DRAFT

# JOINT STEWARDSHIP BOARD
# TURTLE MEETING PLACE

## PRELIMINARY LANDSCAPE DESIGN REPORT

JANUARY . 2015

MMM GROUP

Joint Stewardship Board

Respect • Trust • Friendship



# Table of Contents

# STANDARD OF LIMITATIONS

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# TURTLE MEETING PLACE

## 1.0 INTRODUCTION

MMM Group is providing consulting services to The Joint Stewardship Board (City of Hamilton and Haudenosaunee Confederacy) for concept development, construction drawings, specifications and documentation for the "Turtle Meeting Place", a gathering place along the Red Hill Valley Trail near the Brampton Street trail entrance.

Ian Gray (OALA) is the lead for the project. The assignment involves protecting existing meadow habitat, existing vantage points and views and creating an opportunity for gathering.

## 2.0 SCOPE OF WORK

We are refining the original concept developed by Harrington and Hoyle Landscape Architects (HHLA) into a Conceptual Design that integrates the trail system with the proposed gathering place, which was provided by the Client to MMM Group.

The intent of the current design is to reduce the scale and modify certain aspects of the original HHLA concept. The modifications consist of adjusting the layout such that it is illustrative, in plan view, of the shell of a snapping turtle and eliminating the various appendages. The plates of the turtle shell can be understood as representative of the lunar months and days. Consideration has been given in the design to the spaces represented by the turtle shell plates being differentiated with customized planting palettes of indigenous species suitable for butterfly habitat.

The current construction budget is $150,000.00, inclusive of 10% contingency and taxes. Permits, consulting fees and other indirect costs are in addition to the construction cost budget. The schedule is for Conceptual Design to be complete by March 2015, Detailed Design by June 2015 and Tender Stage by September 2015.

It has been agreed that if the client has geotechnical information it will be provided to the Consultant prior to design work commencing.

# THE SITE

## 3.0 EXISTING CONDITIONS

The proposed Turtle Meeting Place is located on a closed landfill. Minor excavation, to a maximum of 150 centimeters, is permitted but the intention is to design the gathering place such that installation of the materials and elements of the design are placed on top of the existing landfill cap and cover.

An area near the top of the landfill and close to the existing trail system has been identified as fairly flat. This can be seen in the figure showing the proposed location of the gathering place.

The existing major overland flow pattern and direction of storm water and snow melt is to be maintained.

The landfill cap was originally designed to be non -pervious and this will be maintained. On top of that impervious cap there is currently geotextile and soil suitable for native plant species. In selected areas the existing soils will be augmented to facilitate the proposed planting. The immediate, small scale drainage pattern of the actual meeting area will be carefully managed by placing small amounts of fill. Soil will be specified that is suitable for planting the proposed indigenous grasses and flowering plants that will make up the desired butterfly habitat. A small percentage of the meeting place surface area will have aggregates or natural paving on sand or granular installed for paths and more intensively used seating areas.

# PROPOSED LOCATION OF GATHERING PLACE

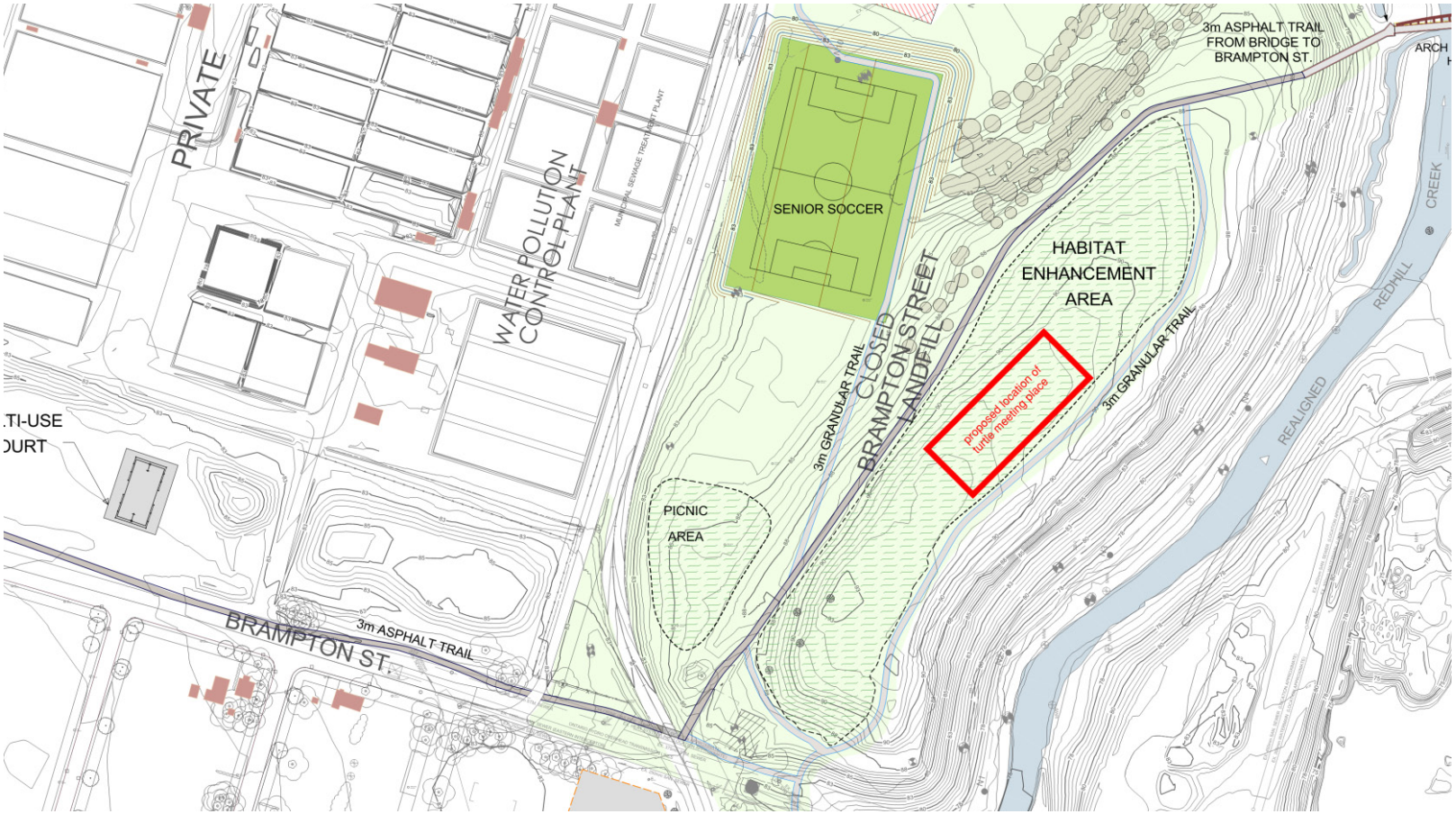



IMAGE RESOURCE:

CITY OF HAMILTON

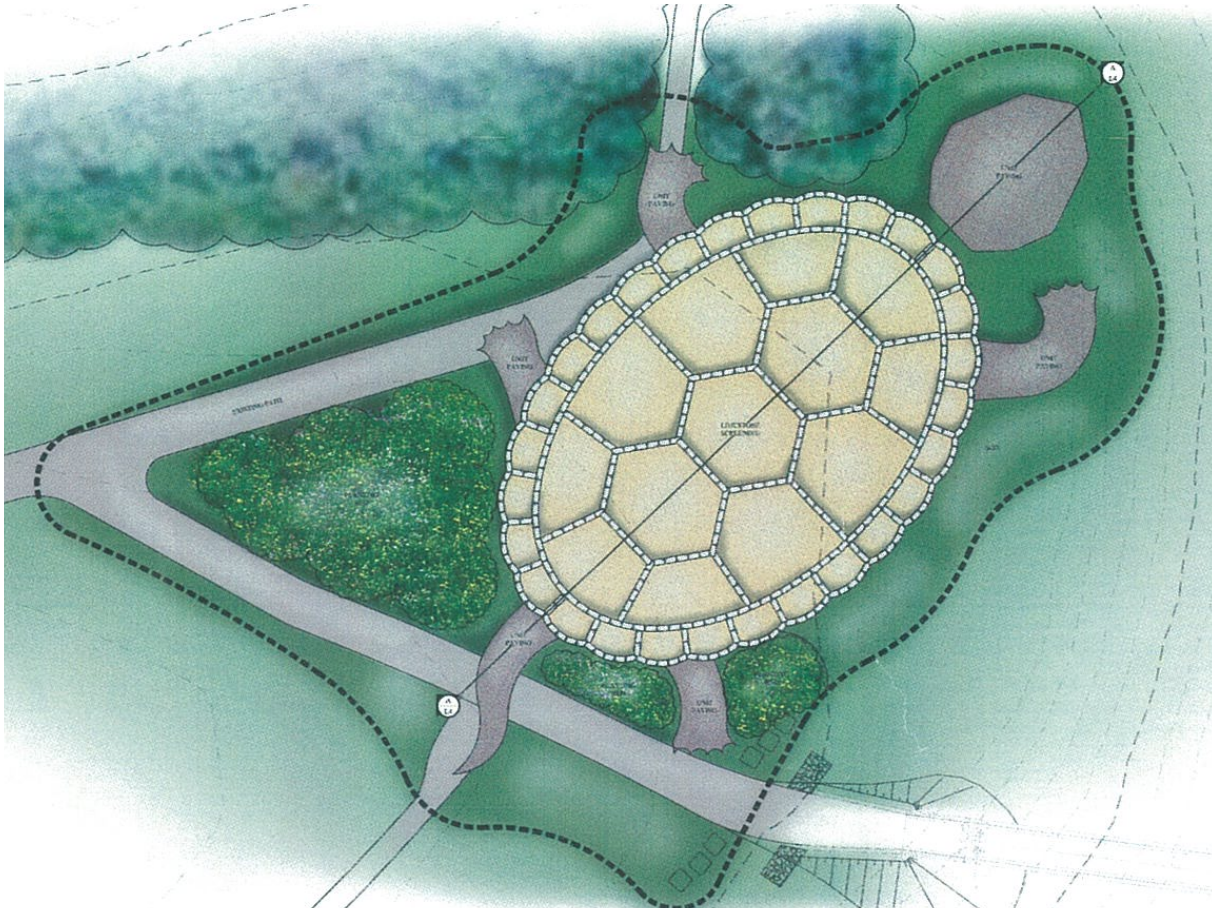
# PREVIOUS CONCEPT - A

## 4.0 PREVIOUS CONCEPTS

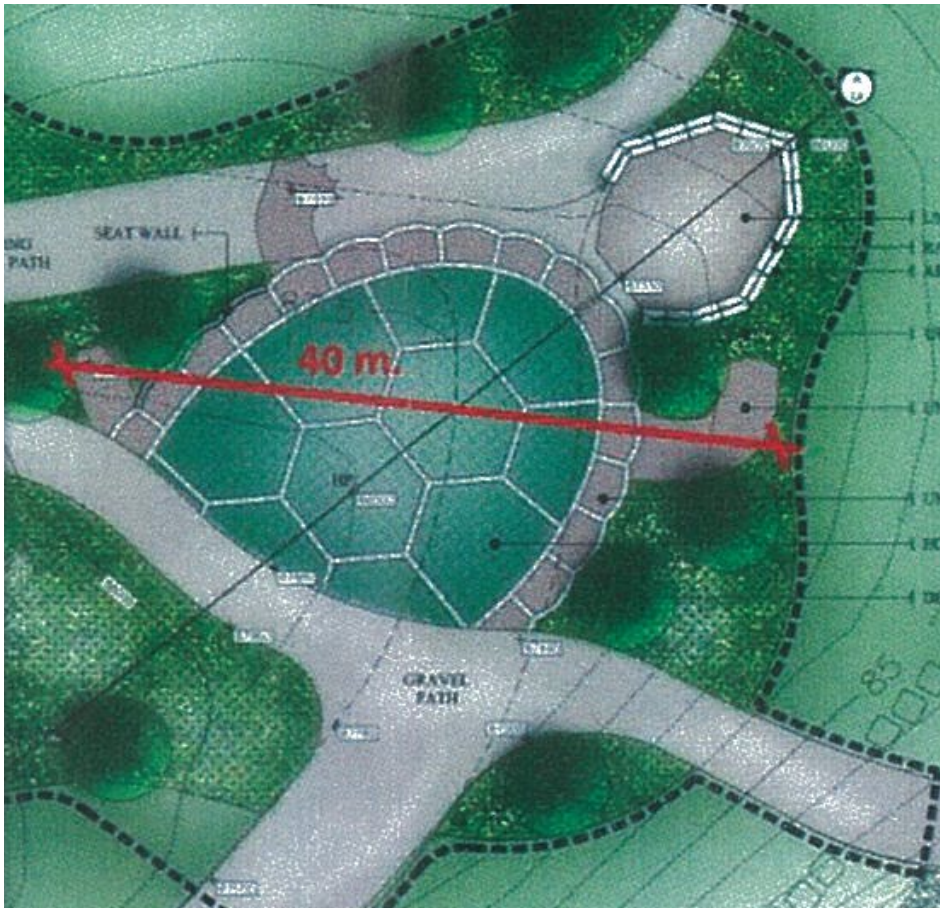
The original concepts which were provided to us will be refined and developed as directed.

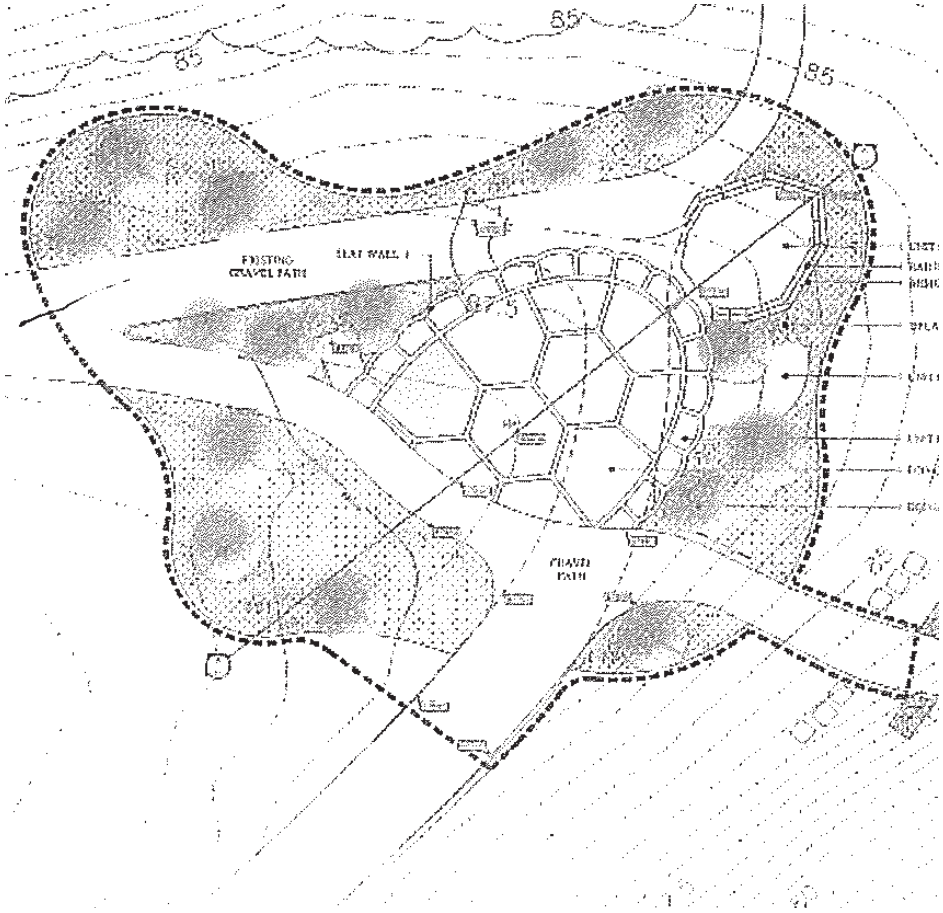
The footprint of the original concepts will be reduced to approximately half the size and aspects modified. Modifications consist of adjusting the layout such that it is illustrative of the shell of a snapping turtle and elimination of the tail and legs. The plates of the turtle shell can be understood as representative of the lunar months and days. This aspect is to be the figurative emphasis of the design. Consideration will be given to the plates being differentiated spaces, some for seating and others with customized planting palettes.

A construction cost estimate for the original concept was prepared by Harrington and Hoyle Landscape Architects in 2010 and totalled approximately $250,000.00. This was inclusive of a 10% contingency allowance and taxes, but was in 2010 dollars. The current budget is $150,000.00, which we assume is for construction costs, inclusive of a 10% contingency and taxes. We also assume that permits, consulting fees and other indirect costs are in addition to the construction cost budget.



# PREVIOUS CONCEPT - B



## 5.0 OBJECTIVES

- create a gathering and meeting place;
- support habitat protection, revitalization and enhancement;
- provide opportunities for inclusive use;
- maintain views;
- encourage engagement with the site and environment; and
  enhance learning opportunities that the site and natural environment.

## 6.0 CONSIDERATIONS

- protect existing habitat;
- protect use by species at risk;
- enhance meadow habitat;
- consider existing regeneration planting;
- protect existing vantage points and views;
- enhance educational opportunities for engaging with the site's natural and cultural heritage through recreation and interpretation; and
- provide inclusive access.

# CONCEPT DEVELOPMENT

## SNAPPING TURTLE

IMAGE RESOURCE:

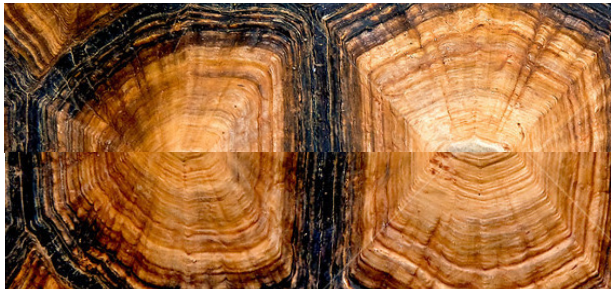
GOOGLE

# LANDFORMS

We propose that the immediate area of the meeting place will be re-contoured with a series of small earthen mounds, each representative of the form of the snapping turtle shell. These mounds will provide suitable planting soil and protect the existing landfill cover. In addition to making the theme of the turtle shell more legible in the landscape than a pattern in only plan view, they will provide a little shelter from the wind without obscuring views.

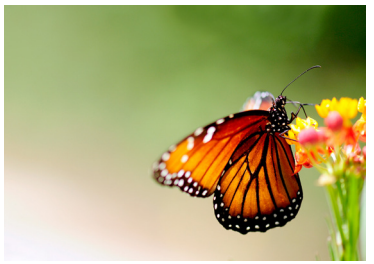
# PAVING

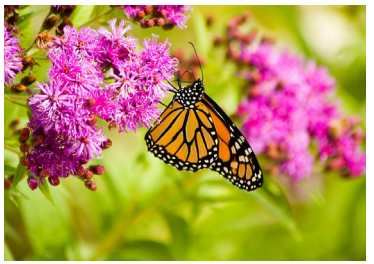
# SEATING



The beautiful pattern and tonal range of the snapping turtle shell is suggestive of tree heartwood. We will consider in more depth, the possibility of some seating being made of wood. These furnishings should be very simple and large enough to be stable, but at the same time, warm to the touch and evocative of the natural patterns that exist at every scale of nature.

# BUTTERFLY HABITAT





The planting will consist of native grass and wildflowers that are capable of growing in the conditions of the exposed landfill site as well as providing forage for various species of butterflies. Considerations that we will give to the selection of plants are their lifespan, root depth, ability to re-seed, and resistance to invasive species competition. The initial planting will be primarily seeded in and will aim to provide a range of mature plant sizes.

# 8.0 PLANT PALETTE

The following list is comprised of herbaceous flora locally native to the Halton Region. The species are categorized into broad moisture zones and vegetation types. This list is not all inclusive. It is presented to give guidance regarding appropriate species and planting locations. Additional species will be considered on a site by site basis (From Conservation Halton Guidelines April 2010).

| Botanical Name | Common Name | Moisture Zone | | | | Vegetation Type |
|---|---|---|---|---|---|---|
| | | Upland | Floodline Fringe/Wet Riparian | Shoreline Fringe/Shallow Water | Deep Water | |
| **Emergent Vegetation** | | | | | | |
| *Alisma plantago-aquatica* | Water Plantain | | | * | | Emergent |
| *Asclepias incarnata* | Swamp Milkweed | | * | | | Emergent |
| *Calla palustris* | Water Arum | | | * | | Emergent |
| *Carex bebbii* | Bebb's Sedge | | * | | | Emergent |
| *Carex comosa* | Bristly Sedge | | * | | | Emergent |
| *Carex crinita* | Fringed Sedge | | * | | | Emergent |
| *Carex hystericina* | Porcupine Sedge | | * | | | Emergent |
| *Carex intumescens* | Bladder Sedge | | * | | | Emergent |
| *Carex lacustris* | Lake-Bank Sedge | | | * | | Emergent |
| *Carex lupulina* | Hop Sedge | | * | | | Emergent |
| *Carex pseudo-cyperus* | Cyperus-Like Sedge | | * | | | Emergent |
| *Carex stipata* | Awl-Fruited Sedge | | * | | | Emergent |
| *Carex stricta* | Tussock Sedge | | * | | | Emergent |
| *Carex utriculata* | Beaked Sedge | | | * | | Emergent |
| *Carex vulpinoidea* | Fox Sedge | | * | | | Emergent |
| *Chelone glabra* | Turtlehead | | * | | | Emergent |
| *Cyperus esculentus* | Yellow Nutsedge | | * | | | Emergent |
| *Eleocharis erythropoda* | Red-based Spike-rush | | | * | | Emergent |
| *Eleocharis obtusa* | Spike Rush | | * | | | Emergent |
| *Eleocharis smallii* | Spike Rush | | * | | | Emergent |
| *Equisetum fluviatile* | Water Horsetail | | | * | | Emergent |
| *Iris versicolor* | Wild Blue Flag | | * | | | Emergent |
| *Juncus articulatus* | Jointed Rush | | * | | | Emergent |
| *Juncus canadensis* | Canada Rush | | * | | | Emergent |
| *Juncus tenuis* | Path Rush | | * | | | Emergent |
| *Juncus torreyi* | Torrey's Rush | | * | | | Emergent |
| *Ludwigia palustris* | Water-purslane | | | * | | Emergent |
| *Pontederia cordata* | Pickerelweed | | | * | | Emergent |
| *Sagittaria latifolia* | Broad-Leaved Arrowhead | | | * | | Emergent |
| *Scirpus atrovirens* | Green Bulrush | | * | | | Emergent |

| Botanical Name | Common Name | Moisture Zone | | | | Vegetation Type |
|---|---|---|---|---|---|---|
| | | Upland | Floodline Fringe/Wet Riparian | Shoreline Fringe/Shallow Water | Deep Water | |
| *Scirpus cyperinus* | Wool Grass Bulrush | | * | | | Emergent |
| *Scirpus pendulus* | Pendulus Bulrush | | * | | | Emergent |
| *Scirpus validus* | Softstem Bulrush | | | * | * | Emergent |
| *Sparganium emersum* | Green-fruited Bur-reed | | | * | | Emergent |
| *Typha latifolia* | Broad-Leaved Cattail | | | * | | Emergent |
| **Submergent Vegetation** | | | | | | |
| *Ceratophyllum demersum* | Coontail | | | | * | Submergent |
| *Potamogeton pectinatus* | Sago Pondweed | | | | * | Submergent |
| *Utricularia vulgaris* | Common Bladderwort | | | | * | Submergent |
| **Floating Aquatics** | | | | | | |
| *Lemna minor* | Lesser Duckweed | | | | * | Floating |
| *Lemna trisulca* | Star Duckweed | | | | * | Floating |
| *Nuphar variegatum* | Yellow Pond Lily | | | | * | Floating |
| *Polygonum amphibium* | Water Smartweed | | | * | | Floating |
| *Sparganium eurycarpum* | Common Bur-Reed | | | * | | Floating |
| **Ferns/Horsetails** | | | | | | |
| *Adiantum pedatum* | Northern Maidenhair Fern | * | | | | Ferns/Horsetails |
| *Equisetum arvense* | Field Horsetail | | * | | | Fern/Horsetail |
| *Dryopteris carthusiana* | Spinulose Wood Fern | | * | | | Ferns/Horsetails |
| *Dryopteris clintoniana* | Clinton's Wood Fern | | | * | | Ferns/Horsetails |
| *Dryopteris cristata* | Crested Wood Fern | | | * | | Ferns/Horsetails |
| *Dryopteris intermedia* | Glandular Wood Fern | * | | | | Ferns/Horsetails |
| *Dryopteris marginalis* | Marginal Wood Fern | * | | | | Ferns/Horsetails |
| *Equisetum hyemale ssp. affine* | Scouring-rush | | * | | | Ferns/Horsetails |
| *Gymnocarpium dryopteris* | Oak Fern | * | | | | Ferns/Horsetails |
| *Matteuccia struthiopteris* | Ostrich Fern | | * | | | Fern/Horsetail |
| *Onoclea sensibilis* | Sensitive Fern | | * | | | Fern/Horsetail |
| *Osmunda cinnamomea* | Cinnamon Fern | | * | | | Fern/Horsetail |
| *Osmunda regalis* | Royal Fern | | * | | | Fern/Horsetail |
| *Polystichum acrostichoides* | Christmas Fern | | * | | | Fern/Horsetail |
| *Thelypteris palustris* | Marsh Fern | | * | | | Fern/Horsetail |
| **Grasses** | | | | | | |
| *Andropogon gerardii* | Big Bluestem | * | | | | Grass |
| *Agrostis stolonifera* | Creeping Bentgrass | * | | | | Grass |
| *Agrostis perennans* | Autumn Bent Grass | * | | | | Grass |
| *Bromus ciliatus* | Fringed Brome Grass | | * | | | Grass |
| *Calamagrostis canadensis* | Canada Bluejoint | | * | | | Grass |
| *Danthonia spicata* | Poverty Oat Grass | * | | | | Grass |
| *Elymus canadensis* | Canada Wild Rye | * | | | | Grass |

| Botanical Name | Common Name | Moisture Zone | | | | Vegetation Type |
|---|---|---|---|---|---|---|
| | | Upland | Floodline Fringe/Wet Riparian | Shoreline Fringe/Shallow Water | Deep Water | |
| *Elymus hystrix* | Bottle-Brush Grass | * | | | | Grass |
| *Elymus virginicus* | Virginia Wild Rye | * | | | | Grass |
| *Bromus pubescens* | Canada Brome | * | | | | Grass |
| *Glyceria borealis* | Northern Manna Grass | | | * | | Grass |
| *Glyceria grandis* | Tall Manna Grass | | | * | | Grass |
| *Glyceria septentrionalis* | Eastern Manna Grass | | | * | | Grass |
| *Glyceria striata* | Fowl Manna Grass | | * | | | Grass |
| *Glyceria striata* | Fowl Manna Grass | | * | | | Grass |
| *Leersia virginica* | White Grass | | * | | | Grass |
| *Leersia oryzoides* | Rice Cut-Grass | | * | | | Grass |
| *Muhlenbergia mexicana var. mexicana* | Muhly Grass | | * | | | Grass |
| *Poa palustris* | Fowl Bluegrass | * | | | | Grass |
| *Schizachyrium scoparium* | Little Bluestem | * | | | | Grass |
| *Sporobolus cryptandrus* | Sand Dropseed | * | | | | Grass |
| **Sedges** | | | | | | |
| *Carex albursina* | White-bear Sedge | * | | | | Sedge |
| *Carex pensylvanica* | Pennsylvania Sedge | * | | | | Sedge |
| *Carex plantaginea* | Plantain-leaved Sedge | * | | | | Sedge |
| *Carex platyphylla* | Broad-leaved Sedge | * | | | | Sedge |
| *Carex radiata* | Sedge | * | | | | Sedge |
| *Carex rosea* | Sedge | * | | | | Sedge |
| **Wildflowers** | | | | | | |
| *Actaea pachypoda* | White Baneberry | * | | | | Wildflower |
| *Actaea rubra* | Red Baneberry | * | | | | Wildflower |
| *Anaphalis margaritacea* | Pearly Everlasting | * | | | | Wildflower |
| *Anemone canadensis* | Canada Anemone | * | * | | | Wildflower |
| *Anemone cylindrica* | Long-Fruited Anemone | * | | | | Wildflower |
| *Anemone virginiana* | Tall Anemone | * | | | | Wildflower |
| *Antennaria neglecta* | Pussy-Toes | * | | | | Wildflower |
| *Apocynum androsaemifolium* | Spreading Dogbane | * | | | | Wildflower |
| *Aquilegia canadensis* | Wild Columbine | * | | | | Wildflower |
| *Aralia racemosa ssp. racemosa* | Spikenard | * | | | | Wildflower |
| *Asclepias syriaca* | Common Milkweed | | | | | Wildflower |
| *Asclepias tuberosa* | Butterfly-Weed | * | | | | Wildflower |
| *Asarum canadense* | Wild Ginger | * | | | | Wildflower |
| *Bidens cernua* | Nodding Bur-Marigold | | * | | | Wildflower |
| *Bidens frondosa* | Common Beggar-Ticks | | * | | | Wildflower |
| *Caltha palustris* | Marsh-marigold | | * | | | Wildflower |

| Botanical Name | Common Name | Moisture Zone | | | | Vegetation Type |
|---|---|---|---|---|---|---|
| | | Upland | Floodline Fringe/Wet Riparian | Shoreline Fringe/Shallow Water | Deep Water | |
| *Cicuta maculata* | Water Hemlock | | * | | | Wildflower |
| *Clintonia borealis* | Bluebead Lily | * | | | | Wildflower |
| *Coreopsis lanceolata* | Lance-Leaved Coreopsis | * | | | | Wildflower |
| *Cypripedium calceolus var. parviflorum* | Small Yellow Lady's-slipper | | * | | | Wildflower |
| *Desmodium canadense* | Showy Tick-Trefoil | * | | | | Wildflower |
| *Desmodium glutinosum* | Pointed-leaved Tick-trefoil | * | | | | Wildflower |
| *Epilobium angustifolium* | Fireweed | * | | | | Wildflower |
| *Erythronium americanum* | Trout Lily | * | | | | Wildflower |
| *Eupatorium maculatum* | Joe Pye-Weed | | * | | | Wildflower |
| *Eupatorium perfoliatum* | Boneset | | * | | | Wildflower |
| *Eupatorium rugosum* | White Snakeroot | * | | | | Wildflower |
| *Eurybia macrophylla* | Large-Leaved Aster | * | | | | Wildflower |
| *Fragaria virginiana* | Common Strawberry | * | | | | Wildflower |
| *Fragaria vesca ssp. americana* | Woodland Strawberry | * | | | | Wildflower |
| *Galium palustre* | Marsh Bedstraw | | * | | | Wildflower |
| *Helianthus divaricatus* | Woodland Sunflower | * | | | | Wildflower |
| *Hydrophyllum canadense* | Canada Waterleaf | | * | | | Wildflower |
| *Hydrophyllum virginianum* | Virginia Waterleaf | | * | | | Wildflower |
| *Impatiens capensis* | Spotted Touch-Me-Not | | * | | | Wildflower |
| *Impatiens pallida* | Pale Touch-Me-Not | | * | | | Wildflower |
| *Lilium michiganense* | Michigan Lily | | * | | | Wildflower |
| *Lobelia cardinalis* | Cardinal Flower | | * | | | Wildflower |

| Botanical Name | Common Name | Moisture Zone | | | | Vegetation Type |
|---|---|---|---|---|---|---|
| | | Upland | Floodline Fringe/Wet Riparian | Shoreline Fringe/Shallow Water | Deep Water | |
| *Lobelia siphitica* | Blue Lobelia | | * | | | Wildflower |
| *Lycopus americanus* | Water Horehound | | * | | | Wildflower |
| *Lysimachia ciliata* | Fringed Loosestrife | | * | | | Wildflower |
| *Mimulus ringens* | Monkey Flower | | * | | | Wildflower |
| *Mitchela repens* | Partridgeberry | * | | | | Wildflower |
| *Monarda fistulosa* | Wild Bergamot | * | | | | Wildflower |
| *Oenothera biennis* | Hairy Yellow Evening-primrose | * | | | | Wildflower |
| *Oenothera parviflora* | Evening Primrose | * | | | | Wildflower |
| *Penstemon digitalis* | White Beardtongue | * | * | | | Wildflower |
| *Penstermon hirsutus* | Hairy Beardtongue | * | | | | Wildflower |
| *Penthorum sedoides* | Ditch Stonecrop | | * | | | Wildflower |
| *Phlox divaricata* | Blue Phlox | * | | | | Wildflower |
| *Polygala senega* | Seneca Snakeroot | * | | | | Wildflower |
| *Polygonatum pubescens* | Soloman's Seal | * | | | | Wildflower |
| *Potentilla anserina ssp. anserina* | Silverweed | * | * | | | Wildflower |
| *Prenanthes alba* | White Lettuce | * | | | | Wildflower |
| *Prenanthes altissima* | Tall White Lettuce | * | | | | Wildflower |
| *Rudbeckia hirta* | Black-Eyed Susan | * | * | | | Wildflower |
| *Rudbeckia laciniata* | Green-Headed Coneflower | | * | | | Wildflower |
| *Rumex orbiculatus* | Great Water Dock | | * | | | Wildflower |
| *Sanguinaria canadensis* | Bloodroot | * | | | | Wildflower |
| *Scutellaria galericulata* | Marsh Skullcap | | * | | | Wildflower |
| *Sisyrinchium montanum* | Common Blue-Eyed Grass | * | | | | Wildflower |
| *Sium sauve* | Water Parsnip | | * | | | Wildflower |
| *Solidago altissima var. altissima* | Tall Goldenrod | * | | | | Wildflower |
| *Solidago bicolor* | Silverrod | * | | | | Wildflower |
| *Solidago caesia* | Blue-Stemmed Goldenrod | * | | | | Wildflower |
| *Solidago canadensis* | Canada Goldenrod | | * | | | Wildflower |
| *Solidago flexicaulis* | Zig-zag Goldenrod | * | | | | Wildflower |
| *Solidago gigantea* | Late Goldenrod | | * | | | Wildflower |
| *Solidago juncea* | Early Goldenrod | * | | | | Wildflower |
| *Solidago nemoralis* | Grey Goldenrod | * | | | | Wildflower |
| *Solidago patula* | Rough-leaved Goldenrod | | * | * | | Wildflower |
| *Solidago rugosa* | Rough-Stemmed Goldenrod | * | * | | | Wildflower |
| *Symphyotrichum cordifolium* | Heart-Leaved Aster | * | | | | Wildflower |
| *Symphyotrichum ericoides var. ericoides* | Heath Aster | * | | | | Wildflower |

| Botanical Name | Common Name | Moisture Zone | | | | Vegetation Type |
|---|---|---|---|---|---|---|
| | | Upland | Floodline Fringe/Wet Riparian | Shoreline Fringe/Shallow Water | Deep Water | |
| *Symphyotrichum laeve var. laeve* | Smooth Aster | * | | | | Wildflower |
| *Symphyotrichum novae-angliae* | New England Aster | | * | | | Wildflower |
| *Symphyotrichum pilosum var. pilosum* | White Heath Aster | * | | | | Wildflower |
| *Symphyotrichum puniceum* | Swamp Aster | | * | | | Wildflower |
| *Thalictrum pubescens* | Tall Meadow Rue | | * | | | Wildflower |
| *Trillium erectum* | Purple Trillium | * | | | | Wildflower |
| *Trillium grandiflorum* | White Trillium | * | | | | Wildflower |
| *Trientalis borealis* | Star Flower | * | | | | Wildflower |
| *Triosteum aurantiacum* | Wild Coffee | * | | | | Wildflower |
| *Urtica dioica sp. gracilis* | Stinging Nettle | | * | | | Wildflower |
| *Verbena hastata* | Blue Vervain | | * | | | Wildflower |
| *Verbena urticifolia* | White Vervain | * | | | | Wildflower |
| *Viola canadensis* | Canada Violet | * | | | | Wildflower |
| *Waldsteinia fragarioides* | Barren Strawberry | * | | | | Wildflower |