# SCHEDULE L

# Natural Environment System: Components, Definitions, and Criteria

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## 1.0 Purpose

This document is a schedule to the Niagara Official Plan and should be read in conjunction with the policies of the Plan. The purpose of this schedule to the Niagara Official Plan is to:

- list the components of the Region's integrated *natural environment system*;
- outline the definitions and criteria for the individual features and components of the *natural environment system*; and
- provide additional information to support the implementation of the policies of the Niagara Official Plan.

## 2.0 Introduction

The establishment of a regional-scale *natural heritage system* and *water resource system* is required by Provincial policy. The *natural heritage system* and *water resource system* are ecologically linked, rely on and support each other, and have many overlapping components. Together these systems collectively form the Region's integrated *natural environment system*.

## 3.0 Components of the Natural Environment System

The Region's *natural environment system* includes the *Natural Heritage System for the Growth Plan* and *Greenbelt Plan Natural Heritage System* as components of the system. These systems are identified by the Province and are required to be implemented by the Region. Collectively these two systems are referred to as the *Provincial Natural Heritage System*, and apply outside of *settlement areas* only in accordance with Provincial requirements.

The Region's *natural environment system* however extends beyond the *Provincial Natural Heritage System* into the Niagara Escarpment Plan area and into other areas that are not within the *Provincial Natural Heritage System*, including within the Region's *settlement areas*. Included within, and outside of the *Provincial Natural Heritage System* are many individual natural features which are identified by the Region through various sources of data and information. Table 3-1 provides a complete list of all of the components of the integrated *natural environment system*.

**Table 3-1 Components of the Region's Natural Environment System**

| | Lands in the Provincial Natural Heritage System | Lands in the Niagara Escarpment Plan Area | Lands outside of the Provincial Natural Heritage System and the Niagara Escarpment Plan Area [9] |
|---|---|---|---|
| *Natural Heritage System for the Growth Plan* | Yes | | |
| *Greenbelt Plan Natural Heritage System* | Yes | | |
| *Provincially significant wetlands* | Yes[1,4] | Yes[1,4] | Yes[2,5] |
| *Other wetlands* | Yes[1,4] | Yes[1,4] | Yes[3,5] |
| *Significant coastal wetlands* | Yes[1,4] | | Yes[2,5] |
| *Habitat of endangered species and threatened species* | Yes[1] | Yes[1] | Yes[2] |
| Habitat of special concern species | | Yes[1] | |
| *Fish habitat* | Yes[1] | Yes[1] | Yes[2] |
| *Life science areas of natural and scientific interest* | Yes[1] | Yes[1] | Yes[2] |
| *Earth science areas of natural and scientific interest* | Yes | Yes | Yes[2] |

| | Lands in the Provincial Natural Heritage System | Lands in the Niagara Escarpment Plan Area | Lands outside of the Provincial Natural Heritage System and the Niagara Escarpment Plan Area [9] |
|---|---|---|---|
| *Significant valleylands* | Yes[1] | Yes[1] | Yes[2] |
| *Significant woodlands* | Yes[1] | Yes[1] | Yes[2] |
| *Other woodlands* | Yes[3] | Yes[3] | Yes[3] |
| *Significant wildlife habitat* | Yes[1] | Yes[1] | Yes[2] |
| *Permanent and intermittent streams* | Yes[4] | Yes[4] | Yes |
| *Inland lakes and their littoral zones* | Yes[4] | Yes[4] | Yes – Outside of the settlement areas only |
| *Seepage areas and springs* | Yes[4] | Yes[4] | Yes |
| *Significant groundwater recharge areas* | Yes[7] | | Yes |
| *Highly vulnerable aquifers* | Yes[7] | | Yes |
| *Significant surface water contribution areas* | Yes[7] | | Yes |
| Large and medium *linkages* | Yes | Yes | Yes – Outside of the settlement areas only |
| Small *linkages* | Yes | Yes | Yes |

| | Lands in the Provincial Natural Heritage System | Lands in the Niagara Escarpment Plan Area | Lands outside of the Provincial Natural Heritage System and the Niagara Escarpment Plan Area [9] |
|---|---|---|---|
| *Supporting features and areas* | Yes | Yes | Yes |
| Minimum *buffers* adjacent to *natural heritage features and areas* | | | Yes – Outside of the settlement areas only |
| Mandatory *buffers* adjacent to *natural heritage features and areas* | | | Yes – Inside of the settlement areas only |
| *Vegetation protection zone* adjacent to *key natural heritage features* | Yes | Yes | |
| *Vegetation protection zone* adjacent to *key hydrologic features* | Yes | Yes | Yes[6] – Outside of the settlement areas only |
| *Shoreline areas* | Yes | Yes | Yes |
| Setbacks to regulated features and areas in accordance with Niagara Peninsula Conservation Authority polices | Yes | Yes | Yes |

| | Lands in the Provincial Natural Heritage System | Lands in the Niagara Escarpment Plan Area | Lands outside of the Provincial Natural Heritage System and the Niagara Escarpment Plan Area [9] |
|---|---|---|---|
| *Hazardous lands* adjacent to the shorelines of Lake Erie and Lake Ontario that are impacted by flooding hazards, erosion hazards and/or dynamic beach hazards | Yes[8] | | Yes[8] |
| *Hazardous lands* adjacent to rivers, streams and small inland systems that are impacted by flooding hazards and/or erosion hazards | Yes[8] | Yes[8] | Yes[8] |

**Footnotes**

1 Included as a *key natural heritage feature* as identified in the Growth Plan, Greenbelt Plan and/or Niagara Escarpment Plan
2 Included as a *natural heritage feature and area* as defined in the Provincial Policy Statement and the Niagara Official Plan
3 Included as a *natural heritage feature and area* by the Niagara Official Plan
4 Included as a *key hydrologic feature* in accordance with the Growth Plan, Greenbelt Plan and Niagara Escarpment Plan
5 Included as a *natural heritage feature* and area in *settlement areas* by the Niagara Official Plan and a *key hydrological feature* outside of *settlement areas*
6 Only applies to lands adjacent to *key hydrologic features* outside of *settlement areas*
7 Included as *key hydrologic areas* in accordance with the Growth Plan and Greenbelt Plan
8 *Hazardous lands* are identified by the Niagara Peninsula Conservation Authority
9 Including in *settlement areas* (i.e. urban areas and hamlets)

The following features and areas would also be included as required components of the integrated *natural environmental system*. However, they are not appropriately identified or managed until more detailed *watershed planning* or equivalent is completed at a subsequent stage of the planning process (e.g. a *subwatershed study* completed in support of a secondary plan, etc.).

- *Groundwater features*
    - Recharge/discharge areas
    - Water tables
    - Aquifers and unsaturated zones
- *Surface water features*
    - Headwater drainage features
    - Recharge/discharge areas
    - Associated riparian lands that can be defined by their soil moisture, soil type, vegetation or topographic characteristics.
- Other *hydrologic functions*

## 4.0 Definitions and Criteria

Table 4-1 provides the definition for individual components of the *natural environmental system* (NES). Also included in Table 4-1 are the criteria for the identification of features.

**Table 4-1 Definitions and Criteria for the Components of the Region's Natural Environment System**

| NES Component | Definition | Criteria |
|---|---|---|
| Areas of Natural and Scientific Interest | **Areas of natural and scientific interest (ANSI)** means areas of land and water containing natural landscapes or features that have been identified as having life science or earth science values related to protection, scientific study or education. (PPS, 2020)<br><br>**Life Science ANSIs** means an area identified as being high quality example(s) of ecological form and function in each Ecodistrict in the province (provincially significant) and the Region (regionally significant) and are generally defined by *natural heritage features* (e.g., a *woodland*, valley top of bank, etc.) and generally exclude anthropogenic land uses (e.g., residential areas / properties). Life Science ANSIs include areas identified as provincially significant and regionally significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time.<br><br>**Earth Science ANSIs** means an area that represent the best examples of geologic and geomorphic landforms and areas (e.g., a moraine) in each Ecodistrict in the province (provincially significant) and the Region (regionally significant). They may encompass a single feature or a group of related features (e.g., a drumlin field). As geologic / geomorphic landforms, the overlying land use may include a composite of natural and anthropogenic uses (e.g., woodland, agricultural, rural residential, etc.). Earth Science ANSIs include areas identified as provincially significant and regionally significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time. | The identification of both provincial and regional Life Science ANSIs and Earth Science ANSIs is determined by the Province using criteria established by the Province. |

| NES Component | Definition | Criteria |
|---|---|---|
| Buffers | **Buffer** means an area of land located adjacent to *natural heritage features and areas, other wetlands,* and *watercourses* and usually bordering lands that are subject to *development* or *site alteration*. The purpose of a *buffer* is to protect the features and areas and their ecological functions by mitigating impacts of the proposed *development* or *site alteration*. *Buffers* shall consist of n*atural self-sustaining vegetation* as a condition of *development* (except where certain *agricultural uses* are exempt from the requirement of a *buffer*). | The policies of the Niagara Official Plan identify two types of *buffers*, minimum (prescribed) *buffers* and mandatory (non-prescribed) *buffers*.<br><br>For a minimum *buffer*, the policies of the Plan state what minimum *buffer* is required. The *buffer* width cannot be less than the required minimum, but may be larger as determined through an *environmental impact study, hydrologic evaluation,* or *subwatershed study*. Minimum *buffers* apply outside of *settlement areas* and outside of the *Provincial Natural Heritage System.*<br><br>For a mandatory *buffer*, the policies of the Plan state that a *buffer* is required, but do not state any minimum for the *buffer* width. The width of an ecologically appropriate *buffer* would be determined through an *environmental impact study* and/or *hydrologic evaluation* at the time an application for *development* is made. The width of the *buffer* would be based on the sensitivity of the *ecological functions* from the change in adjacent land use, and the potential for impacts to the feature and *ecological functions* as a result of that change in land use. |

| NES Component | Definition | Criteria |
|---|---|---|
| Cultural and Regenerating Woodland | **Cultural and regenerating woodland** means *woodlands* where the *ecological functions* of the site are substantially compromised as a result of prior land use activity and would be difficult to restore and/or manage as a native *woodland* and which provide limited *ecological function* and ecosystem services. | A *significant* or *other woodland* can be classified as a *cultural and regenerating* woodland if all of the following are met:<br>a. the *woodland* is less than two hectares in size;<br>b. the removal of a portion of *woodland* will not result in a *negative impact* to the *ecological functions* of the remaining portion;<br>c. there are no other important *ecological functions* that the *woodland* provides (e.g., critical function zone for wetlands, etc.);<br>d. the *woodland* is not identified as another component of the *natural environmental system* (e.g., *significant wildlife habitat, linkage, enhancement area, buffer*);<br>e. the canopy is dominated by invasive, non-native species including, but not limited to: Norway Maple, Manitoba Maple, Siberian Elm, Scots Pine, European Buckthorn, White Mulberry, Tree-of-heaven, Apple, Black Locust and White Poplar, or any combination thereof;<br>f. the area was not treed approximately 20-25 years ago as determined through air photo interpretation or other suitable techniques;<br>g. the soil is deemed to preclude the development of a native *woodland*; for example: soil that is degraded, soil that is compacted, the top soil has been removed, soil displaying substantial erosion from over-use and/or the woodland is regenerating on fill or spoil that was introduced to the site;<br>h. there is limited ability to maintain or restore self-sustaining *ecological functions* typical of native *woodlands*; and<br>i. the *woodland* provides limited social values (e.g., does not contain sanctioned trails, nor currently provides organized research or educational opportunities).<br><br>*Woodlands* (including plantations) established and/or managed for the purpose of restoring a native tree community (e.g., naturalization or restoration projects) would still qualify as *significant woodland*. |

| NES Component | Definition | Criteria |
|---|---|---|
| Ecological Function | **Ecological function** means the natural processes, products or services that living and non-living environments provide or perform within or between species, ecosystems and landscapes. These may include biological, physical and socio-economic interactions (PPS, 2020). | *Ecological functions* are to be identified and assessed through the completion of an e*nvironmental impact study, hydrologic evaluation*, or *subwatershed study*. |
| Fish Habitat | **Fish habitat** as defined in the Fisheries Act, means spawning grounds and any other areas, including nursery, rearing, food supply, and migration areas on which 'fish' depend directly or indirectly in order to carry out their life processes (PPS, 2020). | *Fish habitat* is identified as any *watercourse* or waterbody identified by the MNRF or provided/approved by the Federal Department of Fisheries and Oceans (DFO) or a delegated authority of DFO (including *Conservation Authorities*, as appropriate).<br>• For screening purposes, and until such time appropriate studies are completed to assess *watercourses* and waterbodies, *fish habitat* will be presumed to be:<br>• any *permanent or intermittent stream* or waterbody excluding constructed and actively managed offline ponds (e.g., stormwater ponds, active farm irrigation ponds, etc.);<br>• intermittent or ephemeral watercourses, or Headwater Drainage Features that provide contributions in terms of baseflow, material (e.g., substrates, etc.) or allochthonous inputs that are important to the maintenance of downstream *fish habitat*; or<br>shoreline features that provide contributions in terms of material (e.g., substrates, etc.) or allochthonous inputs that are important to the maintenance of *fish habitat* in the Great Lakes. |

| NES Component | Definition | Criteria |
|---|---|---|
| Floodplains, Flooding Hazards, Floodways | **Definition**<br><br>**Floodplains** for river, stream and small inland lake systems, means the area, usually low lands adjoining a *watercourse*, which has been or may be subject to *flooding hazards* (PPS, 2020).<br><br>**Flooding hazard** means the inundation, under the conditions specified below, of areas adjacent to a shoreline or a river or stream system and not ordinarily covered by water:<br>a. along the shorelines of the Great Lakes - St. Lawrence River System and large inland lakes, the *flooding hazard* limit is based on the one hundred year flood level plus an allowance for wave uprush and other water-related hazards;<br>b. along river, stream and small inland lake systems, the *flooding hazard* limit is the greater of:<br>i. the flood resulting from the rainfall actually experienced during a major storm such as the Hurricane Hazel storm (1954) or the Timmins storm (1961), transposed over a specific watershed and combined with the local conditions, where evidence suggests that the storm event could have potentially occurred over watersheds in the general area;<br>ii. the one hundred year flood; and<br>iii. a flood which is greater than i. or ii. which was actually experienced in a particular watershed or portion thereof as a result of ice jams and which has been approved as the standard for that specific area by the Minister of Natural Resources and Forestry;<br><br>except where the use of the one hundred year flood or the actually experienced event has been approved by the Minister of Natural Resources and Forestry as the standard for a specific watershed (where the past history of flooding supports the lowering of the standard) (PPS, 2020).<br><br>**Floodway** for river, stream and small inland lake systems, means the portion of the *floodplain* where *development* and *site alteration* would cause a danger to public health and safety or property damage. Where the one zone concept is applied, the *floodway* is the entire contiguous *floodplain*. Where the *two zone concept* is applied, the *floodway* is the contiguous inner portion of the *floodplain*, representing that area required for the safe passage of flood flow and/or that area where flood depths and/or velocities are considered to be such that they pose a potential threat to life and/or property damage. Where the *two zone concept* applies, the outer portion of the *floodplain* is called the flood fringe (PPS, 2020). | The *floodplain, flooding hazard* and *floodway* shall be identified in accordance with protocols deemed acceptable by the Niagara Peninsula Conservation Authority. |

| NES Component | Definition | Criteria |
|---|---|---|
| Greenbelt Plan Natural Heritage System | **Greenbelt Plan Natural Heritage System** means the *natural heritage system* mapped and issued by the Province in accordance with the Greenbelt Plan. | A mapped *Greenbelt Plan Natural Heritage System* is provided by the Province in accordance with S. 3.2.1 of the Greenbelt Plan. |
| Groundwater Feature | **Groundwater features** means water-related features in the earth's subsurface including recharge/discharge areas, water tables, aquifers and unsaturated zones that can be defined by surface and subsurface hydrogeological investigations (PPS, 2020).<br><br>**Sensitive** means *groundwater feature* areas that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants. | *Groundwater features* and *sensitive groundwater features* which have not been mapped as *key hydrologic areas* are to be identified through more detailed studies such as *watershed plans* and *subwatershed studies* completed in accordance with watershed planning guidelines and best practices. |
| Habitat of Endangered Species and Threatened Species | **Habitat of endangered species and threatened species** mean habitat within the meaning of Section 2 of the Endangered Species Act, 2007 (PPS, 2020). | Criteria for the identification of the *habitat of endangered species and threatened species* is determined in accordance with the habitat regulations of the Endangered Species Act (2007). |
| Hazardous Lands | **Hazardous lands** means property or lands that could be unsafe for development due to naturally occurring processes. Along the shorelines of the Great Lakes - St. Lawrence River System, this means the land, including that covered by water, between the international boundary, where applicable, and the furthest landward limit of the *flooding hazard*, *erosion hazard* or *dynamic beach hazard* limits. Along the shorelines of large inland lakes, this means the land, including that covered by water, between a defined offshore distance or depth and the furthest landward limit of the *flooding hazard*, *erosion hazard* or *dynamic beach hazard* limits. Along river, stream and small inland lake systems, this means the land, including that covered by water, to the furthest landward limit of the *flooding hazard* or erosion hazard limits (PPS, 2020). | The primary responsibility for implementing restrictions on development and site alternation in natural hazards rests with the Niagara Peninsula Conservation Authority.<br><br>Policies are included in the Niagara Official Plan related to natural hazards to ensure conformity with the Provincial Policy Statement.<br><br>How conformity is achieved and how the policies are implemented is determined by the Niagara Peninsula Conservation Authority, who should be consulted when development (whether it requires Planning Act approval or not) is proposed within or adjacent to natural hazards. |

| NES Component | Definition | Criteria |
|---|---|---|
| Highly Vulnerable Aquifiers | **Highly vulnerable aquifers** means aquifers, including lands above the aquifers, on which external sources have or are likely to have a significant adverse effect (Greenbelt Plan, 2017). | *Highly vulnerable aquifers* are identified based primarily on vulnerability mapping completed as part of the 2005 Niagara Peninsula Conservation Authority Groundwater Study (Waterloo Hydrogeologic Inc., 2005).<br><br>In accordance with the 'Groundwater Vulnerability Analysis, Niagara Peninsula Source Protection Areas' (NPCA, 2009) *highly vulnerable aquifers* are areas of high groundwater vulnerability that "typically consist of granular aquifer materials or fractured rock that have a high permeability, are exposed near the ground surface, and have a relatively shallow water table". |
| Hydrologic Functions | **Hydrologic function** means the functions of the hydrological cycle that include the occurrence, circulation, distribution and chemical and physical properties of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere, and water's interaction with the environment including its relation to living things (PPS, 2020). | *Hydrologic functions* are to be identified and assessed through the completion of a *hydrologic evaluation* or *subwatershed study*. |
| Inland Lakes and their Littoral Zones | **Inland lakes** means any inland body of permanently standing water larger than a pool or pond or a body of water filling a depression in the earth's surface, where their water levels and hydrologic functions are not directly influenced by either Lake Erie or Lake Ontario.<br><br>Inland lakes do not include storm water management ponds, ponds constructed for irrigation purposes, such as those on a golf course or used for agriculture, lakes that have been constructed and managed with the sole purpose of supporting essential infrastructure, and where their *ecological function* is not a consideration in their management. | N/A |
| Key Hydrologic Areas | **Key hydrologic areas** means *significant groundwater recharge areas*, *highly vulnerable aquifers*, and *significant surface water contribution areas* that are necessary for the ecological and hydrologic integrity of a *watershed* (Growth Plan, 2019). | N/A – criteria are identified for each individual component. |
| Key Hydrologic Features | **Key hydrologic features** means *permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs,* and *wetlands*. (Growth Plan, 2019). | N/A – criteria are identified for each individual component. |

| NES Component | Definition | Criteria |
|---|---|---|
| Key Natural Heritage Features | **Key natural heritage features** means *habitat of endangered species and threatened species; fish habitat; wetlands; life science areas of natural and scientific interest* (ANSIs), *significant valleylands, significant woodlands; significant wildlife habitat (*including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars (Growth Plan, 2019). | N/A – criteria are identified for each individual component. |
| Linkages | **Linkage** means an area, that may or may not be associated with the presence of existing natural features and areas, that provides and maintains ecological connectivity between core areas consisting of natural features and areas, and supports a range of community and ecosystem processes enabling plants and animals to move among natural heritage features, in some cases over multiple generations, thereby supporting the long-term sustainability of the overall natural environment system.<br><br>**Core areas** means an individual natural features and areas, or a group of features and areas in close proximity to each other (i.e., less than or equal to 30 m distance in settlement areas, less than or equal to 60 m distance outside of settlement areas) that have functional ecological connectivity (i.e., their proximity to each other supports *ecological functions*, such as *wildlife habitat*, exchange of genetic material, etc.). | Known *linkages* have been identified between *natural heritage features and areas* and *key natural heritage features* consisting of natural areas (e.g., *watercourses*, valleylands, meadow, thicket, woodland, *wetland*, and hedgerows, etc.) or rural/ agricultural lands without major barriers (i.e., developed areas or major roads greater than 30 m in width) based on the following set of criteria:<br><br>a. large *linkages* (outside settlement areas and outside of the *Provincial Natural Heritage System*) that are:<br>i. 200-400 m in width; and<br>ii. connect *core areas* (i.e., a group of natural features and areas within 30 m of each other) with a combined area of ≥50 hectares in size;<br><br>b. medium *linkages* (outside of *settlement areas* and outside of the *Provincial Natural Heritage System*) that are:<br>i. 100-200 m in width; and<br>ii. connect *core areas* (i.e., a group of natural features and areas within 30 m of each other) with a combined area of ≥20 hectares in size;<br><br>c. *small linkages*, both inside and outside of *settlement areas* and outside of the *Provincial Natural Heritage System*) that are:<br>i. 60-100 m in width; and<br>ii. connect *core areas* (i.e., a group of natural features and areas within 30 m of each other) with a combined area of ≥10 hectares in size;<br><br>Opportunities for additional, ecologically appropriate linkages shall be screened for when a *subwatershed study* is being completed in support of a secondary plan. |

| NES Component | Definition | Criteria |
|---|---|---|
| Natural Environment System | **Natural environment system** means an ecologically integrated system made up of the *Provincial natural heritage system*s, *natural heritage features and areas, other wetlands, key natural heritage features, key hydrologic features, key hydrologic areas, shoreline areas, hydrologic functions, supporting features and areas, hazardous lands,* and *linkages* intended to provide connectivity and support natural processes which are necessary to maintain biological and hydrological diversity, *ecological functions*, ecosystem services, viable populations of indigenous species, and ecosystems. | N/A – criteria are identified for each individual component. |
| Natural Heritage Features and Areas | **Natural heritage features and areas** means features and areas, including *significant wetlands, significant coastal wetlands,* other coastal wetlands*, fish habitat, significant woodlands, significant valleylands, habitat of endangered species and threatened species, significant wildlife habitat,* and *significant areas of natural and scientific interest*, which are important for their environmental and social values as a legacy of the natural landscapes of an area (modified from PPS, 2020). For the purposes of this definition, *natural heritage features and areas* includes *other woodlands, earth science areas of natural and scientific interest* (provincial and regional), and *life science areas of natural and scientific interest* (provincial and regional). | N/A – criteria are identified for each individual component. |
| Natural Heritage System | **Natural heritage system** means a system made up of *natural heritage features and areas*, *wetlands*, and *linkages* intended to provide connectivity (at the regional or site level) and support natural processes which are necessary to maintain biological and geological diversity, natural functions, viable populations of indigenous species, and ecosystems. These systems can include *key natural heritage features, key hydrologic features*, federal and provincial parks and conservation reserves, other *natural heritage features and areas,* lands that have been restored or have the potential to be restored to a natural state, associated areas that support *hydrologic functions*, and working landscapes that enable ecological functions to continue. | N/A – criteria are identified for each individual component. |
| Natural Heritage System for the Growth Plan | **Natural Heritage System for the Growth Plan** means the *natural heritage system* mapped and issued by the Province in accordance with the Growth Plan. | A mapped *Natural Heritage System for the Growth Plan* has been provided by the Province in accordance with 4.2.2.1 of the Growth Plan. |

| NES Component | Definition | Criteria |
|---|---|---|
| Other Woodlands | **Other woodlands** means *woodlands* determined to be ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system. Other woodlands include all terrestrial treed vegetation communities where the percent tree cover is >25 per cent. *Other woodlands* would not include *woodlands* meeting the criteria as *significant woodlands*. | To be identified as an other *woodland*, a terrestrial treed area must have ≥ 25 per cent tree cover and meet one or more of the following criteria:<br>a. an average minimum width of 40 m and is ≥ 0.3 ha, measured to crown edges; or<br>b. any size abutting a s*ignificant woodland, wetland* or *permanent stream*.<br>Treed areas that "abut" a *significant woodland, wetland* or *permanent stream* are considered adjacent when located within 20 m of each other.<br>*Other woodlands* are identified based on the Ecological Land Classification methodology. Terrestrial vegetation communities that would meet the ≥ 25 per cent tree cover are identified in Table 5-1. |
| Permanent and Intermittent Streams | **Permanent streams** means watercourses that contain water during all times of the year.<br>**Intermittent streams** means stream-related watercourses that contain water or are dry at times of the year that are more or less predictable, generally flowing during wet seasons of the year but not the entire year, and where the water table is above the stream bottom during parts of the year (Greenbelt Plan, 2017). | Criteria for the identification of a *permanent or intermittent stream* should follow protocols established by the Province, such as the Ontario Stream Assessment Protocol. |
| Provincial Natural Heritage System | **Provincial Natural Heritage System** means collectively the *Natural Heritage System for the Growth Plan* and the *Greenbelt Plan Natural Heritage System*. | N/A – criteria are identified for each of the two individual systems. |
| Seepage Areas and Springs | **Seepage areas and springs** means sites of emergence of groundwater where the water table is present at the ground surface (Greenbelt Plan, 2017). | Seepage areas are to be identified based on the observation of groundwater discharge at the surface as evident by springs, standing water, saturated soils, and/or vegetation indicating groundwater discharge (e.g., watercress). |
| Setback (to regulated features and areas in accordance with NPCA policies) | **Setback** means a physical separation that forms a boundary by establishing an exact distance from a fixed point, such as a property line, an adjacent structure, or a natural feature, within which *development* and/or *site alteration* is prohibited in accordance with the policies of the Niagara Peninsula Conservation Authority. | Setbacks are identified in accordance with the Niagara Peninsula Conservation Authority policies. |

| NES Component | Definition | Criteria |
|---|---|---|
| Shoreline Areas | **Shoreline areas** means the interface between terrestrial and aquatic environments, allowing for interactions between them, providing: specialized habitats (e.g., natural beach, overhanging cover, bird stopover or nesting, etc.), natural cover, areas of shoreline erosion or accretion, nutrient and sediment filtration / buffering, shading, foraging opportunities. | Shoreline areas include any natural vegetation community (as determined according to Ecological Land Classification) and will be identified based on the following criteria:<br>a. ≥ 0.1 hectares in size; and<br>b. located within 30 m of the limits of the shoreline flood hazard associated with the Great Lakes, or within 15 m of a surface water feature, as defined by the Provincial Policy Statement. |
| Significant Coastal Wetlands | **Coastal wetland** means:<br>a. any *wetland* that is located on one of the Great Lakes or their connecting channels; or<br>b. any other *wetland* that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located 2 km upstream of the 1:100 year floodline (plus wave run-up) of the large water body to which the tributary is connected (PPS, 2020).<br>**Significant coastal wetlands** means those identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time (PPS, 2020). | The criteria for identifying *significant coastal wetlands* are established by the Province. At the time of writing this report the Ontario Wetland Evaluation System, Southern Manual, 3rd Edition, Version 3.3 (MNRF, 2014) is considered the document by which an evaluation should be undertaken. The Ministry of Natural Resources and Forestry is responsible for review and approval of a wetland evaluation. |

| NES Component | Definition | Criteria |
|---|---|---|
| Significant Groundwater Recharge Area | **Significant groundwater recharge area** means an area that has been identified as:<br>a. a *significant groundwater recharge area* by any public body for the purposes of implementing the Provincial Policy Statement;<br>b. a *significant groundwater recharge area* in the assessment report required under the Clean Water Act, 2006; or<br>c. An ecologically significant groundwater recharge area delineated in a *subwatershed study* or equivalent in accordance with provincial guidelines.<br>For the purposes of this definition, ecologically *significant groundwater recharge areas* are areas of land that are responsible for replenishing groundwater systems that directly support sensitive areas like cold water streams and *wetlands*. (Greenbelt Plan, 2017).<br>Groundwater recharge areas are also classified as “significant” where they supply more water to an aquifer than the surrounding area (NPCA, 2013). In other words, a recharge area is considered significant when it helps to maintain the water level in an aquifer that supplies a community with drinking water, or supplies groundwater recharge to a coldwater ecosystem that is dependent on this recharge to maintain its ecological function (NVCA, 2015b). | *Significant groundwater recharge areas* have been delineated for the entire Niagara Peninsula Source Protection Area using methodology developed by the Niagara Peninsula Conservation Authority in consultation with the Ministry of Natural Resources and Forestry and was based on the March 2007 Draft Guidance Module – Water Budget and Water Quantity Risk Assessment (Guidance Module).<br>The identification of the significant groundwater recharge areas adheres to the Assessment Report Technical Rules (MOECP, 2009), Regulation 287/07 and Technical Bulletin methodology descriptions (MNRF, MOECP, 2009). |
| Significant Surface Water Contribution Areas | **Significant surface water contribution areas** mean areas, generally associated with headwater catchments that contribute to baseflow volumes which are significant to the overall surface water flow volumes within a watershed (Greenbelt Plan, 2017).<br>*Significant surface water contribution areas* include headwater drainage features classified as protection, conservation and mitigation. | The identification of *significant surface water contribution areas* will be undertaken as part of more detailed studies such as *watershed plan* and *subwatershed studies* completed in accordance with watershed planning guidelines and best practices.<br>The identification, evaluation and management recommendations for headwater drainage features should follow that of ‘The Evaluation, Classification and Management of Headwater Drainage Features Guideline’, prepared by the Toronto and Region Conservation Authority and Credit Valley Conservation (2014, or as amended from time to time). |

| NES Component | Definition | Criteria |
|---|---|---|
| Significant Valleylands | **Valleylands** means a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year (PPS, 2020).<br><br>**Significant valleyland** means *valleyland* which is ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system. These are to be identified using criteria established by the Province (Growth Plan, 2019).<br><br>Note: the Niagara Peninsula Conservation Authority also regulates *valleyland* erosion hazards. The definitions for valleys and the identification of *valleylands* that are regulated by the Niagara Peninsula Conservation Authority is not necessarily consistent with the definition for *valleyland* and significant *valleyland* of the Provincial Policy Statement nor the identification of significant *valleylands* in accordance with the criteria for *significant valleylands*. | *Significant valleylands* include any of the features identified in any of the following three categories:<br><br>a. all streams with well-defined valley morphology (i.e., *floodplains*, riparian zones, meander belts and/or valley slopes) of an average width of 25 metres or more; the physical boundary is defined by the stable top of bank (as defined by the conservation authority);<br><br>b. all spillways and ravines with the presence of flowing or standing water for a period of no less than two months in an average year. Such features must be greater than 50 metres in length (as defined from the point of valley formation downstream to the confluence of the valley being assessed); 25 metres in average width with a well-defined morphology (i.e., two valley walls of 15 per cent slope or greater with a minimum height of 5 metres, and valley floor), and having an overall area of 0.5 hectares or greater; or<br><br>c. additional features or areas beyond the ones described above that have been identified by the Region, Local Area Municipality, or the Niagara Peninsula Conservation Authority as providing one or more of the features or functions described in the table contained in Appendix A of the Greenbelt Plan 2005 Technical Definitions and Criteria for Key Natural Heritage Features in the Natural Heritage System of the Protected Countryside Area (MNRF, 2012). |
| Significant Wildlife Habitat | **Wildlife habitat** means areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter, and space needed to sustain their populations. Specific *wildlife habitats* of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species (PPS, 2020).<br><br>**Significant wildlife habitat** means *wildlife habitat* that is ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system. These are to be identified using criteria established by the Province (PPS, 2020). | *Significant wildlife habitat* shall be identified in accordance with the Significant Wildlife Habitat Criteria schedules for Ecoregion 7E (MNRF, January 2015) and/or the appropriate provincial guidance document(s) as may be developed or amended from time to time. Where any disagreements arise with respect to interpretation of significant wildlife habitat, the Region may confer with the Province, however the Region's interpretation shall prevail if it provides equal or greater protection for *wildlife habitat*. |

| NES Component | Definition | Criteria |
|---|---|---|
| Significant Woodland | **Woodlands** means treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. *Woodlands* include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels. *Woodlands* will be delineated according to the Province's Ecological Land Classification system definition for forest (PPS, 2020). For the purposes of this definition, forests include terrestrial vegetation communities as defined in accordance with the Ecological Land Classification system, where the tree cover is greater than 60 per cent.<br><br>**Significant woodlands** means *woodlands* that are ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history (PPS, 2020). | To be identified as significant, a woodland must meet the Ecological Land Classification definition of forest (as per the definition of '*woodland*'), and then meet one or more of the following criteria:<br><br>a. two hectares or greater in size;<br><br>b. one hectare or greater in size meeting at least one of the following criteria:<br><br>i. naturally occurring (i.e., not planted) trees (as defined in the species list of Appendix D in the Greenbelt Technical Paper);<br><br>ii. treed areas planted with the intention of restoring *woodland*;<br><br>iii. 10 or more trees per hectare greater than 100 years old or 50 cm or more in diameter;<br><br>iv. wholly or partially within 30 m of a *provincially significant wetland or habitat* of an *endangered* or *threatened species*;<br><br>v. overlapping or abutting one or more of the following features:<br><br>1. permanent streams or intermittent streams;<br><br>2. fish habitat;<br><br>3. significant valleylands;<br><br>c. 0.5 hectares or greater in size meeting at least one of the following criteria:<br><br>i. a provincially rare treed vegetation community with an S1, S2 or S3 in its ranking by the MNRF's N.H.I.C.;<br><br>ii. habitat of a woodland plant species with an S1, S2 or S3 in its ranking or an 8, 9, or 10 in its Southern Ontario Coefficient of Conservatism by the NHIC, consisting of 10 or more individual stems or 100 or more sqm of leaf coverage;<br><br>iii. any woodland overlapping or abutting one or more of the following features:<br><br>1. significant wildlife habitat;<br><br>2. habitat of threatened species and endangered species; or<br><br>3. non-*provincially significant wetlands*<br><br>d. any size overlapping or abutting one or more of the following features: |

| NES Component | Definition | Criteria |
|---|---|---|
| | | i. *provincially significant wetland*; and<br>ii. life science area of natural and scientific interest<br><br>Woodlands that abut another feature are considered adjacent when located within 20 m of each other.<br><br>Significant woodlands are identified based on the Ecological Land Classification methodology. Terrestrial vegetation communities that would meet the ≥ 60 per cent tree cover and be considered a forest are identified in Table 5-1.<br><br>Guidance for delineating the boundary of a woodland as defined by the Region should follow those of Appendix B in the Greenbelt Plan 2005 – Technical Definitions and Criteria for Key Natural Heritage Features in the Natural heritage System of the Protected Countryside (MNRF, 2012). |
| Supporting Features and Areas | **Supporting features and areas** means lands that have been restored or have the potential of being restored. *Supporting features and areas* include grasslands, meadows, and thickets (defined in accordance with Ecological Land Classification for Southern Ontario); other *valleylands*; and other *wildlife habitat*; and enhancement areas where they are determined to contribute to the biodiversity and *ecological function* of the *natural environment system.*<br><br>**Enhancement areas** means ecologically supporting areas adjacent to *natural heritage features and areas, key natural heritage features, key hydrologic features*. *Enhancement areas* can also be measures internal to features that increase the ecological resilience and function of individual features or groups of natural features and areas. *Enhancements areas* are identified where they:<br>• connect natural features and areas to create larger contiguous natural areas;<br>• reduce edge habitat and increase proportion of interior conditions (> 100 m from edge); and<br>• include critical function zones and important catchment areas critical to sustaining ecological functions. | The identification of *supporting features and areas* is to be determined through a detailed study, such as an *environmental impact study*, *hydrological evaluation*, or *subwatershed study* which would evaluates the ecological contribution of the *supporting feature and area* to other components of the *natural environment system*.<br><br>*Enhancement areas* are identified where:<br>• the area is comprised of natural vegetation communities (as determined according to Ecological Land Classification); or<br>• the area is currently under agricultural production; or<br>• the area does not contain a permanent form of development (i.e., house, road, or related infrastructure).<br><br>*Enhancement areas* inside of *settlement areas* are to be identified as follows:<br>• in ‘bays and inlets’ along the edge of features - < 60 m wide<br>• interior gaps in features - < 0.5 ha<br>• gaps between features - < 60 m<br><br>*Enhancement areas* outside of settlement areas are to be identified as follows:<br>• in ‘bays and inlets’ along the edge of features - < 120 m wide<br>• interior gaps in features - < 1 ha<br>• gaps between features - < 120 m |

| NES Component | Definition | Criteria |
|---|---|---|
| Surface Water Feature | **Surface water features** means water-related features on the earth's surface, including headwaters, rivers, stream channels, inland lakes, *seepage areas*, recharge/discharge areas, springs, *wetlands*, and associated riparian lands that can be defined by their soil moisture, soil type, vegetation, or topographic characteristics (PPS, 2020).<br><br>**Sensitive** means in regard to *surface water features* and *groundwater features*, means areas that are particularly susceptible to impacts from activities or events including, but not limited to, water withdrawals, and additions of pollutants (PPS, 2020). | *Surface water features* and *sensitive surface water features* which have not been mapped as *key hydrologic features* are to be identified through more detailed studies such as *watershed plans* and *subwatershed studies* completed in accordance with watershed planning guidelines and best practices. |
| Water Resource System | **Water resource system** means a system consisting of *groundwater features* and areas and *surface water features* (including shoreline areas), and *hydrologic functions*, which provide the water resources necessary to sustain healthy aquatic and terrestrial ecosystems and human water consumption. The *water resource system* comprises of *key hydrologic features* and *key hydrologic areas* (Growth Plan, 2019). | N/A – criteria are identified for each individual component. |

| NES Component | Definition | Criteria |
|---|---|---|
| Wetlands, Provincially Significant Wetlands, and Other Wetlands | **Wetland** means lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens. Periodically soaked or wet lands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition. (PPS, 2020).<br><br>**Provincially significant wetlands** means those identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the Province, as amended from time to time (PPS, 2020).<br><br>**Other wetlands** means lands that meet the definition of a *wetland*, and which have not been evaluated as a *provincially significant wetland*. | The criteria for identifying *provincially significant wetlands* are established by the Province in accordance with the Ontario Wetland Evaluation System. At the time of writing this report the Ontario Wetland Evaluation System, Southern Manual, 3rd Edition, Version 3.3 (MNRF, 2014) is considered the document by which an evaluation should be undertaken to identify a *provincially significant wetland*. The Ministry of Natural Resources and Forestry is responsible for review and approval of a wetland evaluation.<br><br>*Other Wetland* include:<br>• all *wetlands* that meet an Ecological Land Classification wetland system classification and have not been evaluated as a *provincially significant wetland*. Vegetation communities that would be considered other *wetlands* are identified in Table 5-1;<br>• both evaluated non-provincially significant wetlands and *wetlands* that have not been evaluated. These include *wetlands* that are regulated, and *wetlands* that are not regulated by the *Conservation Authority*; and<br>• *wetlands* with *ecological and hydrological functions* and *wetlands* that have only have a hydrological function.<br><br>In *settlement areas, other wetlands* which are not regulated by the *Conservation Authority* require further evaluation to determine the appropriate protection or management of the feature. Within *settlement areas*, *other wetlands* which are not regulated by the *Conservation Authority* are considered to be a required component of the water resource system and are protected or managed in accordance with the policies of this Plan.<br><br>In accordance with the definitions and polices of the Greenbelt Plan and Growth Plan, all *wetlands* outside of *settlement areas* are *key hydrologic features* and are protected in accordance with the policies of those Plans. |
| Vegetation Protection Zone | **Vegetation protection zone** means a vegetated *buffer* area surrounding a *key natural heritage feature* or *key hydrologic feature* (Greenbelt Plan, 2019). | *Vegetation protection zones* apply to *key natural heritage features* in a *Provincial Natural Heritage System* and to any *key hydrologic features* outside of a *settlement area*. Elsewhere in the Region the term *buffer* is used.<br><br>The width of a *vegetation protection zone* is determined in accordance with Provincial policy and the policies of this Plan. |

## 5.0 Mapping of the Natural Environment System

The basis for mapping of *significant woodlands, other woodlands, other wetlands*, shoreline areas*, and *linkages* is the Ecological Land Classification (ELC) system.

* *Provincially significant wetlands* are identified based on Provincial mapping, regardless of the ELC code.

Table 5-1 are Ecological Land Classification types which feature they would be associated with (i.e. woodland, other woodland, or wetland).

**Table 5-1 Ecological Land Classification (ECL) Type and Associated Natural Feature Classification**

| ELC Code | ELC Land Classification Name | Woodland ( > 60% canopy) | Other Woodland ( > 25% canopy) | Natural Cover | Wetland |
|---|---|---|---|---|---|
| TAG | Treed Agriculture | Yes | Yes | Yes | No |
| BOT | Treed Bog | No | Yes | Yes | Yes |
| HOC | Continuous Hedgerow | No | Yes | Yes | No |
| SVC | Coniferous Savanna | No | Yes | Yes | No |
| WOC | Coniferous Woodland | No | Yes | Yes | No |
| HOD | Deciduous Hedgerow | No | Yes | Yes | No |

| ELC Code | ELC Land Classification Name | Woodland ( > 60% canopy) | Other Woodland ( > 25% canopy) | Natural Cover | Wetland |
|---|---|---|---|---|---|
| SVD | Deciduous Savanna | No | Yes | Yes | No |
| WOD | Deciduous Woodland | No | Yes | Yes | No |
| SVM | Mixed Savanna | No | Yes | Yes | No |
| WOM | Mixed Woodland | No | Yes | Yes | No |
| BLT | Treed Buff | No | Yes | Yes | No |
| CLT | Treed Cliff | No | Yes | Yes | No |
| RBT | Treed Rock Barren | No | Yes | Yes | No |
| SBT | Treed Sand Barren and Dune | No | Yes | Yes | No |
| SHT | Treed Shoreline | No | Yes | Yes | No |
| TAT | Treed Talus | No | Yes | Yes | No |

| ELC Code | ELC Land Classification Name | Woodland ( > 60% canopy) | Other Woodland ( > 25% canopy) | Natural Cover | Wetland |
|---|---|---|---|---|---|
| FOC | Coniferous Forest | Yes | Yes | Yes | No |
| FOD | Deciduous Forest | Yes | Yes | Yes | No |
| FOM | Mixed Forest | Yes | Yes | Yes | No |
| SWC | Coniferous Swamp | No | No | Yes | Yes |
| SWD | Deciduous Swamp | No | No | Yes | Yes |
| SAF | Floating-leaved Shallow Aquatic | No | No | Yes | Yes |
| MAM | Meadow Marsh | No | No | Yes | Yes |
| SAM | Mixed Shallow Aquatic | No | No | Yes | Yes |
| SWM | Mixed Swamp | No | No | Yes | Yes |

| ELC Code | ELC Land Classification Name | Woodland ( > 60% canopy) | Other Woodland ( > 25% canopy) | Natural Cover | Wetland |
|---|---|---|---|---|---|
| MAS | Shallow Marsh | No | No | Yes | Yes |
| SAS | Submerged Shallow Aquatic | No | No | Yes | Yes |
| SWT | Swamp Thicket | No | No | Yes | Yes |
| BOS | Shrub Bog | No | No | Yes | Yes |
| OAO | Open Aquatic | No | No | Yes | No |
| IAG | Agricultural Infrastructure | No | No | No | No |
| CVC | Commercial and Industrial | No | No | No | No |
| THC | Coniferous Thicket | No | No | Yes | No |
| THD | Deciduous Thicket | No | No | Yes | No |
| MEF | Forb Meadow | No | No | Yes | No |

| ELC Code | ELC Land Classification Name | Woodland ( > 60% canopy) | Other Woodland ( > 25% canopy) | Natural Cover | Wetland |
|---|---|---|---|---|---|
| MEG | Graminoid Meadow | No | No | Yes | No |
| CGL | Green Lands | No | No | Yes | No |
| MEM | Mixed Meadow | No | No | Yes | No |
| THM | Mixed Thicket | No | No | Yes | No |
| OAG | Open Agriculture | No | No | Yes | No |
| BLO | Open Bluff | No | No | Yes | No |
| CLO | Open Cliff | No | No | Yes | No |
| RBO | Open Rock Barren | No | No | Yes | No |
| SHO | Open Shoreline | No | No | Yes | No |
| TAO | Open Talus | No | No | Yes | No |

| ELC Code | ELC Land Classification Name | Woodland ( > 60% canopy) | Other Woodland ( > 25% canopy) | Natural Cover | Wetland |
|---|---|---|---|---|---|
| OAW | Open Water | No | No | Yes | No |
| CVR | Residential | No | No | No | No |
| SAG | Shrub Agriculture | No | No | Yes | No |
| BLS | Shrub Bluff | No | No | Yes | No |
| CLS | Shrub Cliff | No | No | Yes | No |
| RBS | Shrub Rock Barren | No | No | Yes | No |
| SHS | Shrub Shoreline | No | No | Yes | No |
| TAS | Shrub Talus | No | No | Yes | No |
| CVI | Trans-portation and Utilities | No | No | No | No |