A Little Fish and the Landscape Architect: Collaborative Design to Create a Better Place for Redside Dace

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What We Do

NAK Design Strategies is an award-winning landscape architecture and urban design practice with offices in the Greater Toronto Area, Calgary, Ottawa and Florida. We have provided exceptional design and lasting value to public and private-sector clients for 30 years.

Areas of Expertise:

- Visioning
- Landscape Architecture and Urban Design
- Sustainability and Green Infrastructure
- Facilitation and Consensus
- Detailed Design and Tendering
- Construction Administration
- Implementation and Maintenance
The “Typical” Landscape Development Process

Client → Landscape Architect → Contractor

Municipality/Regulatory Agency

Consultants
Where is Mount Pleasant 51-1?

Southern Ontario Natural System
This system consists of the Niagara Escarpment, Oak Ridges Moraine, Greenbelt and Urban River Valleys. This system works to protect and enhance the health of Lake Ontario, the source of all drinking water within Brampton.

Region of Peel Greenbelt System
The Greenbelt System in Peel, which consists of Care Areas, Natural Areas and Corridors, and Parks, is intended to support and express the Region's vision for the protection of the natural environment.

Brampton's Natural System
Almost 25% of Brampton is identified as natural heritage systems. These include valleylands, wetlands, woodlands and natural and restored linkages, which are part of the watershed.

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Mount Pleasant 51-1 Community Statistics

- 575ha / 1422 ac
- 18 adjacent Development Applications
- 5 landowners
- 6 schools
- 40ha / 99ac of parkland
- Population target approx. 30,000 people
- 7 Stormwater Management Ponds
- Transit Oriented Development (TOD)
NHS Statistics

- Total NHS Area = 44ha / 108ac
- 3 stages
- 38ha / 94ac of existing Woodlots
- 5km of channel
- 7ha / 18ac of new wetlands
- 37ha / 90ac of meadow/seeded areas
- 6km of trails
- 5 Pedestrian Bridge Crossings
- 17,900 new trees
- 102,250 new shrubs
- Design and Approvals - 30 months
- Construction - 33 months
The Challenge: Let’s Make a Natural Heritage System!

Pre-Development Condition

Post Development Condition
Project Goals

- Habitat creation
- Connectivity for wildlife
- Diversity in species
- Density targets
- Develop a sustainable plan
- Limit / reduce human access

- Low/ minimal maintenance
- Trails and Signage (Connectivity between neighbourhoods and schools)
- Access for equipment/ personnel for maintenance

- No encumbrance on their pipelines (3 m setback)

- Build as quickly as possible
- Track costs
- Livable community

Mount Pleasant Landowners Group
The Design Team

NAK design strategies
Landscape Architects

SAVANTA
Terrestrial Ecologists/Botanists

urbantech
Civil Engineers

GeoProcess Research Associates
Fluvial Geomorphologists

DELTA URBAN
Project Managers

KUNTZ FORESTRY CONSULTING INC.
Arborist

TMIG The Municipal Infrastructure Group Ltd.
Cost Consultant

STONYBROOK
Environmental Project Manager

SPL Consultants Limited
Geotechnical Engineer

BURNSIDE [The Burnside in Our People]
Hydrogeologist

GEOSCAPE CONTRACTING
Landscape Contractor

BRUCE WILSON
Landscape Contractor

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Landscape Architects Bring Value!

**Design**
- Budgets
- Details
- Plant sourcing
- Coordination of Project Signage
- Tender Preparation and Coordination
- Preparation of Construction Contracts

**Construction**
- Assist in establishing rough grading criteria for ultimate landscape features
- Facilitate municipal assumption
  - ‘weed free’ bed requirement
  - plant stock size standards
- Facilitate certification of work
  - seed tickets
  - shop drawings
  - layout and grading
Details - Tree Planting

PROTECTIVE BURLAP TREE WRAP REMOVED AFTER PLANTING

TOP OF ROOT BALL TO BE ELEVATED 100mm HIGHER THAN FINISH GRADE

100mm DEPTH COMPOSTED PINE BARK MULCH BY DRY-BARK OR APPROVED EQUAL 70MM Away FROM PLANT TRUNK

REMOVETOP 1/3 OF WIRE SKELET AND TOP 1/3 OF BURLAP FROM ROOT BALL

BUILD UP AREA WITH PLANTING SOIL TO PROVIDE A MIN 60MM HIGHスペース PM

PLANTING SOIL MIX: LIGHTLY COMPOSTED AND WATER WELL TO ELIMINATE AIR POCKETS AND PROTECT WATERSHED

PLANTING SOIL MIXTURE (50% COMPOST/50% DIRT)

5-Parts Good Quality Topsoil
3-Parts Well-Drained Coil Imagination
3-Parts Flat Roofs

UNDISTURBED SUBSOIL

SIMPLY SUBGRADE PROOF TO FILLING WITH PLANTING SOIL

WELL COMPACTED PLANTING SOIL UNDER ROOT BALL

10MM TANGED BOUND WIRE WITH 350MM PLANTING SOIL

NOTE:
1. SEE SPECIFICATIONS FOR PLANTING SOIL REQUIREMENTS
2. REMOVE TREE WRAP PRIOR TO INSPECTION BY CITY OF DURHAM REPRESENTATIVE
3. CULVERT TO BE MEASURED 300MM ABOVE FINISH GRADE
4. THE USE OF DRAINAGE OR DRAINAGES FOR EXISTING TREE FINGS IS NOT PERMITTED
5. ALL MEASUREMENTS ARE IN MILLIMETERS UNLESS STATED OTHERWISE
6. REMOVE ALL TED FROM PLANT

DEIDUOUS TREE PLANTING ON SLOPES

N.T.S.
Details - Wildlife Barrier

**Plan**
- Box Beam & Post Assembly
- Row / Property Line

**Front Elevation**
- Box Beam & Post Assembly
- Finished Grade

**Side View**
- Anchor Top of Mesh Panel to Post with 6 x 150, 14 Galv Plate & 1 1/8" x 40mm Hex Nut Bolt & Washer below Box Beam
- Ridge Galv. Wire Mesh Panel
- Anchor Bottom of Mesh Panel to Post with 6 x 150, 14 Galv Plate & 1 1/8" x 40mm Hex Nut Bolt & Washer below Grade

**Notes:**
1. Mesh openings shall be 25mm x 25mm. Contractor to provide mesh samples prior to ordering.

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SINGLE RAIL ENHANCED GUIDE RAIL / WILDLIFE BARRIER
N.T.S.
Details - Brush Habitat

NOTE:
1. REFER TO LANDSCAPE PLANS FOR HABITAT LOCATIONS WITHIN THE FLOODPLAIN.
2. ROOTWADS SHALL BE 4M MIN LENGTH, WIDTH 0.5-0.8M IN DIAMETER.
3. REBAR ANCHORS SHALL BE 2.5M IN LENGTH WITH TOP 0.3M BENT 90°.

PLAN

ELEVATION OF BRUSH HABITAT

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Details - Pre-Grade Section

Image Credit: Urbantech Inc.
Natural Heritage System
Creating Habitat to Protect an Endangered Little Fish: Redside Dace

Redside Dace is a colourful minnow that is endangered in Ontario. It thrives in cool, clear water and is found in this part of East Huttonville Creek. Habitat created to support Redside Dace includes: improved stream flow, pools, little rapids called “ riffles”, and grasses and shrubs along stream edges.

Did you know? Redside Dace leap out of the water to catch insects - their favourite food! They need clean water to do this or they won’t be able to spot those little flying insects from their underwater home.

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You are standing at the lowest point in this restoration area. Although a farm field, this land was so wet in the spring that the farmer had to dig ditches to drain the area to grow crops. The soccer fields in the city park used to get wet too!

The key to restoring wetlands is to restore water levels that support a treed swamp. The farm ditches were filled in and berms were built to hold water in the wetlands and keep the city park dry.

Looking north, the “king of the woods” is the Swamp Maple tree. These large trees dominate the forest canopy, with shrubs and herbs below. This forest community is growing on “peat soil”, which is created by decomposing vegetation building layers of peat over hundreds of years.

This restoration area contains vegetation transplanted from natural areas that were disturbed by development such as roads and pipelines. Some native plants, such as Meadowsweet, Speckled Alder and Red-osier Dogwood, were also brought in from nurseries. All of these plantings are being used to ‘jump start’ natural succession with the goal of creating a large forest wetland (treed swamp).

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Natural Heritage System

Does the Roof of Your House Feed a Wetland?

This part of the trail crosses over a wetland. Looking north, there is a marsh with tall grass with yellowish tops, called "Reed Canary Grass." Looking south there is a reed swamp where trees that like wet soils live, such as: Elm and Swamp Maple.

Before development, most of the water in these wetlands came from snow and rain runoff from nearby farm fields. Now that the Mount Pleasant urban community is built, snow and rain runoff from the rooftops of nearby houses will support the wetlands! Water flows off the roof into special pipes beneath the ground that deliver the water to the wetlands.

Protect the natural beauty! It can be harmed by people going off trail and crushing plants, and by off-leash dogs and cats frightening, injuring and killing small and baby animals.

To protect your Mount Pleasant forest, please:
- Stay on the trail
- Take only pictures, do not pick wildflowers
- Keep pets on a leash
- Do not feed or leave food for animals
- No smoking or littering

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