</i>	Apple
<i>Fraxinus sp.</i>	Ash
<i>Populus grandidentata</i>	Big-Toothed Apsen
<i>Populus tremuloides</i>	Quaking Aspen
<i>Fagus grandifolia</i>	American Beech
<i>Betula populifolia</i>	Gray Birch
<i>Betula nigra</i>	River Birch
<i>Acer Negundo</i>	Boxelder
<i>Prunus sp.</i>	Cherry
<i>Cornus florida</i>	Flowering Dogwood
<i>Nyssa sylvatica</i>	Blackgum (Tupelo)
<i>Carya sp.</i>	Hickory
<i>Ostrya virginiana</i>	Ironwood
<i>Robina pseudoacacia</i>	Black Locust
<i>Acer platanoides</i>	Norway Maple
<i>Acer rubrum</i>	Red Maple
<i>Acer saccharinum</i>	Silver Maple
<i>Morus alba</i>	White Mulberry
<i>Morus rubra</i>	Red Mulberry
<i>Quercus velutina</i>	Black Oak

<i>Quercus palustris</i>	Pin Oak
<i>Quercus bicolor</i>	Swamp White Oak
<i>Quercus Alba</i>	White Oak
<i>Pinus rigida</i>	Pitch Pine
<i>Sassafras Albidum</i>	Sassafras
<i>Picea abies</i>	Norway Spruce
<i>Liquidambar styraciflua</i>	Sweetgum
<i>Platanus occidentalis</i>	American Sycamore
<i>Alanthus alsissima</i>	Tree of Heaven (Ailanthus)
<i>Liriodendron tulipifera</i>	Tuliptree (Yellow Poplar)
<i>Salix nigra</i>	Black Willow
<i>Ilex opaco</i>	American Holly
<i>Quereus muchlenbergii</i>	Chinkapin Oak

SHRUBS

<i>Rhododendron viscosum</i>	Swamp Azalea
<i>Myrica pensylvanica</i>	Bayberry
<i>Cornis stolonifera</i>	Redosier Dogwood
<i>Sambucus Canadensis</i>	Elderberry
<i>Kalmia latifolia</i>	Mountain Laurel
<i>Clethra alnifolia</i>	Pepper Bush
<i>Rosa multiflora</i>	Multiflora Rose
<i>Lindera benzoin</i>	Spice Bush
<i>Rhus glabra</i>	Smooth Sumac
<i>Rhus coppallina</i>	Winged Sumac
<i>Viburnum dentatum</i>	Arrowwood Viburnum
<i>Viburnum prunifolium</i>	Blackhaw Viburnum
<i>Ilex verticallata</i>	Winter Berry
<i>Vaccinium angustifolium</i>	Lowbush Blueberry

FERNS

<i>Polyschichum acrostichoides</i>	Christmas Fern
<i>Osmunda cinnamomea</i>	Cinnamon Fern
<i>Athyrium felix-femina</i>	Lady Fern
<i>Thelypteris palustris</i>	Marsh Fern
<i>Osmunda regalis</i>	Royal Fern
<i>Onoclea sensibilis</i>	Sensitive Fern
<i>Dryopteris sp.</i>	Wood Fern

WILDFLOWERS

<i>Commelina communis</i>	Asiatic Dayflower
<i>Asparagus officinalis</i>	Asparagus
<i>Aster sp.</i>	Aster
<i>Rubrus sp.</i>	Blackberry
<i>Eupatorium perfoliatum</i>	Bonsent (throughwort)
<i>Saprnaria officinalis</i>	Bouncing Bet (soapwort)

<i>Linaira vulgaris</i>	Butter and Eggs
<i>Cirsium vulgare</i>	Bull Thistle
<i>Typha sp.</i>	Cat Tails
<i>Melampyrum lineare</i>	Cow Wheat
<i>Eirgeron annus</i>	Daisy Fleabane
<i>Hemerocallis fulva</i>	Day Lilly
<i>Cuscufa sp.</i>	Dodder
<i>Chrysan themum sp.</i>	Field Daisy
<i>Vitis sp.</i>	Grape
<i>Apois Americana</i>	Ground Nut
<i>Lonicera japonica</i>	Honey Suckle
<i>Humulus lupulus</i>	Hops
<i>Arisvema triphyllum</i>	Jack in the Pulpit
<i>Impatiens biflora</i>	Jewelweed
<i>Eupatorium purpureum</i>	Jo Pye Weed
<i>Polygonum virgianum</i>	Jumpseed
<i>Saururus cernuus</i>	Lizards Tail
<i>Podophyllum peltatum</i>	Mayapple
<i>Asclepias sp.</i>	Milkweed
<i>Convolvulus sp.</i>	Morning Glory
<i>Verbascum blattaria</i>	Moth Mullien
<i>Rhus radicans</i>	Poison Ivy
<i>Daceus carota</i>	Queen Annes Lace
<i>Trifolium pretense</i>	Red Clover
<i>Prunella vulgaris</i>	Self Heal
<i>Oxalis corniculata</i>	Yellow Wood
<i>Nuphar advena</i>	Spadderdook
<i>Ornithogalum unbellatum</i>	Star of Bethlehem
<i>Aster paternus</i>	Summer Aster
<i>Helius sp.</i>	Sunflower
<i>Thalichrum polygonum</i>	Tall Meadow Rve
<i>Polygonum arifolium</i>	Tearthumb Halbert Leaved
<i>Epigaea rapens</i>	Trailing Arbutus
<i>Viola pallens</i>	Violet, White
<i>Pathenocis sus quinquefolia</i>	Virignia Creeper
<i>Clematis virginiana</i>	Virgins Hemlock
<i>Cicuta maculate</i>	Water Hemlock
<i>Geum canadense</i>	White Avens
<i>Aster sp.</i>	White wood Aster
<i>Geranium maculatum</i>	Wild Geranium
<i>Cruciferae sp.</i>	Wild Mustard
<i>Allium canadense</i>	Wild Onion
<i>Achillea millefolium</i>	Yarrow
<i>Viola spp.</i>	Violets

In an effort to protect existing mature tree species, Marlboro Township passed a Tree Ordinance (Ordinance 28-89 & § 84-30D(24)(b)) that states that no tree exceeding nine inches in caliber shall be removed without prior approval by the Municipal Engineer. For each tree over nine inches that is to be removed, there should be a replanting plan proposed or the applicant should pay the sum of \$250 into the “Marlboro Township Tree Bank Account” for each tree not replanted.

CLIMATE

CLIMATE

The climate of Marlboro Township is continental in nature due to the predominance of winds from the interior. The winter climate is controlled by the polar continental air masses, while the summer climate is controlled by the tropical air masses from the Gulf of Mexico.

The nearest source of precipitation and temperature data to Marlboro Township is Freehold Township. The precipitation at Freehold averages 45.89 inches per year. The monthly distribution is relatively even with an average of 3.82 inches per month. The greatest amount of precipitation is recorded during August (4.64 inches – average), while the least is during February (3.28 inches – average).

The mean annual temperature is 52.7 degrees at Freehold. The warmest month is generally July with a mean monthly temperature of 74.2 degrees, while the coldest month is normally January, with a mean monthly temperature of 30.5 degrees.

The first killing frost is usually at the end of October, and the last killing frost occurs toward the end of April. Marlboro Township has a growing season of between 180-190 days.

AIR QUALITY

AIR QUALITY

Air emissions in New Jersey result from mobile sources, either on-road sources such as cars and trucks or non-road sources such as construction equipment, airplanes, trains and lawnmowers; area sources, such as residential heating and household products; and, point sources including single facilities that emit sizeable levels of air pollutants.

The State Bureau of Air Monitoring maintains 47 Ambient Air Monitoring Sites in New Jersey. The data collected by the program is used to provide the public with information on pollutant levels and area collected in accordance with State and federal regulations. Monitoring data is provided to various public and media outlets and area used to provide hourly updates on air quality to the Bureau's web page (www.state.nj.us/dep/airmon).

There are two monitoring stations within Monmouth County: Freehold and Monmouth University. The monitoring station in Freehold Township is the closest location to Marlboro Township and was therefore, used in this inventory to provide air quality information for Marlboro. The station data shows that currently, ozone, carbon monoxide and particulate levels are all below the national ambient air quality standards and are considered good.

Although no sulfur dioxide monitoring stations exist within Marlboro Township, all averaged readings within the area have been below national state standards.

HYDROLOGY

HYDROLOGY

Surface waters

The Township of Marlboro contains many surface water bodies including Deep Run, Barclay Brook, Pine Brook, Milford Brook, Topehemus Brook, Matawan Creek, Gravelly Brook, Willow Brook, Yellow Brook, Big Brook and their associated tributaries. Marlboro Township also has a series of ponds including Green Briar Pond and several other unnamed open water areas.

Surface Water Quality Standards - Under New Jersey Administrative Code (N.J.A.C.) 7:9B Surface Water Quality Standards, the State establishes designated uses and acceptable water quality criteria for waters within the State. This document, which is published by the New Jersey Department of Environmental Protection, designates waters within Marlboro Township as FW2-NT waters. A FW2 designation is a general classification applied to waters that are not of an exceptional resource value. A NT designation is applied to waters, which are generally not suitable for trout because of their physical, chemical, or biological characteristics, but are suitable for a wide variety of other fish species. The designated uses for waters with this classification include: maintenance, migration and propagation of the natural and established biota; primary and secondary contact recreation; industrial and agricultural water supply; and public potable water supply after conventional filtration treatment and disinfection.

Applicable surface water quality standards for waters with this classification are provided in the table below.

Applicable Surface Water Quality Standards from 7:9B-1.14(c)*
(Expressed as maximum concentrations unless otherwise noted)

PARAMETER	APPLICABLE CRITERIA FOR FW2 WATERS
Fecal Coliform	Levels shall not exceed a geometric average of 200/100 ml nor should more than 10% of the total samples taken during any 30-day period exceed 400/100 ml
Dissolved Oxygen	24 hour average not less than 5.0 mg/L, but not less than 4.0 mg/L at any time
pH	6.5 – 8.5
Total Phosphorus	Lakes 0.05 mg/L Streams 0.1 mg/L
Nitrate	10,000 µg/L
Turbidity	30-day average of 15 NTU 50 NTU at any time

*For the purpose of this report, parameters listed above are limited to those included in both the State Surface Water Quality Standards and recommended sampling program.



WMA 9
WMA 12

To Raritan/Sandy Hook Bay

To Lower Raritan River

MATAWAN CREEK
HUC11 02030104080

DEEP RUN
HUC11 02030105160

MATCHAPONIX BROOK
HUC11 02030105150

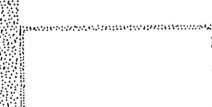
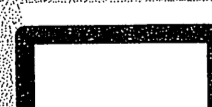

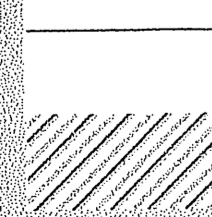
BIG BROOK
HUC11 02030104070

To Navesink River/
Lower Shrewsbury

To Matchaponix Brook

WMA 9
WMA 12

Legend

-  DEP WMA
-  HUC11 - Watershed Boundary
-  Streams
-  Areas Affected by 300ft Buffer



Date: 12/21/06 Scale: 1" = 1800'
Sources: Marlboro Township 2003 Aerials
NJDEP GIS Data

FIGURE 7
SURFACE WATER MAP

Marlboro Township,
Monmouth County, New Jersey

No Category 1 (C-1) waters exist within the boundaries of the Township. However, it is also important to note that the State Surface Water Quality Standards lists waters downstream of the Willow Brook and Big Brook as C1. Both the Willow Brook and Big Brook flow into the Swimming River Reservoir, which is now classified as a Category One (C1) waterbody. The Swimming River Reservoir is a major potable water supply facility for Monmouth County.

A C1 designation is a special level of protection that is applied to a waterbody for purposes of implementing the anti-degradation policies that have been established for protection of a waterbody, particularly waterbodies that are a source of drinking water, from measurable changes in water quality characteristics. The State Surface Water Quality Standards were integrated with the recently implemented State Stormwater Management Rule (N.J.A.C. 7:8), which provides, in most cases, a 300-foot buffer to C1 designated waters and to all intermittent streams, within the associated Hydrologic Unit Code (HUC14) watershed boundary, that drain into or upstream of the C1 waters as shown on the USGS Quadrangle or on the County Soil Surveys. NJDEP and USGS delineate watersheds through a system of Hydrologic Units where each unit is a unique feature given a unique Hydrologic Unit Code (HUC). The HUC14 watersheds form the basis for the other watershed units as they are the smallest watersheds mapped by the NJDEP and USGS, with each covering only approximately 3,000 acres (NJDEP). Since streams within the Big Brook watershed are included within a HUC14 that is tributary to the Willow Brook (C1), any mapped streams within this area are also protected with a 300ft buffer.

Watersheds

Watershed planning is a framework for managing area watersheds and the water quality of the waterbodies within the watershed in a holistic manner. The watershed planning process characterizes existing watershed conditions, identifies and prioritizes problems encountered within the watershed, and defines management objectives.

According to the New Jersey Department of Environmental Protection (NJDEP), a watershed is “the area of land that drains into a body of water such as a river, lake, stream or bay. It is separated from other systems by high points in the area such as hills or slopes. It includes not only the waterway itself but also the entire land area that drains to it.”

In an effort to manage the State at a smaller, local scale, the NJDEP organized a system of Watershed Management Areas (WMA) throughout the State. The Township of Marlboro is located within the boundaries of two Watershed Management Areas, WMA 9 and WMA 12. Watershed Management Area 9, referred to as Lower Raritan, South River, Lawrence, includes the surface water bodies in the western portion of Marlboro Township, particularly Matchaponix Brook, Barclay Brook, Pine Brook and Deep Run. Watershed Management Area 12, Monmouth, includes the waters located in the eastern portion of the Township, which flow to the Navesink River and Lower Shrewsbury River.

The 30.6 square miles (sq. mi.) of land area within the municipal boundaries of Marlboro Township is divided among four (4) HUC11 watersheds: Big Brook (HUC11 02030104070), Deep Run (HUC11 02030105160), Matchaponix Brook (HUC11 02030105150) and Matawan Creek (HUC11 02030104060). Each of the four watersheds comprises the upper reaches or headwater area of the larger watershed to which they belong and each of the four watersheds ultimately discharge into the Raritan Bay. As discussed above, the Deep Run and Matchaponix watersheds drain the western portions of the Township and are a part of the Lower Raritan River system, which discharges into the Raritan Bay via the Raritan River. The Matawan Creek watershed drains the northern portion of the Township and discharges into Raritan Bay via Matawan Creek. The Big Brook watershed drains the eastern portion of the Township and ultimately discharges into Raritan Bay via the Navesink River.

Big Brook is the largest watershed within the Township, accounting for 10.7 sq. mi or 35% of the Township's land area. Big Brook watershed consists of three smaller subwatersheds: Willow Brook to the north, Big Brook in the center and Yellow Brook to the south. Using the New Jersey Department of Environmental Protection (NJDEP) 2002 geographic information system (GIS) Land Use/Land Cover shapefile it was determined that this watershed has retained the largest amount of agricultural land use within the Township. The agricultural uses consist primarily of horse farms and crop production fields, which account for 30% of land use within this watershed. The remaining agricultural areas also result in this watershed having both a high potential for future residential and commercial development and for the preservation of open space. To date, 35% of the watershed has been developed with residential and/or commercial land uses and approximately 25% consists of preserved open space and/or undeveloped woodlands.

The Deep Run watershed is the second largest watershed within the Township having a contributory drainage area of 8.9 square miles, which encompasses approximately 29% of the total land area within the Township. Using the NJDEP 2002 GIS Land Use/Land Cover shapefile it was determined that 30 percent of the watershed has been developed with residential and/or commercial land uses and 65% remains as agricultural, preserved open space and/or undeveloped woodlands.

The Matchaponix Brook watershed is the third largest and most densely developed watershed within the Township having a contributory drainage area of 7.9 sq. mi., which encompasses approximately 26% of the total land area within the Township. Using the NJDEP 2002 GIS Land Use/Land Cover shapefile it was determined that residential and commercial land uses account for 80% of land area within this watershed while agricultural lands, preserved open space and/or undeveloped woodlands accounted for only 10% of land use. The remaining 10% land use consists of all other uses such as transportation corridors and industrial uses.

Finally, the Matawan Creek watershed is the smallest watershed within the Township having a contributory drainage area of 3.2 sq. mi., which encompasses approximately 10% of the total land area within the Township. This watershed is the least densely developed of the Township's watersheds. Using the NJDEP 2002 GIS Land Use/Land

Cover shapefile it was determined that the dominant land use within this watershed is preserved open space and/or undeveloped woodlands, which account for 55% of land area within the watershed. Other land uses within the watershed include residential and commercial land uses, which account for 35% of the watershed area, and agricultural uses, which account for 5% of the watershed area. The remaining 5% land use consists of all other uses such as transportation corridors and industrial uses.

These watersheds have been subject to in depth analysis by Birdsall Engineering, Inc (BEI). These analyses produced a prioritized listing of water quality impairments, throughout the Township and by specific watershed area, and proposed site specific best management practices (BMPs) to reduce the risk of flooding, improve water quality, control erosion and runoff, and recharge groundwater resources.

Flood Hazards

Flood hazards were established in the Township by the Federal Emergency Management Agency to determine areas prone to frequent flooding. Undeveloped floodplains act as natural flood storage basins. Development within these floodplains, however, causes an increased need for stormwater management facilities. According to FEMA Flood Insurance Rate Maps (FIRM) Panels #3403100001A and 3403100002A, the majority of Marlboro Township lies within Zone X, areas of minimal flooding. However, land areas located immediately adjacent to streams, brooks or other natural waterways that are subject to inundation by flood waters (referred to as floodplains) typically lie in FEMA Zone A and AE, or areas of 100-year flood with base flood elevations and flood hazard factors determined. No coastal high hazard/ high velocity areas (V-zones) exist within the Township of Marlboro.

Floodplains are regulated by the New Jersey Department of Environmental Protection under the Flood Hazard Area Control Act (N.J.A.C. 7:13) (also known as the Stream Encroachment regulations). The specific intent of these regulations is to minimize potential on and offsite damage to public or private property caused by development, which at times of flood, subjects structures to flooding and increases flood heights and/or velocities both upstream and downstream. Without such regulations, development in the floodplain may adversely affect the areas by increasing the volume of stormwater runoff, degrading the water quality of the receiving water body, and may ultimately result in increased sedimentation, erosion or other negative environmental impacts.

To further regulate disturbances in the floodplain areas, Marlboro Township has adopted floodplain regulations (§84-109). The purpose of these rules is to regulate, protect and discourage activities in the floodplain. This ordinance does provide for recreational and agriculture activities to occur in these areas.



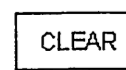

Stream Buffer Ordinance

In 2003, Marlboro Township passed a stream corridor preservation ordinance (Ord. 2003-29 & §84-30(F)), which created a stream corridor and 100ft stream corridor buffer around



Legend

F.E.M.A. ZONE

-  A - Subject to 100-year flood. Base flood elevation undetermined.
-  AE - Areas subject to 100-year flood with base flood elevation determined.
-  CLEAR X - Areas outside the 500-year flood plain with less than 0.2% annual probability of flooding.
-  X500 - Areas between the limits of the 100-year and 500-year flood, or certain areas with average depths less than 1 foot or where the contributing drainage area is less than 1 square mile.

BE
BIRDSALL ENGINEERING, INC.
 CONSULTING & ENVIRONMENTAL ENGINEERS
 61 INDUSTRIAL WAY WEST, EAST BOSTON, N.J. 07924
 www.birdsall.com
 P: (732) 963-2362
 F: (732) 963-2363

FIGURE 8
F.E.M.A. FLOOD ZONE MAP
 MARLBORO TOWNSHIP,
 MONMOUTH COUNTY, NEW JERSEY

NOTES:

DATE: 12/21/06 SCALE: 1" = 100' CREATED BY: JCV RELEASED BY: JOB NO: Hazard Resource Inventory SOURCE: NJ DEP 2005 AERIALS TOWNSHIP TAXMAPS 2005 DATA

all permanent or intermittent watercourses shown on the USGS quadrangle maps and/or the Monmouth County Soil Survey. This buffer was established in order to improve the management and preservation of water resources within Marlboro Township. The ordinance puts forward a list of permitted activities that are allowed to occur within the established stream corridor and stream corridor buffer. The ordinance also allows for reducing the buffer in certain instances as well as gives a list of certain activities that are allowed within stream corridor buffers as long as there is no reasonable or prudent alternative location.

HISTORIC
&
AESTHETIC SITES

HISTORIC AND AESTHETIC SITES

Marlboro Township's development dates back to pre-Revolutionary times. Some of the older homes still exist and have been included on the Master Plan as part of the historic plan element and are listed below.

During this early period and to the turn of the century, a specific village developed in Marlboro known today as Marlboro Village. Many fine homes exist within the village exemplifying various periods of architecture. The entire village has been designated on the Master Plan as a historic district and special architectural controls will be established in the zoning ordinance in order to protect this unique heritage.

The Monmouth County Historic Sites Inventory contains a detailed listing of the historic properties in the village, as well as a brief history of the village.

The historic and aesthetic sites of Marlboro Township were documented according to the Office of New Jersey Heritage, State Office of Historic Properties, the Monmouth County Park System and the Monmouth County Historical Association. The purpose of the historic and aesthetic sites is to identify and document buildings, structures and areas that are significant to the Township's history, culture and architecture. This inventory will serve as a database for municipal planning and historic preservation projects. The majority of the historic significance in Marlboro Township is located in the Marlboro Village District. The district consists of approximately 65 structures located on lots that front North and South Main Streets, Hudson Street, School Road, Hobart Street and Vanderburg Road. The majority of the structures were built in the 19th and early 20th centuries. The building styles range from Greek Revival to Gothic Revival and from Vernacular Victorian to Colonial Revival.

The mature vegetation in the area enhances the district's natural characteristics through the mix of deciduous and evergreen trees. Below is a listing of historic and aesthetic sites located in Marlboro Township:

1. Black Smith Shop
2. Collier's Estate
3. Van Dorn Tract – Cannon Hill
4. Van Dorn Trace – Scraberg
5. Henry Conover House
6. St. Gabriel's
7. Covenhonen House – Wind Mill Tower Milstein
8. Robertsville School
9. Robertsville Church
10. Federal Mall Magee
11. Grange Hall
12. Marlboro Hotel
13. Indian Burial Grounds – Crine Road (Wickatunk Indians)
14. Hornet's Nest – Pleasant Valley Road

15. Old School House (Town Hall)
16. Cornelius Vandever House – T. Augustin
17. Tunis Vandever House – D. Vandever
18. Burnt Fly Bog
19. Mount Pleasant
20. Old Kentuck, Pleasant Valley Road (Listed in State and National Register of Historic Places)
21. Marlboro Railroad Depot (eligible for listing on the State Register of Historic Places)
22. Uriah Smock House (eligible for listing on the State Register of Historic Places)
23. Van Kirk Farm (eligible for listing on the State Register of Historic Places)
24. Old Kentuck (Listed in State and National Register of Historic Places)
25. Marlin Estates (eligible for listing on the State Register of Historic Places)
26. Old Scots Burying Ground (Listed in State and National Register of Historic Places)

CRITICAL AREAS

CRITICAL AREAS

Critical areas are parcels of land that have more than two environmental constraints associated within. A constraint is defined as any area that has the potential for significant environmental impact to that area and the surrounding areas. Examples of a critical area are Burnt Fly Bog, Deep Run area and northeastern steep slope areas of the Township. The Burnt Fly Bog area contains various environmental constraints such as hydric soils, floodplains, wetlands, dense vegetation and is of overall historical significance. Extensive wetlands in an area of almost no relief make the Deep Run another critical area of the Township. This area combines floodzones, hydric soils, high groundwater, excessive sediment transport and wetlands to make it a critical area. The northeastern portion of the Township is considered another critical area due to the excessively steep slopes and presence of wetlands and stream corridors.

By utilizing the text and accompanying maps, the user can identify critical areas within the Township. Once an area is identified, careful planning should occur to protect the natural environment associated with this area. A critical area in no way means that development should not occur in this area. It simply states that certain precautions and planning should occur in the preliminary design process to find a use and design that best suits the land.

CONCLUSION

CONCLUSION

The Natural Resources Inventory of Marlboro Township will provide Township residents with data recognizing the environmental features of the Township. It should be used as a general guide to understanding the characteristics of a specific area of the Township. For analyzing land for a specific use within the Township, a more precise on-site investigation should occur.

REFERENCES

REFERENCES

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APPENDIX A

SOIL DESCRIPTIONS

SOIL DESCRIPTIONS

AdnA – Adelpia Loam

This soil is nearly level, moderately well drained and somewhat poorly drained. It is located in depressional areas and low divides ranging in slope from zero to two percent. The areas of the soils are irregular in shape and range from ten to forty acres in size. The adelpia loam's permeability is moderately slow or moderate in the subsoil and moderate or moderately rapid in the substratum. A seasonal high water table is present from January to April and is at a depth of 1 ½ to 4 feet.

Vegetation typical of this soil type include Northern Oak, Black Oak, White Oak, Sweetgum and Red Maple. Development in this soil can be limited due to the seasonal high water table, frost action potential and shrink-swell.

AdnB – Adelpia Loam

This soil is nearly level, moderately well drained and somewhat poorly drained. It is located in depressional areas, low divides and on swales ranging in slope from two to five percent. The areas of the soils are irregular in shape and are ten acres in size. The adelpia loam's permeability is moderately slow or moderate in the subsoil and moderate or moderately rapid in the substratum. A seasonal high water table is present from January to April and is at a depth of 1 ½ to 4 feet.

Vegetation typical of this soil type include Northern Oak, Black Oak, White Oak, Sweetgum and Red Maple. Development in this soil can be limited due to the seasonal high water table, frost action potential and shrink-swell.

AdpA – Adelpia Loam – Urban Land Complex

This soil is nearly level, moderately well drained to somewhat poorly drained. It is located and mapped in conjunction with the Adelpia loam and urban land soil types. This soil is typically irregular in shape and averages 25 to 75 acres in size. It is also located in areas with 0-5 percent slopes.

Urban land areas consist of land covered by impermeable surfaces, such as dwellings, roads, shipping centers and parking lots. The soils permeability is moderately slow or moderately rapid in the substratum. The seasonal high water table is at a depth of 1.5 to 4 feet from January to April. The high water table provides the main limitation for development in conjunction with this soil type.

Ats – Atsion Sand

This nearly level and poorly drained soil is located on broad flats and in depressional areas. The areas of this soil are irregular in shape and average 10 to 75 acres in size. Permeability is moderately rapid or rapid in the subsoil and rapid in the substratum. The seasonal high water table is between the surface and a depth of one foot from the months of November to June.

Vegetation typical of this soil type includes Pitch Pine, Black Gum and Red Maple. The seasonal high water table provides for the main limitation with respect to development.

Coes – Colemantown loam

This soil is nearly level to poorly well drained and is typically found in depressional areas and on broad flats. Areas of the soil are irregular in shape and range between 10 to 50 acres in size. The permeability of the soil is slow in the subsoil and moderately slow in the substratum. A seasonal high water table is present from October to June and is at a depth of up to one foot from the surface. As a result of the slope and high water table, the soil is subject to occasional flooding.

Vegetation typical of the soil type includes Pin Oak, Sweetgum and Red Maple. The high water table and occasional flooding provide for the main limitations for development in these areas.

CokB – Collington Sandy loam

This soil is gently sloping, well drained and is located on divides ranging between 2 to 5 percent. The areas of this soil are irregular in shape and typically range from 10 to 50 acres in size. Permeability is moderately slow or moderate in the subsoil and moderately slow to moderately rapid in the substratum. The seasonal high water table is at a depth of more than six feet. The runoff potential of this gently sloping soil results in a slight hazard for erosion.

Vegetation typical of this soil include Northern Red Oak, Black Oak, Yellow poplar, Scarlet Oak and White Oak. The main limitations for development are shrinking and swelling and cutbank caving.

CokC2 – Collington sandy loam

This soil is moderately sloping, well drained and located on side slopes ranging between 5 to 10 percent. The areas of the soil are irregular in shape and typically range from 5 to 30 acres in size. Soil permeability is moderately slow or moderate in the subsoil and moderately slow to moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The medium runoff potential provides for a moderate hazard for erosion.

Vegetation typical of this soil include Northern Red Oak, Black Oak, Yellow Poplar, Scarlet Oak and White Oak. The main limitation for development include slope, cutbacks, caving and shrink and swell.

CokD3 – Collington sandy loam

This soil is strongly sloping, well drained and located on side slopes ranging between 10 to 15 percent. The areas of the soil are long and narrow in shape and typically range from 5 to 20 acres in size. Much of the slopes of the soil have been severely eroded and as a result, the subsoil is exposed in places. Soil permeability is moderately slow to moderately rapid in the substratum. The seasonal high water table is at a depth of more than six feet. The rapid rate of runoff provides for a severe hazard for erosion.

Vegetation typical of this soil include Northern Red Oak, Black Oak, Yellow poplar, Scarlet Oak and White Oak. The limitations for development include slope, cutback caving and shrink and swell.

ConA – Collington Loam

This nearly level, well-drained soil is located on divides ranging in slope between 0 to 2 percent. The areas of the soil are irregular in shape and typically range from 5 to 30 acres in size. Permeability of this soil is moderately slow or moderate in the subsoil and moderately slow to moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The slow rate of runoff creates for a light erosion hazard.

Vegetation typical of this soil include Northern Red Oak, Black Oak, Yellow Poplar, Scarlet Oak and White Oak. The main limitations for development include shrink and swell and cutback caving.

CopC – Collington sandy loam – Urban Land Complex

This map unit consists of well-drained soils with gentle to moderate slopes ranging between 0-10 percent. The map areas are irregular in shape and typically range from 20 to 40 acres in size. Permeability of this soil is moderately slow or moderate in the subsoil and moderately slow to moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet.

Lawns, vacant wooded lots, gardens and small parks are usually found in open areas of this map unit.

CosB - Colts Neck sandy loam

This gently sloping, well-drained soil is located on divides ranging between 2 to 5 percent. The areas of the soil are irregular in shape and average between 10 to 50 acres in size. The permeability of the soil is moderate in the subsoil and moderately rapid or rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is medium and as a result, erosion is a slight hazard.

Vegetation typical of the soil type includes Yellow Poplar, Virginia Pine, White Oak, Black Oak and Northern Red Oak. The soils development limitations include cemented pan, frost action, and poor filter.

CosC - Colts Neck sandy loam

This moderately sloping, well-drained soil is located on side slopes ranging between 5 to 10 percent. The areas of the soil are long and narrow in shape and average between 10 to 25 acres in size. The permeability of the soil is moderate in the subsoil and moderately rapid or rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is medium and as a result, a moderate erosion hazard is present.

Vegetation typical of the soil type includes Yellow Poplar, Virginia Pine, White Oak, Black Oak and Northern Red Oak. The soils development limitations include cemented pan, frost action, poor filter and slope.

CosC2 - Colts Neck sandy loam

This moderately sloping, well-drained soil is located on side slopes ranging between 5 to 10 percent. The areas of the soil are long and narrow in shape and average between 10 to 50 acres in size. The permeability of the soil is moderate in the subsoil and moderately rapid or rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is medium and as a result, an erosion hazard is present.

Vegetation typical of the soil type includes Yellow Poplar, Virginia Pine, White Oak, Black Oak and Northern Red Oak. The soils development limitations include cemented pan, frost action, poor filter and slope.

CosD2 – Colts Neck sandy loam

This steep sloping, well-drained soil is located on side slopes ranging between 10 to 15 percent. The areas of the soil are long and narrow in shape and average between 5 to 25 acres in size. The permeability of the soil is moderate in the subsoil and moderately rapid or rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is rapid and as a result, a severe erosion hazard is present.

Vegetation typical of the soil type includes Yellow Poplar, Virginia Pine, White Oak, Black Oak and Northern Red Oak. The soils development limitations include cemented pan, frost action, poor filter and slope.

CosE2 – Colts Neck sandy loam

This moderately steep to steep, well-drained soil is located on side slopes ranging between 15 to 25 percent. The areas of the soil are long and narrow in shape and typically range from 5 to 25 acres in size. The permeability of the soil is moderate in the subsoil and moderately rapid or rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is very rapid resulting in a severe erosion hazard. The steep slope provides for the main limitation with respect to building development.

DocB – Downer loamy sand

This nearly level to gently sloping, well-drained soil is located on divides ranging in slope between 0 to 5 percent. The areas of the soil are irregular in shape and typically average between 5 to 30 acres in size. The permeability is moderate or moderately rapid in the subsoil and moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is slow, resulting in a slight erosion hazard.

Vegetation common to this soil type include Black Oak, White Oak, Scarlet Oak and Virginia Pine. Poor filtering and seepage provide for the main limitations for building development.

DocC – Downer loamy sand

This moderately sloping, well-drained soil is located on side slopes ranging in slope between 5 to 10 percent. The areas of the soil are irregular in shape and typically range between 5 to 30 acres in size. The permeability is moderate or moderately rapid in the subsoil and moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is medium resulting in a moderate erosion hazard.

Vegetation common to this soil type include Black Oak, White Oak, Scarlet Oak and Virginia Pine. Poor filtering, seepage and slope provide for the main limitations for building development.

DouB – Downer sandy loam – Urban Land Complex

This map unit consists of soils that are well drained, with nearly level to gentle slopes ranging between 0 to 10 percent. The areas are irregular in shape and average between 20 to 100 acres in size. The urban land consists of areas covered by impermeable surfaces, such as parking lots and dwellings. Permeability is moderate or moderately rapid in the subsoil and moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. Poor filter and seepage provide for the limitations for building development.

EkaA – Elkton loam

This nearly level, poorly drained soil is located in depressional areas and on broad flats. The areas of the soil are irregular in shape and typically range from 10 to 50 acres in size. Permeability is slow in the subsoil and moderately slow to moderately rapid in the substratum. The seasonal high water table is below the surface and a depth of 1 foot from January to April. The rate of runoff is slow creating a slight erosion hazard. Vegetation typical of this soil type includes White Oak, Sweetgum, Red Maple and Sweetbay Magnolia. The seasonal high water table, high clay content, slow percolation, low strength and flooding provide for the main limitations for building development.

EveB – Evesboro Sand

This gently sloping, excessively drained soil is located on divides with an average slope between 2 to 5 percent. The areas of the soil are irregular in shape and range from 25 to 100 acres in size. The permeability of the soil is rapid in the subsoil and substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is very slow, creating a slight erosion hazard. Wind erosion to this soil is a severe hazard. Vegetation common to this soil type includes Pitch Pine, Virginia Pine, Black Oak, White Oak and Chestnut Oak. Poor filter, cutbank caving and sandiness provide for the main limitations for building development.

EveC – Evesboro Sand

This moderately sloping, excessively drained soil is located on side slopes with an average slope of 5 to 10 percent. The areas of the soil are irregular in shape and range from 10 to 50 acres in size. The permeability of the soil is rapid in the subsoil and

substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is very slow, creating a slight erosion hazard. Wind erosion to this soil is a severe hazard. Vegetation common to this soil type include Virginia Pine, Black Oak, White Oak and Chestnut Oak. Poor filter, cutbank caving, sandiness and slope provide for the main limitations for building development.

EveD – Evesboro Sand

This strongly sloping, excessively drained soil is located on side slopes with an average slope of 1- to 15 percent. The areas of the soil are long and narrow in shape and range from 10 to 40 acres in size. The permeability of the soil is rapid in the subsoil and substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is medium creating a moderate erosion hazard. Vegetation common to this soil type includes Pitch Pine, Virginia Pine, Black Oak, White Oak and Chestnut Oak. Poor filter, cutbank caving, sandiness and slope provide for the main limitations for building development.

EveE – Evesboro Sand

This moderate steep to steep sloping, excessively drained soil is located on side slopes with an average slope of 15 to 25 percent. The areas of the soil are long and narrow in shape and range from 10 to 40 acres in size. The permeability of the soil is rapid in the subsoil and substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is rapid, creating a severe erosion hazard. Vegetation common to this soil type include Pitch Pine, Black Oak, White Oak and Chestnut Oak. Poor filter, cutbank caving, sandiness and slope provide for the main limitations for building development.

EvuB - Evesboro Sand-Urban Land Complex

This nearly level to gently sloping, excessively drained soil is in urban areas with an average slope between 0 to 10 percent. The areas of the soil are irregular in shape and range from 100 to 300 acres in size. The permeability of the soil is rapid in the subsoil and substratum. The seasonal high water table is at a depth of more than 6 feet. Poor filter, cutbank caving and sandiness provide for the main limitations for building development.

Fap – Fallsington Loam

This nearly level and poorly drained soil is located in depressional areas along drainage ways and on broad flats. The areas of the soil are irregular in shape and average between 25 to 50 acres in size. The permeability of the soil is moderate in the subsoil and moderately rapid in substratum. The seasonal high water table is between the surface and a depth of 1 foot from December to May. The rate of runoff is slow, creating a slight erosion hazard. Vegetation typical of this soil type includes Pitch Pine, Sweetgum, White Oak, Red Maple and Pin Oak. The high water table, cutbank caving and frost action provide for the main limitations for building development.

FrfB – Freehold Loamy Sand

This nearly level to gently sloping, well-drained soil is located on divides with an average slope of 0 to 5 percent. The areas of the soil are irregular in shape and range from 5 to 25 acres in size. The permeability of the soil is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is slow, creating a slight erosion hazard. Wind erosion is a moderate hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, White Oak, Black Oak and Beech. Slow percolation, cutbank caving and frost action provide the main limitations for building development.

FrFC – Freehold Loamy Sand

This moderately sloping, well-drained soil is located on side slopes with an average slope of 5 to 10 percent. The areas of the soil are irregular in shape and range from 5 to 25 acres in size. The permeability of the soil is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is medium, creating a moderate erosion hazard. Wind erosion is also a moderate hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, White Oak, Black Oak and Beech. Slow percolation, cutbank caving, slope and frost action provide for the main limitations for building development.

FrkB – Freehold Sandy Loam

This gently sloping, well-drained soil is located on divides with an average slope of 2 to 5 percent. The areas of the soil are irregular in shape and range from 15 to 75 acres in size. The permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is medium, creating a slight erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, Short Leaf Pine, White Oak, Black Oak and Beech. Slow percolation, cutbank caving and frost action provide for the main limitations for building development.

FrkC – Freehold Sandy Loam

This moderately sloping, well-drained soil is located on side slopes with an average slope of 5 to 10 percent. The areas of the soil are irregular in shape and range from 5 to 35 acres in size. The permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is medium, creating a moderate erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, Short Leaf Pine, White Oak, Black Oak and Beech. Slow percolation, cutbank caving, slope and frost action provide for the main limitations for building development.

FrkC2 – Freehold Sandy Loam

This moderately sloping, well-drained soil is located on side slopes with an average slope of 5 to 10 percent. The areas of the soil are irregular in shape and range from 5 to 20 acres in size. The permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is medium, creating a medium erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, Short Leaf Pine, White Oak,

Black Oak and Beech. Slow percolation, cutbank caving, slope and frost action provide for the main limitations for building development.

FrkD – Freehold Sandy Loam

This strongly sloping, well-drained soil is located on side slopes with an average slope of 10 to 15 percent. The areas of the soil are long and narrow in shape and range from 5 to 20 acres in size. The permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is rapid, creating a severe erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, Short Leaf Pine, White Oak, Black Oak and Beech. Slow percolation, cutbank caving, slope and frost action provide for the main limitations for building development.

FrkD2 – Freehold Sandy Loam

This strongly sloping, well-drained soil is located on side slopes with an average slope of 10 to 15 percent. The areas of the soil are long and narrow in shape and range from 5 to 20 acres in size. The permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is rapid, creating a severe erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, Short Leaf Pine, White Oak, Black Oak and Beech. Slow percolation, cutbank caving, slope and frost action provide for the main limitations for building development.

FrkE2 – Freehold Sandy Loam

This moderately steep to steep sloping, well-drained soil is located on side slopes with an average slope of 15 to 25 percent. The areas of the soil are long and narrow in shape and range from 5 to 25 acres in size. The permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is very rapid, creating a severe erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, Short Leaf Pine, White Oak, Black Oak and Beech. Cutbank caving and slope provide for the main limitations for building development.

FroA – Freehold Loam

This nearly level, well-drained soil is located on divides with an average slope of 0 to 2 percent. The areas of the soil are irregular in shape and range from 5 to 25 acres in size. The permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The rate of runoff is slow, creating a slight erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, Short Leaf Pine, White Oak, Black Oak and Beech. Slow percolation, cutbank caving, slope and frost action provide for the main limitations for building development.

FrrC – Freehold Sandy Loam – Urban Land Complex

This map unit consists of soils that are well drained, with nearly level to moderate slopes ranging between 0 to 10 percent. The areas are irregular in shape and range between 100

to 350 acres in size. The urban land complex consists of areas covered by impermeable surfaces, such as parking lots and dwellings. Permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. Slow percolation, cutbank caving and frost action provide for the limitations for building development.

GarnB – Galloway Loamy Sand

This nearly level, moderately well drained to somewhat poorly drained soil is located in depressional areas and on low divides with an average slope of between 0 to 5 percent. The areas of this soil are irregular in shape and range from 5 to 25 acres in size. The permeability is rapid in the subsoil and substratum. The seasonal high water table is at a depth of 1.5 to 4 feet from December to April. The rate of runoff is slow, creating a slight erosion hazard.

Vegetation typical of this soil type includes Pitch Pine, White Oak and Virginia Pine. The high water table, cutback caving and sandiness provide for the main limitation for building development.

GarnkB – Galloway Loamy Sand

This nearly level, gently sloping, moderately well drained to somewhat poorly drained soil is located in depressional areas and on low divides with an average slope of between 0 to 5 percent. The areas of this soil are irregular in shape and range from 5 to 20 acres in size. The permeability is rapid in the subsoil and slow to moderately slow in the substratum. The seasonal high water table is at a depth of 1.5 to 4 feet from December to April. The rate of runoff is very slow creating a slight erosion hazard.

Vegetation typical of this soil type includes Pitch Pine, White Oak and Sweet Gum. The high water table, cutback caving and sandiness provide for the main limitation for building development.

GaoB – Galloway-Urban Land

This map unit consists of soils that are moderately well drained to somewhat poorly drained, with nearly level slopes ranging between 0 to 5 percent. The areas are irregular in shape and range between 100 to 300 acres in size. The urban land complex consists of areas covered by impermeable surfaces, such as parking lots and dwellings. Permeability is rapid in the subsoil and moderate in the substratum. The seasonal high water table is at a depth of 1.5 to 4 feet from December to April. The high water table, cutback caving, sandiness and poor filter provide for the limitations for building development.

HbrnB – Hammonton Loamy Sand

This nearly level to gently sloping, somewhat poorly drained soil is located in depressional areas and on low divides with an average slope of 0 to 3 percent. The area of the soil is irregular in shape and range from 5 to 25 acres in size. The permeability of the soil is moderate or moderately rapid in the subsoil and moderately rapid in the substratum. The seasonal high water table is at a depth of 1.5 to 4 feet from January to April. The runoff rate is slow, creating a slight erosion hazard. Vegetation typical of this

soil type includes Black Oak, White Oak, Virginia Pine, Short Leaf Pine, Pitch Pine, Red Maple and Sweetgum. The seasonal high water table, poor filter and cutbank caving provide for the development limitations.

HboB – Hammonton Sandy Loam

This gently sloping, moderately well drained to somewhat poorly drained soil is located in depressional areas and on low divides with an average slope of 2 to 5 percent. The area of the soil is irregular in shape and range from 10 to 40 acres in size. The permeability of the soil is moderate or moderately rapid in the subsoil and moderately rapid in the substratum. The seasonal high water table is at a depth of 1.5 to 4 feet from January to April. The runoff rate is slow, creating a slight erosion hazard. Vegetation typical of this soil type includes Black Oak, White Oak, Virginia Pine, Short Leaf Pine, Pitch Pine, Red Maple and Sweetgum. The seasonal high water table, poor filter and cutbank caving provide for the development limitations.

HocA – Holmdel Sandy Loam

This nearly level, moderately well drained and somewhat poorly drained soil is located in depressional areas and on low divides with an average slope of 0 to 2 percent. The area of the soil is irregular in shape and range from 10 to 25 acres in size. The permeability of the soil is moderate in the subsoil and substratum. The seasonal high water table is at a depth of 1.5 to 4 feet from December to May. The runoff rate is slow, creating a slight erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Yellow Poplar, Red Maple and Sweetgum. The seasonal high water table and cutbank caving provide for the development limitations.

HocB – Holmdel Sandy Loam

This gently sloping, well-drained and somewhat poorly drained soil is located in depressional areas and on low divides with an average slope of 2 to 5 percent. The area of the soil is irregular in shape and range from 5 to 30 acres in size. The permeability of the soil is moderate in the subsoil and substratum. The seasonal high water table is at a depth of 1.5 to 4 feet from January to April. The runoff rate is medium, creating a slight erosion hazard. Vegetation typical of this soil type includes Yellow Poplar, Northern Red Oak, Red Maple and Sweetgum. The seasonal high water table and cutbank caving provide for the development limitations.

HofB – Holmdel Sandy Loam – Urban Land Complex

This map unit consists of soils that are moderately well drained, with nearly level to gentle slopes averaging between 0 to 5 percent. The areas are irregular in shape and range between 15 to 75 acres in size. The urban land complex consists of areas covered by impermeable surfaces, such as parking lots and dwellings. Permeability is moderate in the subsoil and substratum. The seasonal high water table is at a depth of 0.5 to 4 feet from December to May. The seasonal high water table and cutbank caving provide for the limitations for building development.

Humt – Humaquepts

This nearly level, somewhat poorly drained to very poorly drained soil is located on floodplains and along intermittent streams. The areas are long and narrow in shape and range from 10 to 50 acres in size. The permeability is moderate or moderately rapid in the subsoil and substratum. The seasonal high water table is between the surface and a depth of 1.5 feet. The rate of runoff associated with this soil is low. Vegetation typical of this soil type includes Pitch Pine, Sweetgum, White Oak and Pin Oak. The high water table and frequent flooding provide for limitations for building development.

KemA – Keyport Sandy Loam

This nearly level, moderately well drained soil is located in depressional areas and on low divides. The areas of the soil are irregular in shape and range from 10 to 20 acres in size. The permeability is slow in the subsoil and the substratum. The high water table is at a depth of 1.5 to 4 feet from November to May. The runoff rate is slow, creating a slight erosion hazard. Vegetation typical of this soil type includes Yellow Poplar, Northern Red Oak and American Beech. The high water table, shrinking and swelling, slow percolation and high frost action provide for the main limitations for building development.

KemB – Keyport Sandy Loam

This moderately well drained soil is located on gentle slopes averaging between 2 to 5 percent. The areas of the soil are irregular in shape and range from 5 to 35 acres in size. The permeability is slow in the subsoil and the substratum. The high water table is at a depth of 1.5 to 4 feet from November to May. The runoff rate is medium, creating a moderate erosion hazard. Vegetation typical of this soil type includes Yellow Poplar, Northern Red Oak and American Beech. The high water table, shrinking and swelling, slow percolation and high frost action provide for the main limitations for building development.

KemC – Keyport Sandy Loam

This moderately sloping, moderately well drained soil is located on side slopes ranging between 5 to 10 percent. The areas of the soil are irregular in shape and average from 5 to 10 acres in size. The permeability is slow in the subsoil and the substratum. The high water table is at a depth of 1.5 to 4 feet from November to May. The runoff rate is rapid, creating a severe erosion hazard. Vegetation typical of this soil type includes Yellow Poplar, Northern Red Oak and American Beech. The high water table, shrinking and swelling, slow percolation, slope and high frost action provide for the main limitations for building development.

KemD – Keyport Sandy Loam

This strongly sloping, moderately well drained soil is located on side slopes ranging from 10 to 15 percent. The areas of the soil are long and narrow in shape and average from 5 to 25 acres in size. The permeability is slow in the subsoil and the substratum. The high water table is at a depth of 1.5 to 4 feet from November to May. The runoff rate is slow, creating a slight erosion hazard. Vegetation typical of this soil type includes Yellow Poplar, Northern Red Oak and American Beech. The high water table, shrinking and

swelling, slow percolation, slope and high frost action provide for the main limitations for building development.

KeuC – Keyport Sandy Loam – Urban Land Complex

This map unit consists of soils that are well drained, with nearly level to moderate slopes ranging between 0 to 10 percent. The areas are irregular in shape and range between 50 to 250 acres in size. The urban land complex consists of areas covered by impermeable surfaces, such as parking lots and dwellings. Permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of 1.5 to 4 feet from November to May. Slow percolation cutback caving and frost action provide for the limitations for building development.

KrhB – Kresson Loam

This nearly level, gently sloping and somewhat poorly drained soil is located in depressional areas and on low divides with an average slope of between 0 to 5 percent. The areas of this soil are irregular in shape and range from 5 to 20 acres in size. The permeability is slow in the subsoil and substratum. The seasonal high water table is at a depth of 1 to 1.5 feet from December to May. The rate of runoff is slow, creating a slight erosion hazard. Vegetation typical of this soil type includes Sweetgum, White Oak, Pink Oak, Yellow Poplar and Willow Oak. The high water table, slow percolation and frost action provide for the main limitation for building development.

LakB – Lakehurst Sand

This nearly level, moderately well drained to somewhat poorly drained soil is located in depressional areas and on low divides with an average slope of between 0 to 2 percent. The areas of this soil are irregular in shape and range from 5 to 30 acres in size. The permeability is rapid in the subsoil and substratum. The seasonal high water table is at a depth of 1.5 to 3.5 feet from January to April. The rate of runoff is slow, creating a slight erosion hazard. Wind erosion creates a severe hazard. Vegetation typical of this soil type includes Pitch Pine. The high water table, cutback caving and sandiness provide for the main limitation for building development.

LasB – Lakewood Sand

This nearly level to gently sloping, excessively drained soil, is located on divides with an average slope of between 0 to 5 percent. The area of this soil is irregular in shape and range from 5 to 40 acres in size. The permeability is rapid in the subsoil and moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is very slow, creating a slight erosion hazard. Vegetation typical of this soil type includes Black Oak, Chestnut Oak, Virginia Pine, Shortleaf Pine and Pitch Pine. The sandiness, poor filter and cutbank caving provide for the main limitations.

LasC – Lakewood Sand

This moderately sloping, excessively drained soil is located on side slopes averaging 5 to 10 percent slope. The areas are irregular in shape and range from 10 to 40 acres in size. The permeability is rapid in the subsoil and moderate to rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is slow with

the wind erosion, creating a severe hazard. Vegetation typical of this soil type includes Pitch Pine, Shortleaf Pine, Chestnut Oak, Black Oak and Virginia Pine. Poor filtering, cutback caving, slope and sandiness provide for the building development limitation.

Makt – Manahawkin Muck

This nearly level, very poorly drained soil is located on wide depressional areas and on broad flats. The areas of the soil are irregular in shape and range from 15 to 30 acres in size. The permeability is moderately slow to moderately rapid in the substratum. The seasonal high water table is between the surface and 1 foot above the surface from October to July. The runoff rate is very slow, and as a result, ponding and flooding is common. Vegetation typical of this soil type includes Atlantic White Cedar, Red Maple, Sweetbay Magnolia and Blackgum. Ponding, flooding, cutback caving and low strength provide for the development limitations.

MaoC – Marlton Sandy Loam

This moderately sloping, well-drained and moderately well drained soil is located on side slopes ranging from 5 to 10 percent. The areas of this soil are long and narrow in shape, and average between 5 to 20 acres in size. The permeability is slow in the subsoil and substratum. The seasonal high water table is at a depth of 2 to 5 feet from November to May. The runoff rate is rapid, creating a severe erosion hazard. Vegetation typical of this soil type includes Pin Oak, Sweetgum, yellow Poplar and White Ash. The high water table, slow percolation and slope provide for the building development limitation.

MarB – Marlton Loam

This gently sloping, well-drained and moderately well drained soil is located on divides ranging in slope from 2 to 5 percent. The areas of this soil are irregular in shape, and average between 5 to 20 acres in size. The permeability is slow in the subsoil and substratum. The seasonal high water table is at a depth of 2 to 5 feet from November to May. The runoff rate is medium, creating a moderate erosion hazard. Vegetation typical of this soil type includes Pin Oak, Sweetgum, Yellow Poplar and White Ash. The high water table and slow percolation provide for the main limitations for building development.

PegB – Pemberton Loamy Sand

This nearly level to gently sloping and moderately well drained to somewhat poorly drained soil is located on low divides and in depressional areas. The average slope of this soil is between 0 to 5 percent. The areas of the soil are irregular in shape and range from 10 to 25 acres in size. The soil's permeability is moderate in the subsoil and moderate or moderately rapid in the substratum. The runoff rate is slow to medium, creating a slight erosion hazard. The seasonal high water table is at a depth of 1 to 4 feet from December to May. Vegetation typical of this soil type includes Sweetgum, Northern Red Oak and Pin Oak. The high water table, frost action and cutbank caving provide for the main limitations for building development.

PhbC – Phalanx Loamy Sand

This nearly level to moderately sloping and well-drained soil is located on divides and side slopes. The average slope of this soil is between 0 to 10 percent. The areas of the soil are irregular in shape and range from 10 to 50 acres in size. The soil's permeability is moderate in the subsoil and moderately rapid in the substratum. The runoff rate is slow to medium, creating a slight erosion hazard. The seasonal high water table is at a depth of more than 6 feet. Vegetation typical of this soil type includes Chestnut Oak, Black Oak, White Oak, Virginia Pine and Pitch Pine. The cemented pan, slope and cutback caving provide for the main limitations for building development.

PhbE – Phalanx Loamy Sand

This steep to strongly sloping and well-drained soil is located on side slopes. The average slope of this soil is between 10 to 25 percent. The areas of the soil are irregular in shape and range from 10 to 100 acres in size. The soil's permeability is moderate or moderately rapid in the subsoil and moderately rapid in the substratum. The runoff rate is rapid to very rapid, creating a severe erosion hazard. The seasonal high water table is at a depth of more than 6 feet. Vegetation typical of this soil type includes Chestnut Oak, Black Oak, White Oak, Virginia Pine and Pitch Pine. The cemented pan, slope and cutbank caving provide for the main limitations for building development.

PHG – Pits, Sand and Gravel

This map unit consists of areas that have been excavated for sand and gravel. These areas are irregular in shape and range from 25 to 250 acres in size. For a proposed use, on-site inventory and analysis is required.

SacB – Sassafras Sandy Loam

This gently sloping, well-drained soil is located on divides ranging in slope from 2 to 5 percent. The areas of the soil are irregular in shape and average 5 to 35 acres in size. The permeability of the soil is moderate in the subsoil and moderate to rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is medium, creating a slight erosion hazard. Vegetation typical of this soil type includes White Oak, Yellow Poplar and Virginia Pine. Cutbank caving and frost action provide for the main building development limitations.

SacC – Sassafras Sandy Loam

This moderately sloping, well-drained soil is located on side slopes ranging in slope from 5 to 10 percent. The areas of the soil are long and narrow in shape and average 5 to 25 acres in size. The permeability of the soil is moderate in the subsoil and moderate to rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is medium, creating a moderate erosion hazard. Vegetation typical of this soil type includes White Oak, Yellow Poplar and Virginia Pine. Slope cutbank caving and frost action provide for the main building development limitations.

SacD – Sassafras Sandy Loam

This gently sloping, well-drained soil is located on side slopes ranging in slope from 10 to 15 percent. The areas of the soil are long and narrow in shape and average 10 to 20 acres in size. The permeability of the soil is moderate in the subsoil and moderate to

rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is rapid, creating a severe erosion hazard. Vegetation typical of this soil type include White Oak, Yellow Poplar and Virginia Pine, Slope, cutbank caving and frost action provide for the main building development limitations.

SacE – Sassafras Sandy Loam

This moderately steep to steep sloping, well-drained soil is located on side slopes ranging in slope from 15 to 25 percent. The areas of the soil are long and narrow in shape and average 5 to 50 acres in size. The permeability of the soil is moderate in the subsoil and moderate to rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is very rapid, creating a severe erosion hazard. Vegetation typical of this soil type includes White Oak, Yellow Poplar and Virginia Pine. Cutbank caving and slope provide for the main building development limitations.

SadB – Sassafras Gravelly Sandy Loam

This gently sloping, well-drained soil is located on divides ranging in slope from 2 to 5 percent. The areas of the soil are irregular in shape and average 5 to 30 acres in size. The permeability of the soil is moderate in the subsoil and moderate to rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is medium, creating a slight erosion hazard. Vegetation typical of this soil type includes White Oak, Yellow Poplar and Virginia Pine. Cutbank caving and frost action provide for the main building development limitations.

Shr – Shrewsbury Sandy Loam

This nearly level, poorly drained soil is located in depressional areas and on broad flats. The areas of the soil are long and narrow in shape and range from 5 to 50 acres in size. The permeability is moderately slow to moderate in the substratum. The seasonal high water table is between the surface and 1 foot above the surface from October to June. The runoff rate is very slow, and as a result, ponding and flooding are common. Vegetation typical of this soil type includes Pin Oak, Sweetgum and Red Maple. The seasonal high water table, slow percolation, cutbacks caving and frost action provide for the main development limitations.

ThgB – Tinton Loamy Sand

This nearly level to gently sloping, well-drained soil is located on divides ranging in slope from 0 to 5 percent. The areas of the soil are irregular in shape and range from 5 to 75 acres in size. The soil's permeability is moderately rapid in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is slow to medium, creating a slight erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Virginia Pine, Shortleaf Pine, White Oak and Black Oak. Cutbank caving provides for the main limitations for development with this soil type.

ThgC – Tinton Loamy Sand

This moderately sloping, well-drained soil is located on side slopes ranging in slope from 5 to 10 percent. The areas of the soil are irregular in shape and range from 5 to 50 acres

in size. The soil's permeability is moderately rapid in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is medium, creating a moderate erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Virginia Pine, Shortleaf Pine, White Oak and Black Oak. Cutbank caving provide for the main limitation for development with this soil type.

ThgE - Tinton Loamy Sand

This strongly sloping to steep, well-drained soil is located on side slopes ranging in slope from 10 to 25 percent. The areas of the soil are long and narrow in shape and range from 5 to 20 acres in size. The soil's permeability is moderately rapid in the subsoil and moderate or moderately rapid in the substratum. The seasonal high water table is at a depth of more than 6 feet. The runoff rate is rapid to very rapid, creating a severe water and moderate wind erosion hazard. Vegetation typical of this soil type includes Northern Red Oak, Virginia Pine, Shortleaf Pine, White Oak and Black Oak. Cutbank caving and slope provide for the main limitation for development with this soil type.

ThhB – Tinton Loamy Sand-Urban Land Complex

This map unit consists of soils that are well drained, with nearly level to moderate slopes ranging between 0 to 5 percent. The areas are irregular in shape and range between 25 to 150 acres in size. The urban land complex consists of areas covered by impermeable surfaces, such as parking lots and dwellings.

Uda – Udorthents-Urban Land Complex

This map unit consists of nearly level and gently sloping soils that have been altered by excavation or filling while having a slope of 0 to 3 percent. The areas are irregular in shape and range between 25 to 250 acres in size. These areas are typically covered by impermeable surfaces. Limitations on the development of these soils are site specific.

Uds – Udorthents, Smoothed

This map unit consists of soils that have been altered by excavation or filling. The areas are irregular in shape and range between 10 to 100 acres in size. These areas are typically covered by impermeable surfaces. Limitations on the development of these soils are site specific.

WbeB – Woodstown Sandy Loam

This gently sloping, moderately well drained soil is located in depressional areas, in swales, and on low divides ranging in slope from 2 to 5 percent. The areas of the soil are irregular in shape and average 10 to 50 acres in size. The permeability of the soil is moderate in the subsoil and moderate to rapid in the substratum. The seasonal high water table is at a depth 1.5 to 2.5 feet. The runoff rate is medium, creating a slight erosion hazard.

Vegetation typical of this soil type includes White Oak, Yellow Poplar, Sweet Gum and Northern Red Oak. Cutbank caving, seasonal high water table and frost action provide for the main building development limitations.