

ARCHBISHOP O'SULLIVAN  
CATHOLIC SCHOOL  
SCHOOLGROUND DESIGN



# SCHEDULES



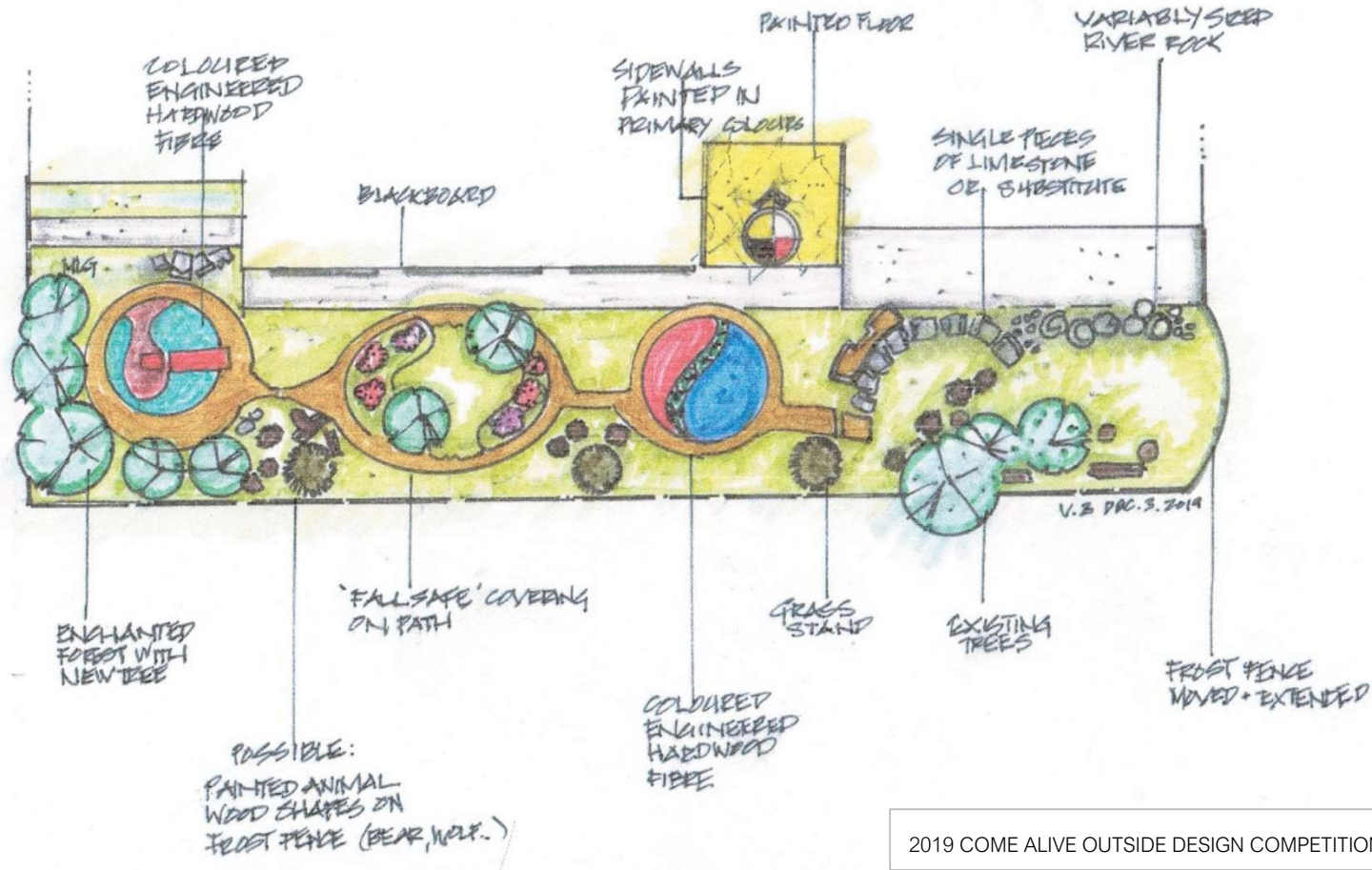
TEAM RYERSON UNIVERSITY

COME ALIVE OUTSIDE KINGSTON 2019

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## ONE: DESIGN INTENT BY AREA



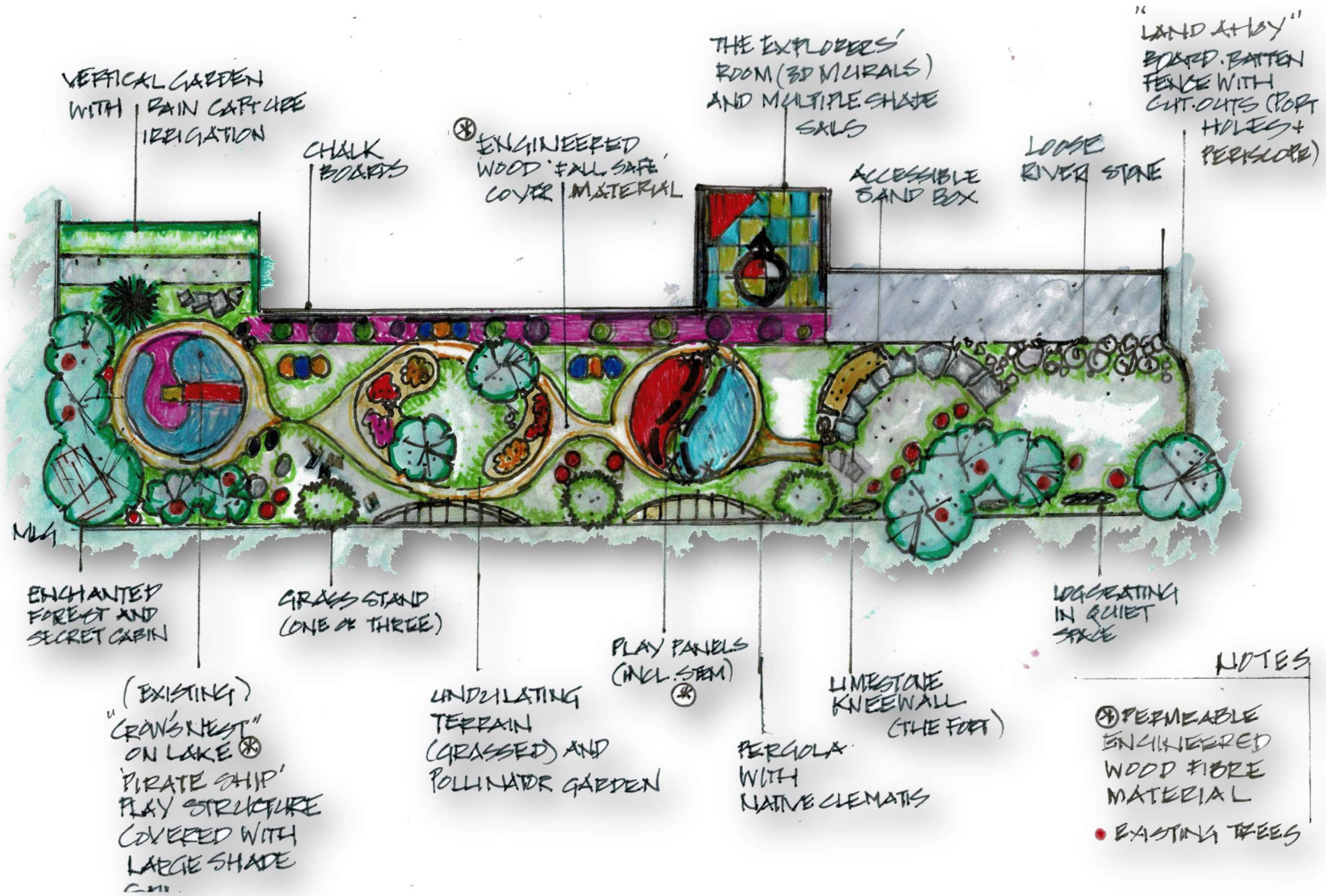
NOTE: (above) a revisited model after we reviewed project financials); and (next page) the full-on design that includes all original elements

2019 COME ALIVE OUTSIDE DESIGN COMPETITION

ARCHBISHOP O'SULLIVAN CATHOLIC SCHOOL: SCHOOL GROUND DESIGN

PROPOSED KINDERGARTEN YARD V.2

PREPARED BY TEAM RYERSON UNIVERSITY (DECEMBER 1, 2019)



## DESIGN INTENT

For students, it is an all-senses extravaganza that is a space where tiny explorers can imagine.

For teachers, it is a place where kids judge their own risk and push physical limitations under watchful eyes, and can still play with abandon. Here, risk, play and learning are inseparable.

## THE ROOMS

### *The Explorers' Room*

The area just outside the door has 3D murals that transforms into the helm of the ship, with a treasure chest; colourful 'safe play flooring; and multiple shade sails.

### *The Tall Ship*

The existing play structure, sheltered by a large sail shade, becomes a tall ship on the seaway. You can see everything from the top of the mast.

### *In the Enchanted Forest*

We have planted a forest glade under which a log cabin or fort can be built. It is calm space in a secret place

### *Under the Trees*

An outdoor classroom under the existing trees has multiple seating choices: toadstools, a low wall in the shape of a fort, and random cut logs.

## MULTI-TASKING THE SPACE

The kindergarten space is secured with a board and batten fence and gate. The outdoor classroom can be shared with Grade 1s and 2s. Users can be separated by time, and fencing need not be a barrier (*e.g., daily hours for 1-2s 2-4 pm, while the kindergarteners are inside*).

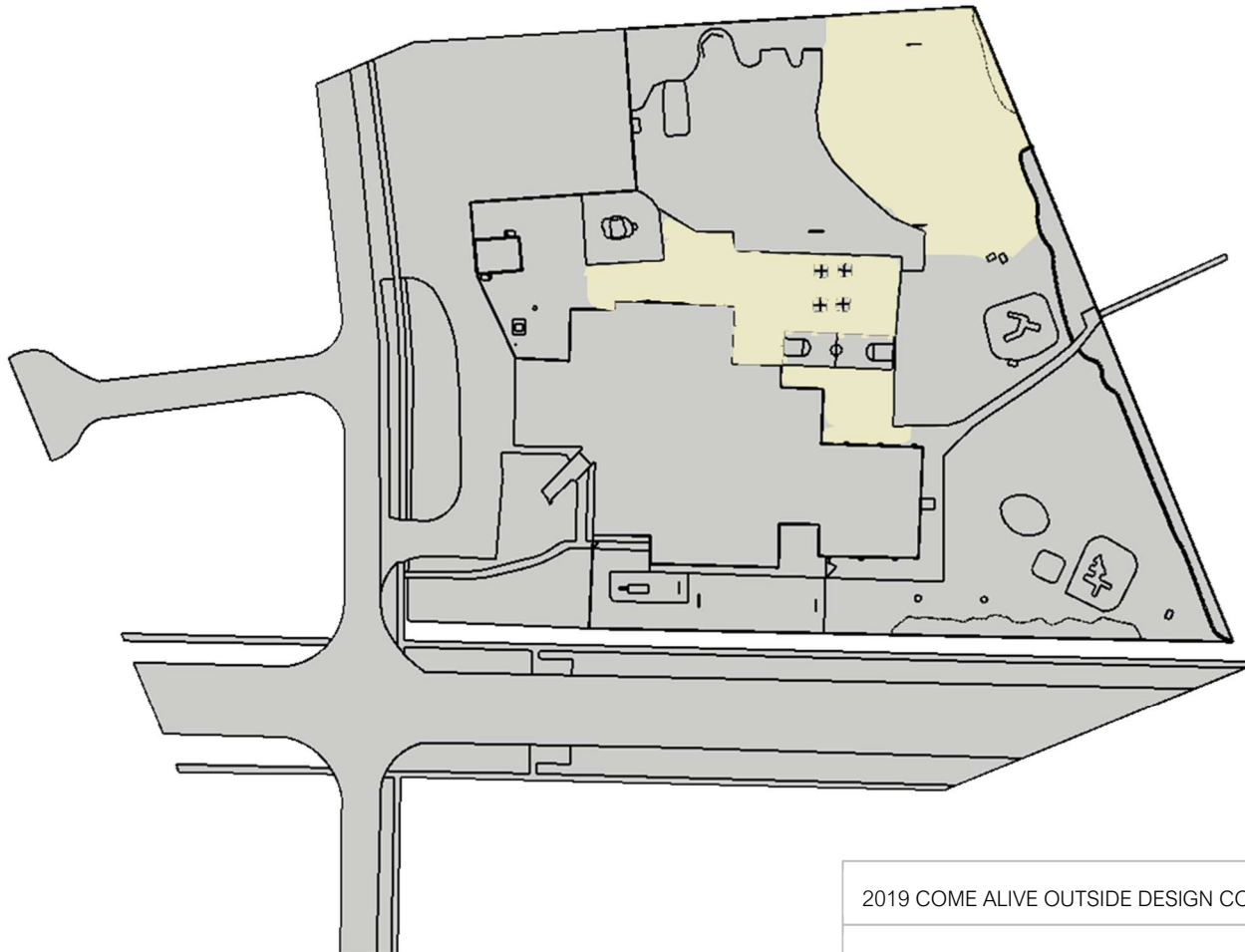


2019 COME ALIVE OUTSIDE DESIGN COMPETITION

ARCHBISHOP O'SULLIVAN CATHOLIC SCHOOL: SCHOOL GROUND DESING

PROPOSED KINDERGARTEN YARD - DESIGN INTENT V.2

PREPARED BY TEAM RYERSON UNIVERSITY (DECEMBER 1, 2019)



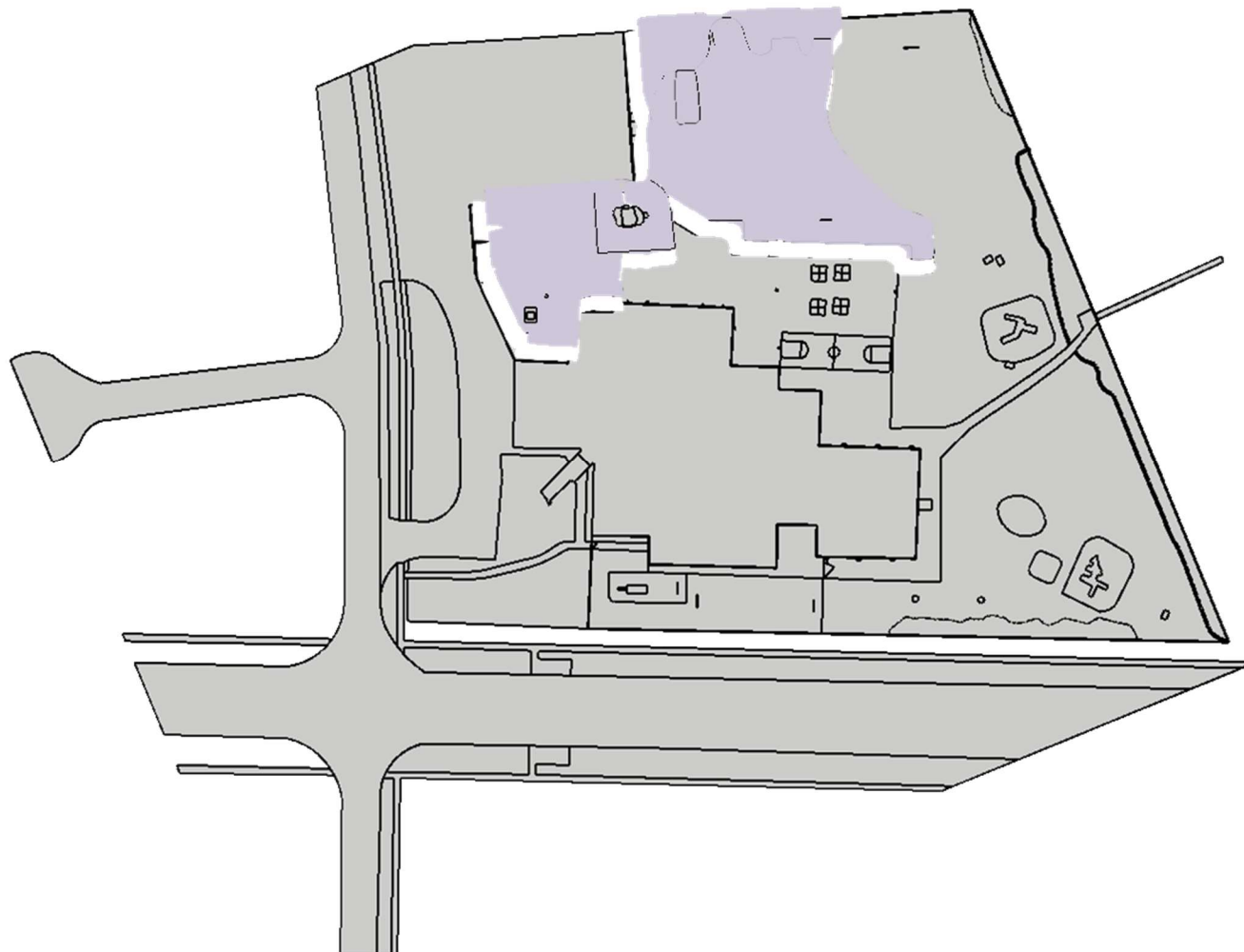
2019 COME ALIVE OUTSIDE DESIGN COMPETITION

ARCHBISHOP O'SULLIVAN CATHOLIC SCHOOL: SCHOOL GROUND DESIGN

PROPOSED SPORTS FIELD STAGE 1 V.2

PREPARED BY TEAM RYERSON UNIVERSITY (DECEMBER 2, 2019)





2019 COME ALIVE OUTSIDE DESIGN COMPETITION

ARCHBISHOP O'SULLIVAN CATHOLIC SCHOOL: SCHOOL GROUND DESING

SPORTS FIELD, STAGE 3, V.1

PREPARED BY TEAM RYERSON UNIVERSITY (DECEMBER 2, 2019)

## DESIGN INTENT

No action in Stage 1. Save money in Stages 1 and 2 to spend on a future, larger investment in Stage 3, and use it to maximum capability.

## DESCRIPTION

Completely renovate the sports field area, by removing asphalt and emending soil:

Create standard sports field(s) with appropriate markings, and viewing areas for parents and teachers; include storage shed for outdoor equipment, soccer balls and/or other things.

Repurpose the baseball diamond into a shelter from the weather at recess; or expand it to a heated area to lace up skates at the seasonal ice rink.

Top it with a green roof; and/or multi-purpose the structure to store bikes and scooters and encourage carbon-free commuting for students and teachers.

Create a community garden space on the east perimeter of the parking lot and encourage student stewardship.

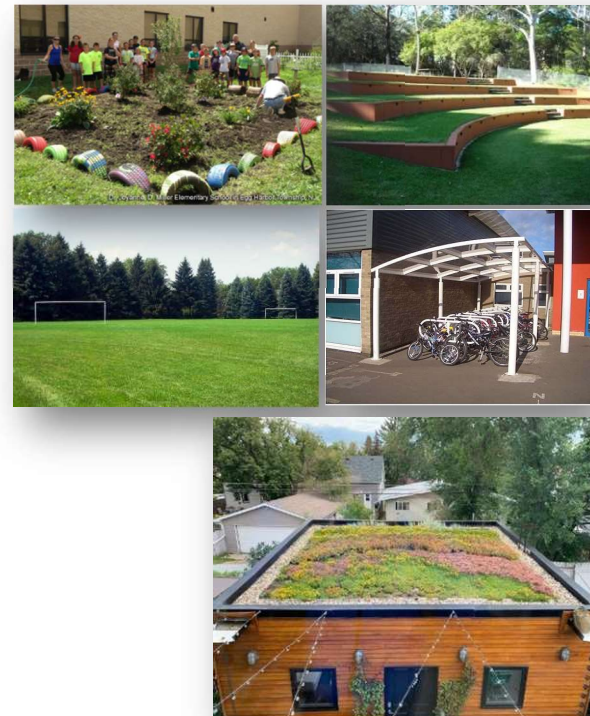
Build a treed outdoor amphitheatre that is an extended classroom and performance area on the currently unused asphalt ground (e.g., a natural shaded multi-level space with a stage of some kind):

As an extended classroom or multiple classrooms.

For general assemblies and outdoor theatre

Daily use by students during breaks and/or for gathering in groups after school

Use the re-configuration to bring the *Belong* student classroom and play structure 'into' the school space.

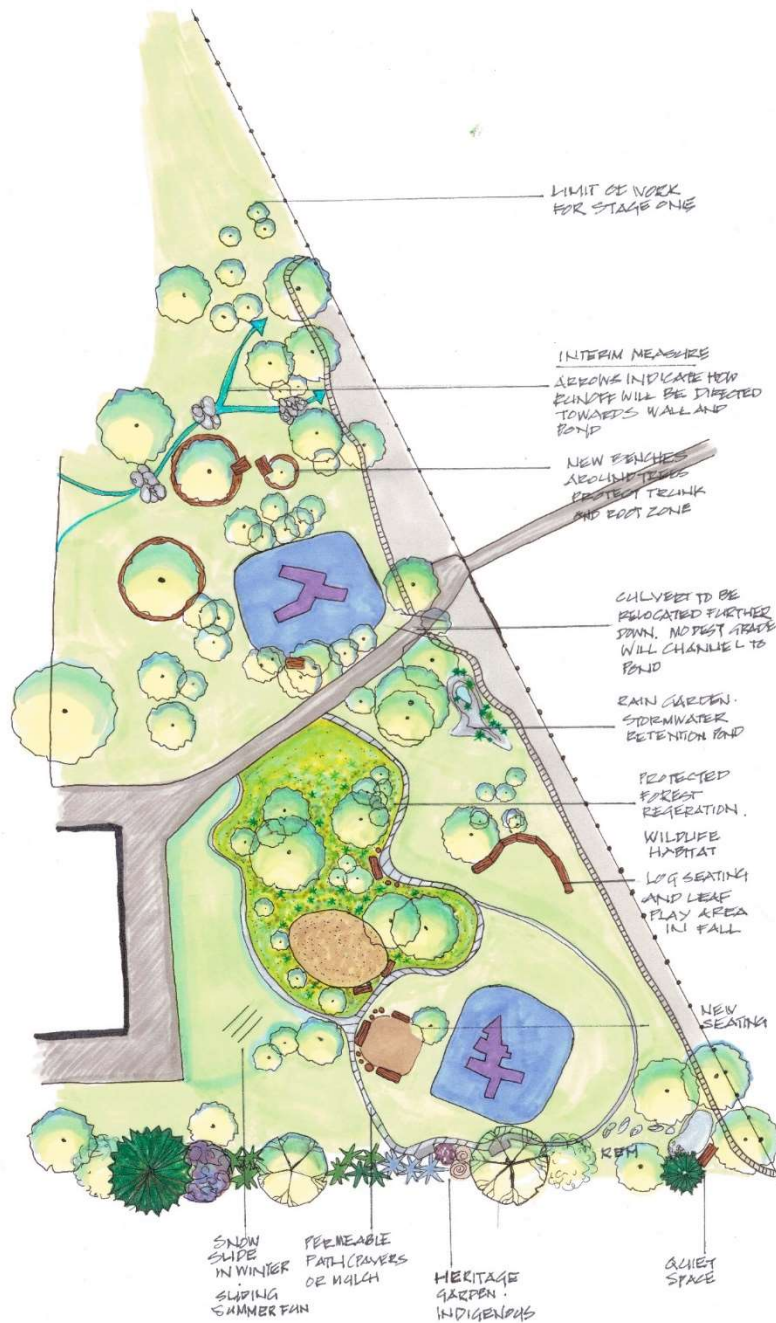


2019 COME ALIVE OUTSIDE DESIGN COMPETITION

ARCHBISHOP O'SULLIVAN CATHOLIC SCHOOL: SCHOOL GROUND DESING

DESIGN INTENT: SPORTS FIELD, STAGE 3, V.1

PREPARED BY TEAM RYERSON UNIVERSITY (DECEMBER 2, 2019)



Examples of plant materials in the Heritage Garden

- -Acer saccharum (Sugar Maple)
- -Amelanchier arborea (Downy serviceberry)
- -Andropogon gerardii (Big bluestem grass)
- -Comptonia peregrina (Sweet fern)
- -Geranium maculatum (Wild geranium)
- -Pinus strobus (Eastern white pine)
- -Sambucus racemose (Red elderberry)
- -Sorghastrum nutans (Indian grass)
- -Ribes hirtellum (Smooth gooseberry)
- -Wisteria frutescens (American wisteria)
- Verbena stricta (Vervain)

2019 COME ALIVE OUTSIDE DESIGN COMPETITION

ARCHBISHOP O'SULLIVAN CATHOLIC SCHOOL: SCHOOL GROUND DESIGN

PROPOSAL FOR FORESTED AREA DESIGN V.4

PREPARED BY TEAM RYERSON UNIVERSITY (DECEMBER 2, 2019)

## DESIGN INTENT

To encourage children to learn about the natural history of their environment, and its ecology, microclimates, reforestation practices, and hydraulic systems. By creating a more naturalized environment for children to play in, children can benefit from learning in a holistic as well as science-based landscape that can be found in their everyday play. In addition, local wildlife will benefit from restoration of the landscape.

## DESCRIPTION

### STORMWATER MANAGEMENT

In the forested areas, very slight changes in grade create small swales that channel storm water into a dry pond and through depressed channels. The existing impromptu culvert needs to change to a 45-degree angle versus its current horizontal orientation. The new proposed orientation will divert water runoff to the dry pond or to pass through rock formations, which slows the speed of water to more desirable areas.

### FOREST RESTORATION

A tree grove is now protected, planted with shade species of herbaceous plants for wildlife food source and habitat. New accessible paths made of permeable material divert traffic from vulnerable tree zones. the larger meandering path is designed for children with accessibility needs, whereas the secondary paths will be made of informal materials.)

## MUCH MORE SEATING

Circular benches around large existing trees serve to protect tree trunks and sensitive root zone. Natural seating is also scattered throughout the area in the form of boulders, tree stumps, and logs are found merchandise.

## HERITAGE GARDEN

The key features of this ethnobotanical garden illuminate species native to Ontario, with an emphasis on their historic use. The garden gives an opportunity for children to explore with all five senses. We strongly recommend that members of Indigenous communities and/or the elder associated with AOS school be consulted prior to the installation of this garden as their wisdom of cultural practices would add great value to the garden, and to the students learning. Two small entryways into the garden are added for the inclusion of all accessibility needs.

## FINANCIAL CONTINGENCIES

Any hardscaping can easily be scaled, and plant material substitute/omitted if it is beyond the funding envelope. There are design back-ups in place that we will bring forward, if needed, once our design financials are finalized. Our design intent can remain unchanged.

2019 COME ALIVE OUTSIDE DESIGN COMPETITION

ARCHBISHOP O'SULLIVAN CATHOLIC SCHOOL: SCHOOL GROUND DESING

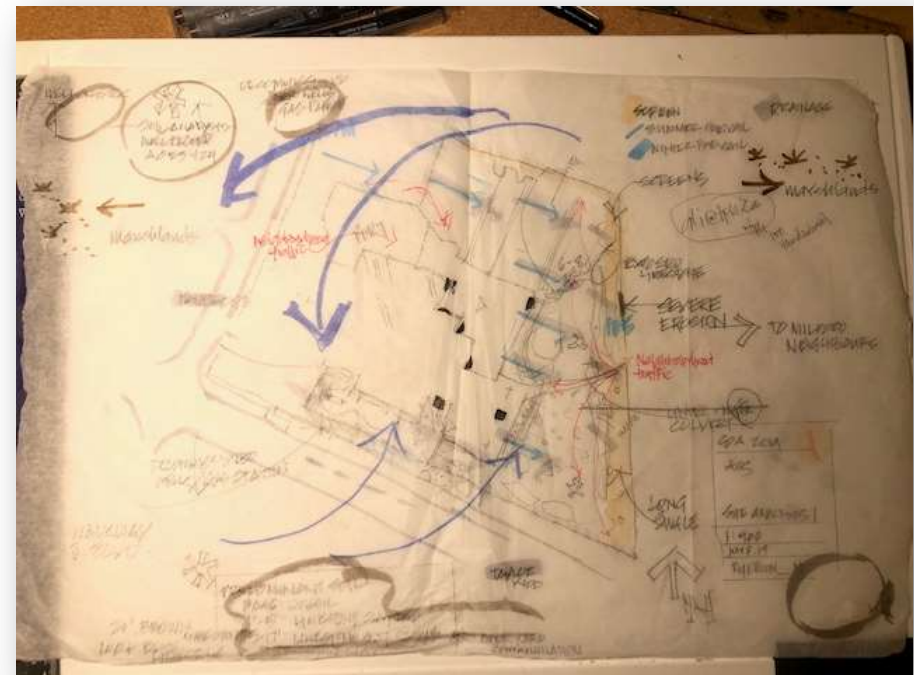
DESIGN INTENT FOR FORESTED AREA V.1

PREPARED BY TEAM RYERSON UNIVERSITY (DECEMBER 2, 2019)

## TWO: SITE ANALYSIS

SITE ANALYSIS	Zones		
	Kindergarten Zone	Junior Zone	Senior Zone
<b>Factors of Influence</b>			
<b>Climate</b>	<ul style="list-style-type: none"> <li>Exposed to the south sun</li> <li>Exposed to South Winds</li> <li>Does not Receive building Shade</li> </ul>	<ul style="list-style-type: none"> <li>Partial Exposure to South Sun</li> <li>Does not receive building Shade</li> <li>Partially exposed to South Wind</li> </ul>	<ul style="list-style-type: none"> <li>Partially Exposed to South Sun</li> <li>Receive Building Shade</li> <li>Not So Exposed to South Winds</li> </ul>
<b>Any Critical Site Constraint, Obstruction or Barrier</b>	<ul style="list-style-type: none"> <li>Exposed to Roadside noise and pollution</li> <li>Physically Contained area</li> </ul>	<ul style="list-style-type: none"> <li>Intersecting pathway</li> <li>Rock bed hedge</li> </ul>	<ul style="list-style-type: none"> <li>Intersecting pathway</li> <li>Rock bed hedge</li> <li>Residential neighborhood interface</li> <li>Parking interface</li> </ul>
<b>Existing Slope / Drainage</b>	<ul style="list-style-type: none"> <li>Flat</li> </ul>	<ul style="list-style-type: none"> <li>Steep Slope on one side</li> </ul>	<ul style="list-style-type: none"> <li>Steep Slope in part</li> </ul>
<b>Existing Design Elements</b>	<ul style="list-style-type: none"> <li>Building Wall-Backdrop</li> <li>Fencing</li> </ul>	<ul style="list-style-type: none"> <li>Building Steps in backdrop</li> </ul>	<ul style="list-style-type: none"> <li>Building Wall backdrop</li> <li>Bench Seating on Concrete pad</li> </ul>
<b>Existing Activity features</b>	<ul style="list-style-type: none"> <li>Lawn</li> <li>Wooden Fiber Soft Ground</li> <li>Play Equipment</li> <li>Sand bed</li> <li>Soccer posts</li> </ul>	<ul style="list-style-type: none"> <li>Play Equipment</li> </ul>	<ul style="list-style-type: none"> <li>Play Equipment</li> <li>Basketball court</li> <li>Soccer field</li> <li>Skating rink</li> <li>Sand bed</li> <li>Four Square line painting</li> <li>Basketball hoops on walls</li> </ul>
<b>Paving Material</b>	<ul style="list-style-type: none"> <li>Asphalt pathway along built block</li> <li>Paved Entrance</li> </ul>	<ul style="list-style-type: none"> <li>Asphalt</li> </ul>	<ul style="list-style-type: none"> <li>Asphalt</li> </ul>
<b>Major Ecological Aspects</b>	<ul style="list-style-type: none"> <li>Sparsely planted Trees and Shrubs</li> <li>Gradual Slope</li> <li>Lawn</li> </ul>	<ul style="list-style-type: none"> <li>Dense cluster of Mature Trees</li> <li>Lawn</li> </ul>	<ul style="list-style-type: none"> <li>Dense cluster of Mature Trees</li> <li>Lawn</li> <li>Heat islands</li> </ul>
<b>Functional Requirements mentioned by Users</b>	<ul style="list-style-type: none"> <li>Space for bags and children effects</li> <li>Lack of many activity / play areas</li> </ul>		<ul style="list-style-type: none"> <li>Broken Asphalt allows black-ice to form. Reduce Slippery surfaces</li> </ul>

The image below is of our actual site assessment overlay, using information collected on the physical environment of Kingston and area (see Site Analysis Resources in the last schedule).



## THREE: MATERIALS AND COSTS

TEAM RYERSON UNIVERSITY  
COST ESTIMATE FOR STAGE ONE WORK (SPRING 2020)

DESIGN ELEMENT	QTY	PER UNIT COST	UNIT COST	EXTENDED COST	TOTALS
<b>KINDERGARTEN AREA (TINY EXPLORERS)</b>					
<b>THE EXPLORERS' ROOM</b>					
TWO-3D MURALS ON OPPOSING WALLS (TREASURE MAP AND SHIP DECK) (DEFER)	0	20	PER SQ FT	0	
TREASURE CHEST (STORAGE)	0	75	PER	0	
MULTIPLE COLOURED SAIL SHADES (SMALL)	5	100	PER	500	<u>500</u>
<b>ENCHANTED FOREST</b>					
SHRUB (MULTI STEMMED)	1	360	PER	360	
HERBACEOUS GROUND COVER	2	31	PER	62	<u>422</u>
<b>POLLINATOR GARDEN BEDS</b>					
2 SMALL TREES FOR INTERIOR GARDEN BEDS	2	525	PER	1,050	
PERENNIALS FOR BEDS (9 EACH BED)	18	31	PER	558	
GRADING TO CREATE SMALL BERMS - NEW FILL MAY BE NEEDED TO SUPPLEMENT EXISTING SOIL	5	3.25	PER SQ M	16	
ADD SOD IN POLLINATOR GARDEN FEATURE	3	12.75	PER SQ M	38	<u>1,663</u>
<b>THE TALL SHIP</b>					
USING EXISTING PLAY STRUCTURE	0	0	PER	0	

LARGE SCALE SHADE COVER	1	\$400	PER COVER	400
POSTS FOR LARGE SCALE SHADE COVER	3	\$300	PER POST	900
PERMEABLE FALL-SAFE FLOORING - UNITARY MATERIAL FOR MULTI-ABILITY USE (EACH CIRCLE IS APPROX 7.85M)	9	\$82	SM	738
				2,038

**OUTDOOR CLASSROOM (SHARED WITH GRADE 1 AND 2)**

KNEE WALL - DRY STACK LIMESTONE AS FORT WALLS (CRENELLATED) FORTIFICATIONS) AS BOUNDARIES, DOUBLES AS SEATING OR BOULDER SUBSTITUTE (DEFER)	0	\$480	LM	0
STONE WALL FOR SEATING	5	\$480	SM	2,400
PERISCOPES (ATTACHED TO FENCE WITH PLASTIC TIE)	2	\$55	EA	110
ASSORTED BOULDERS AND LARGE RIVER STONE FOR STACKING PLAY AREA	200		ESTIMATE	200
				2,710

**PLAY PANEL STATIONS IN PLAY AREA**

MUSICAL, SENSORY AND STEM (DEFER OTHERS)	2	1587.6		3,175
PERMEABLE FALL-SAFE FLOORING UNITARY MATERIAL FOR MULTI-ABILITY USE (EACH CIRCLE IS APPROX 7.85M) - ENGINEERED WOOD FIBRE SAFETY SURFACING	9	\$82	SM	738
INSIDE BORDER WITH GRASSES	4	31	PER	124
				4,037

**VERTICAL GARDEN**

38 X 24 X 5.5" CEDAR UNIT (DRIP IRRIGATION, RECLAIMED RAINWATER DEFERRED, BUT HAND WATERED FOR THE INTERIM) -	2	\$160	PER	320
PLANTS (SEEDS) PURCHASED AND SELF PLANTED	20	7		140
				460

**OTHER SEATING**

TREE STUMPS (INCLUDING TOAD STOOLS - PAINTED STUMPS (2 10 FT LOGS, CUT, ADD LABOUR)	20	\$8	PER LF	160
FOUND TREE FALL FOR SEATING	0			0
SHADED SEATING ALONG LONG WALL (DEFER)				0
BOULDERS	0	500	GUESS	0
GENERAL LABORERS (TO PLACE BOULDERS)	0	55	HR	0
PICK-UP TRUCK	0	150	DIEM	0
LANDSCAPE CARPENTER		80	PER HOUR	0
				160

**INTERNAL PATHWAYS**

ENGINEERED WOOD PATH 60 SQ FT	10	82	SM	820
ADD INSTALLATION COSTS (LABOUR AND MATERIALS) AT 12%		12%		98
				918

**OTHER ELEMENTS**

SHADE STRUCTURE (E.G., PERGOLA, SAIL SHADES) (DEFER)				0
SODDED AREA THROUGHOUT THE PLAYSPACE	70	12.75	SM	893
COLOURED CONCRETE FLOOR AND CEILING PAINT FOR EXIT INTO PLAYSPACE	2	55	PER 3.78 L CAN	110
RAISED SANDBOX WITH COVER (ACCESSIBLE)	1	450	PER	450
				1,453

SUB TOTAL KINDER COSTS 14,361

**MOBILIZATION AND DEMOBILIZATION COSTS (6% OF TOTAL BUDGET)**

6% MOBILIZATION 862

**TOTAL KINDER COSTS 16674.74**

**THE WOODLANDS (GRADE 1-8)**

**HERITAGE PERENNIAL GARDEN**

NATIVE FRUIT SHRUBS	1	52		52
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SMALL FRUIT TREES	5	525		2,625
HERBACEOUS EDIBLES AND PLANTS NATIVE TO KINGSTON AREA	15	31		465
RAISED GARDEN BED	2	400		800
				3,942
<b>FOREST REGENERATION AREA/WILDLIFE HABITAT</b>				
FERNS	30	31		930
SEEDED BORDER	7	7		49
				979
<b>GROUPED SEATING AREAS</b>				
TREE BENCHES	4	800		3,200
10' LOGS 22" DIAM (6)	60	5.6	LF	336
FOUND TREE FALL FOR SEATING	0			0
				3,536
<b>FLAGSTONE (STEPPING PAVERS) PATHWAY</b>				
PAVER STONES	40	10		400
ACCESSIBLE PATHWAY (ABOUT 40M, MAX 2M WIDE - 80 SQ M)	80	82		6,560
				6,960
<b>STORMWATER MANAGEMENT/WETLAND AREA</b>				
WETLAND/RAIN GARDEN RIVER-ROCK LINING	25	56		1,400
ADD WETLAND INSTALLATION AT 12%		12%		168
HERBACEOUS AND FORB SHADE WETLAND PLANTS	15	31	EACH	465
CAIRNS ALONG (GRASSED) SWALE	4	56	SM	224
DRAINAGE - LIGHT GRADING (50 SQ M EACH SWALE)	70	3.25	SM	228
				2,485
<b>WALL BALL AND MURAL</b>				

CREATE WALL MURAL ON ENTIRE WALL (DEFER OR THROUGH SPONSORED COMPETITION BY KINGSTON CHAMBER OF COMMERCE) APPROX 100 SF AT \$35 PER SF	0	35 SF	0	0
			SUB TOTAL WOODLANDS	17,902
<b>ADD MOBILIZATION AND DEMOBILIZATION (6% OF BUDGET PER PHASE)</b>		6%	MOBILIZATION	1,074
			<b>TOTAL WOODLAND COST</b>	<b>18975.59</b>
<b>SPORTS FIELDS</b>				
REPAIR GRASS ON EXISTING FIELD AREA	150	12.75		1,913
PAINT ADDITIONAL FOUR-SQUARE COURTS		100		100
PAINT WALLBALL COURT		300		300
REMOVAL OF BASKETBALL NETS		200		200
			SUB TOTAL SPORTS FIELDS	2,513
<b>ADD MOBILIZATION AND DEMOBILIZATION (6% OF BUDGET PER PHASE)</b>		6%	MOBILIZATION	139
			<b>TOTAL SPORTS FIELD COST</b>	<b>2651.25</b>
			<b>GRAND TOTAL STAGE ONE</b>	<b>38301.58</b>

BLUE DENOTES A DEFERRED OR CANCELLED COST

## FOUR: RESOURCES USED

Top resources that informed our design are footnoted

### SITE VISITS

ST. FRANCIS OF ASSISI CATHOLIC SCHOOL, KINGSTON, ONTARIO<sup>1</sup>  
Field Nair International  
[www.fieldingnair.com/projects/new-kingston-elementary-school/](http://www.fieldingnair.com/projects/new-kingston-elementary-school/)

Design team of Randy Fielding and the Minneapolis Studio worked with Algonquin and Lakeshore Catholic District School Board to create a new Catholic elementary school that reflected the Board's values and Design Team: Randy Fielding and the Minneapolis Studio and the need to provide students a place to grow and be nurtured.

SYDNEY'S PLAYGROUND, MAURICE CODY PUBLIC SCHOOL,  
TORONTO<sup>2</sup>  
(Referenced in Evergreen School Ground Greening publication)  
[weblog.latte.ca/amy/everything\\_else/playground.html](http://weblog.latte.ca/amy/everything_else/playground.html) (November 2012)

Amy Brown (student at Maurice Cody?) tells about her experience with the process of designing and building a playground with natural elements (instead of artificial play structures). Unstructured play elements are better for imaginative play in much the same way that plain Lego blocks are more demanding than Lego kits with funny shaped blocks and instructions. Natural elements like logs and rocks are theoretically less expensive than manufactured play structures.

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<sup>1</sup> Use: real-life example of grading flat play area with berms

<sup>2</sup> Use: real-life example of how a natural elementary playspace aged over 7 years

### SCHOOL GROUND GREENING

SCHOOL GROUND GREENING: A POLICY AND PLANNING GUIDE  
BOOK<sup>3</sup> (Evergreen, 2002)  
[www.evergreen.ca/downloads/pdfs/School-Ground-Greening-Policy-Planning.pdf](http://www.evergreen.ca/downloads/pdfs/School-Ground-Greening-Policy-Planning.pdf)

Part of Tool Shed Series, a joint venture by Evergreen Canada, and Toyota Evergreen Learning Grounds School Ground Greening Grants (Toyota Canada): represents a commitment to contribute positively to the health and wellbeing of future generations by education children about the important of restoring and preserving the environment

ACTIVE DESIGN GUIDELINES: PROMOTING PHYSICAL ACTIVITY AND  
HEALTH IN DESIGN (City of New York, 2010)  
<https://centerforactivedesign.org/dl/guidelines.pdf>

Chapter 2, Section 2.3: Parks, Open Spaces and Recreational Facilities  
Specific planning and design strategies can promote physical activity. The recommendations address both public and private sector projects, ranging from the planning of roads to the design of children's playgrounds.

ARCHITECTURAL DESIGN GUIDELINES FOR SCHOOLS<sup>4</sup> (Government of Alberta, Technical Services Branch, November 2012)  
[www.infrastructure.alberta.ca/Content/docType486/Production/ArchitecturalGuidelines.pdf](http://www.infrastructure.alberta.ca/Content/docType486/Production/ArchitecturalGuidelines.pdf)

Section 4: Site Planning and Landscaping

Does the site plan rationally and efficiently organize the various site and building elements? How does the site plan and landscaping

<sup>3</sup> Use: especially for site analysis and design principles

<sup>4</sup> Use: site planning that organizes existing site elements

design address and enhance the existing site?

## ACTIVE PLAY AND PLAY RESOURCES

COMER CHILDREN'S HOSPITAL PLAY GARDEN (CHICAGO) BY SITE DESIGN GROUP<sup>5</sup>

[www.site-design.com/projects/ucmc-comer-childrens-hospital-playground/](http://www.site-design.com/projects/ucmc-comer-childrens-hospital-playground/)

Playground with rolling terrain and natural play space, with mix-medium ground covering and natural species planting. Dream space for natural play

ZEAGER BROTHERS INC. LANDSCAPE AND RECREATION SURFACES<sup>6</sup>  
[www.zeager.com/planning-resources/about-engineered-wood-fiber/](http://www.zeager.com/planning-resources/about-engineered-wood-fiber/)

Engineered wood fibre safety (continuous) surface – high impact absorbing, slip resistant, and accessible (if properly installed).

LOOSE PARTS PLAY<sup>7</sup> (Evergreen)

[www.evergreen.ca/downloads/pdfs/Design-Ideas-12-Loose-Parts-Play.pdf](http://www.evergreen.ca/downloads/pdfs/Design-Ideas-12-Loose-Parts-Play.pdf)

Ideas for early childhood educators; found objects such as balls, hoops, wooden blocks, costumes, hockey sticks, logs, sand and leaves provide opportunity for more kinds of play than built structures

SMALL WONDERS: DESIGNING VIBRANT, NATURAL LANDSCAPES FOR EARLY CHILDHOOD<sup>8</sup> [www.evergreen.ca/downloads/pdfs/Small-Wonders.pdf](http://www.evergreen.ca/downloads/pdfs/Small-Wonders.pdf)

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<sup>5</sup> Use: inspiration for our dream space (especially the berming of centre island)

<sup>6</sup> Use: good alternative to rubberized pavement

Evergreen guide for educators: on getting started with school's greening project. Lots of ideas - play surfaces and raw materials – we used many of them.

## PLAYGROUND PLANS

RYERSON DAY CARE

Use of plan elements from a real-life example at home

SITE DESIGN PLAYGROUND DESIGNS

SITE DESIGN MONTESSORI SCHOOL, CHICAGO

COMER HOSPITAL CHILDREN'S PLAYGROUND, CHICAGO

## POLICIES

[www.osbie.on.ca/riskapp/playground/](http://www.osbie.on.ca/riskapp/playground/)

AOS SCHOOL IMPROVEMENT WELLNESS PLAN [www.alcddb.on.ca/](http://www.alcddb.on.ca/)

## CULTURAL HERITAGE

CITY OF KINGSTON OFFICIAL PLAN

[www.cityofkingston.ca/documents/10180/541790/Official+Plan/17793cad-90db-4651-8092-16c587600001](http://www.cityofkingston.ca/documents/10180/541790/Official+Plan/17793cad-90db-4651-8092-16c587600001)

Information on Kingston: indigenous and colonial history, natural resources, natural heritage protection

ST. LAWRENCE II KINGSTON HISTORY

[www.sailtraininginternational.org/vessel/st-lawrence-ii/](http://www.sailtraininginternational.org/vessel/st-lawrence-ii/) and [www.tallshipexpeditions.com](http://www.tallshipexpeditions.com)

<sup>7</sup> Use: design and siting of sandboxes and examples of loose play objects from nature

<sup>8</sup> Use: especially for suggestions of natural play materials and surfaces

## KINGSTON BRAND

[www.waymarking.com/waymarks/WMX0VW\\_Where\\_History\\_and\\_Innovation\\_Thrive\\_Kingston\\_ON](http://www.waymarking.com/waymarks/WMX0VW_Where_History_and_Innovation_Thrive_Kingston_ON)

## SITE ANALYSIS

Prevailing wind direction and speed for Kingston (annual projection)  
[www.windfinder.com](http://www.windfinder.com)

Soil profile information from Ontario Ministry of Environment and Energy well records for Cataraqui Centre and Bayridge East neighbourhoods. [www.ontario.ca/environment-and-energy/map-well-records](http://www.ontario.ca/environment-and-energy/map-well-records)

2016 Census of Population profiles for Bayridge East and West  
[www.cityofkingston.ca/apps/community-census-profiles](http://www.cityofkingston.ca/apps/community-census-profiles)

Watershed information for Kingston area from Cataraqui Region Conservation Authority <https://www.crca.ca/wp-content/uploads/PDFs/maps/Watersheds.pdf>

Topography information of Pembroke Crescent area  
[www.google.com/earth/](http://www.google.com/earth/)

Sun-shade calculation for 974 Pembroke Crescent (for 08:00, 12:00 and 16:00 at equinoxes) <https://www.suncalc.org/#/44.2496,-76.5844,18/2019.11.28/06:48/1/1>

## HORTICULTURAL

### URBAN FOREST MANAGEMENT PLAN

[www.cityofkingston.ca/residents/environment-sustainability/nature-forests-gardens/urban-forest-management-plan](http://www.cityofkingston.ca/residents/environment-sustainability/nature-forests-gardens/urban-forest-management-plan)

### FOUR AREAS OF SUSTAINABILITY

[www.cityofkingston.ca/residents/environment-sustainability/sustainability](http://www.cityofkingston.ca/residents/environment-sustainability/sustainability)

### KINGSTON SCHOOL GARDEN SUPPORT

[www.lovingspoonful.org/grow-project](http://www.lovingspoonful.org/grow-project)

### KINGSTON COMMUNITY ORCHARD AND EDIBLE FOREST POLICY

[www.cityofkingston.ca/residents/recreation/facilities/community/community-orchard](http://www.cityofkingston.ca/residents/recreation/facilities/community/community-orchard)

### CATARAQUI REGION CONSERVATION AREA

[www.crca.ca/education/publications-resources/](http://www.crca.ca/education/publications-resources/)

CRCA publications links for plant and wildlife checklists, nature projects, and planting Guidelines for the Cataraqui Region, with reference to native and invasive species, supporting wildlife etc.

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