



## **NATURAL RESOURCES & NATURAL FEATURES**

### **INTRODUCTION**

This chapter will discuss the topography, geology, soils, and other natural features found in Casco Township. The identification of the natural features that presently exist in a community is an important step in the Master Plan process. With such knowledge, decision-makers can make more informed choices about the preservation and protection of their community's natural resources.

### **TOPOGRAPHY**

Casco Township is a generally level area. The land surface of Casco varies by only 88 feet from its lowest point to its highest point. (See Map A3-1.) The southern border of the Township is the lowest in Casco, with an elevation of 617 feet, while the topography increases to a point of 700 feet in Section 6. The land area around waterways is sloped most steeply, as illustrated by the concentration of elevation lines around these areas.

### **SOILS**

Map A3-2, the General Soils Map, shows the locations of various soil types in Casco Township, with soil characteristics shown in more detail on Map A3-3. These soil associations are areas with distinctive patterns of soils. Of the twelve different types of soils in St. Clair County, six of them are found in Casco Township.

The majority of the Township's land is made up of the "Latty" soil association. This soil association is nearly level, very poorly drained, and consists of a clayey subsoil.

The western portion of the Township is made up of the "Blount-Parkhill" association. This soil association is nearly level to gently sloping, somewhat poorly drained, and is a predominantly loamy subsoil found on till plains. The northeastern corner of Casco

Township consists of the “Allendale-Latty” association. The soil is nearly level to gently sloping, somewhat poorly drained to very poorly drained, and consists of a sandy to clayey subsoil found on lake plains. Alluvial and rough broken land is found along the Belle River. This type of soil is generally found along waterways and floodplains. In addition, there are pockets of “Hoytville-Allendale-Nappanee” association and “Wainola-Defored” association in the western half of the Township. Both of these soil types are nearly level and poorly drained. The Hoytville association is a clayey to sandy subsoil and is found on till plains and moraines. The Wainola-Defored association has a sandy subsoil and is found along glacial lake beaches, outwash plains, and deltas.

The patterns of soils found in an area can generally be explained by the type of surface geology found below the soil. The surface geology found in southeastern Michigan can be divided into two broad zones: a lowland zone and a hill zone. These two zones parallel each other in a northeast / southwest direction, following the shoreline of Lake St. Clair. Oakland, Livingston, and Washtenaw Counties are classified within the hill zone. Land in the hill zone is composed mostly of sand and gravel deposits that were dropped by moving, melting ice. The counties lying to the east of the hill zone (St. Clair, Macomb, Wayne, and Monroe Counties) are located within the lowland zone, which was most likely covered by an ancient glacial lake as the last ice age came to a close. Today, these areas consist mostly of clay and sand. The soil types found in Casco Township follow this general description of clay and sand. The boundary between soil type 1 (Blount-Parkhill) and soil type 7 (Latty) most likely marks the shore of a glacial lake.

### **Limitations for Residential Development**

Map A3-4 shows locations where development requiring septic tanks would cause either slight or severe problems. Since the majority of Casco Township does not have sanitary sewer service, new development is typically restricted to those areas where soils can support septic service.

Map A3-4 is general in nature, and is meant for overall land use planning. On-site investigation is still necessary and may result in finding adequate soils for individual systems, even on property in the “severe” areas. In general, however, the map accurately portrays those areas of Casco that are best able to absorb new development that must rely on septic tank disposal systems.

As the map illustrates, the majority of the soils in Casco would present severe limitations to septic tank development. There are only a few scattered sites that merely present slight limitations. With such soil types, engineered solutions are also an option, though they can be expensive. Casco Township’s limited septic potential results in a natural carrying capacity that can serve to limit development, provided that a sewer system is not installed.

### **Prime Agricultural Land**

The U.S. Department of Agriculture has classified the majority of Casco Township's western half as Prime Farmland, as shown on Map A3-5. Prime Farmland has the following characteristics:

- Availability for agricultural uses
- A moisture supply, soil quality, growing season, and favorable temperatures necessary to produce economically sustained high yields of crops
- Soils with the best combination of chemical and physical characteristics for the production of food, feed, fiber, forage, and oilseed crops
- Soils with a dependable and adequate water supply from precipitation or irrigation
- Soils that are permeable to air and water, but are not excessively erodible, frequently flooded, or excessively saturated with water for long periods of time
- Soils with an acceptable alkalinity, acidity, and sodium and salt content
- Soils with few or no rocks

### **OIL AND NATURAL GAS**

Millions of years ago, as part of the earth's evolution, chemical compounds of hydrogen and carbon (i.e., oil and natural gas) were formed deep beneath the ground. Typically buried thousands of feet deep and enclosed by limestone, sandstone, or shale, oil and gas travel up through the earth until they are trapped by impermeable rock formations. By means of technology and science, these rock formations can be identified and valuable natural resources can be extracted from the earth.

According to the Michigan Oil and Gas Association, St. Clair County is among the 63 Lower Peninsula counties with production capabilities for oil and/or natural gas. Map A3-6 shows the distribution of oil and gas wells in Casco Township, while Map A3-7 illustrates the locations of oil and gas fields, pipelines, and surface facilities in Casco.

### **FLOODPLAINS**

As a result of Casco Township's level landscape, some areas of the Township are vulnerable to periodic submersion by floodwaters. The Federal Emergency Management Agency (FEMA) Floodplain Map (Map A3-8) indicates that several areas of the Township

fall within the 100-year floodplain. These areas are located adjacent to the Belle River, Jerome Creek, and Swan Creek, as well as the following County Drains: Boehmer, Casco, Marsac Creek, Meldrum, Peters, Telton, and Volmer. County Drains and natural watercourses are illustrated on Map A3-9.

## **WOODLANDS**

During the past 200 years, woodlands have mostly disappeared from Michigan's lower peninsula. Urbanization and the spread of farming have eliminated much of St. Clair County's woodlands; however, some of these natural features still remain in Casco Township, as illustrated by Map A3-10. Although the woodlands are not as expansive as they once were, almost every section of the Township has at least a small stand of trees.

The trees in Casco Township serve as windbreaks, aid in the absorption of rainwater, replenish oxygen, and provide shade and natural beauty. However, they do not function well as wildlife habitat, since they are too small and located too far apart. Small woodland animals and birds need larger, interconnected areas in order to find adequate food and shelter.

## **WETLANDS**

Map A3-11 shows the locations of wetlands – swamps, marshes, bogs, and similar areas with saturated soils – in Casco Township. Because they are a valuable environmental resource, wetlands of five acres or more, or smaller wetlands hydrologically connected to large wetlands, are under the jurisdiction of the Michigan Department of Natural Resources.

## **WATERSHEDS**

As Map A3-12 illustrates, Casco Township has seven subwatersheds. Each subwatershed is part of a larger watershed, that of the Belle River or Anchor Bay, with all lands in the Township ultimately draining into one of these two water features.

## **CONCLUSIONS AND IMPLICATIONS FOR DEVELOPMENT**

The most obvious conclusion that can be reached from an evaluation of the Township's natural resources is that future growth and development can occur only at a pace that is consistent with the natural carrying capacity of the land. Several other specific observations, conclusions, and implications of this carrying capacity concept can be made regarding the soils, natural features, and mineral and water resources of Casco Township.

As noted above, aside from the land adjacent to the Township's main waterways, Casco's land is relatively level and quite conducive to growing crops. However, agricultural use continues to diminish within the Township. As development inches ever closer to the remaining agricultural areas, protection of prime farmland becomes even more important. In the case of Casco Township, development will most likely occur as large tracts of land are divided into smaller residential acreage. More residents will eventually demand more services, which will also require more land. This type of development is not necessarily undesirable; however, Township residents and officials need to be aware of the repercussions of such development prior to granting approval of it. Good soil is a valuable, irreplaceable resource that can easily be lost in the absence of long-range planning.

Another important soil feature in Casco Township is the lack of land that is suitable for septic use. Since the majority of Casco Township is considered to have severe limitations, a natural constraint is placed on development as long as there is no public sewer system.

Casco Township does not have many woodlands and wetlands occurring naturally within its landscape. Increased development could further deplete the Township's woodland resources.

As a relatively close neighbor to Port Huron and Detroit, Casco Township is subject to increased residential development pressure. To protect the Township's natural resources and to ensure environmentally sound development, an understanding of the Township's soils and natural features is imperative.