

**Returning Wilderness:**  
**Centre for Environmental Education**

by  
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## ABSTRACT

We live in a time when much of the natural world is lost in the wake of human agency. No place on earth today remains untouched by human influence. This thesis is an attempt to find wilderness in the Anthropocene. To urbanised people most importantly children, the source of food and the reality of a deeper nature are becoming more abstract. Lacking direct experience with nature, children begin to associate it with fear and catastrophe rather than joy and wonder.

Public education is enamored, even mesmerized, by what might be called silicon faith: a myopic focus on high technology as salvation. In the presence of these ideologies, it is imperative that we rethink school nature programs beyond the classroom and field trips. We must deploy natural preserves for a hands-on learning method with schools designed for environmental and ecological education. The Leslie Street Spit, with its abundance of ecological diversity is a befitting location for such an intervention. It exists as a unique form of wilderness in the city of Toronto and an example of anthropogenic character of our contemporary world. It is well suited to serve

as an informative playground and education tool for children to discover their environment in its most natural form. Experiential education and nature-based experiences provide individuals of all ages with a unique and powerful opportunity to immerse themselves in the natural world in a constructive and beneficial manner. It allows them to explore several relationships including connections to oneself, connections to others, and connections to the land. These relationships, especially when created at a young age, have the potential to significantly increase personal wellbeing by providing an avenue for healthy development and exploration, fostering interpersonal relationships, and instilling core environmental values. Connecting children and youth to our natural world is therefore essential.

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To my family and friends, especially the new ones I've made along the way.

*To my family and friends*

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**[WILD]**

*“Exquisite complex beings in their energy webs inhibiting the fertile corners of the urban world in accord with the rules of wild systems”*

**[WILDERNESS]**

*“wilderness is now -for much of North America- places that are formally set aside on public lands-Forst Service or Bureau of Land Management holdings or state and federal parks.”*

**[WILDNESS]**

*“wildness is not limited to the 2 percent (of United States) formal wilderness areas. Shifting scales, it is everywhere”.*

*Where do we start to resolve the dichotomy of the civilized  
and the wild?*

*– Gary Snyder, Practice of the Wild*

## 00 INTRODUCTION





0.1 *The Woodland Stream*, date unknown. Artist: Tom Thompson (Canadian artist of early 20th century painted mostly on location in Algonquin Park)

### 0.1 In search of a Wilderness

The world is nature, and in the long run (larger picture) inevitably wild<sup>1</sup>, so to enjoy the freedom it grants we must accept the impermanence and imperfection it orders. The word nature comes from the Latin *natura*, which means birth, constitution, character, course of things- ultimately from *nasci*, to be born. Nature, in Chinese translate to *zi-ran* (Japanese *shizen*) “self-thus” while the word for wild in Chinese is *ye* (Japanese *ya*) means “open country”. These associations show that nature specifically the wild, is taken to be rustic and uncouth. Despite these, it has always been part of basic human experience to live in a culture of wilderness.<sup>2</sup>

The word wilderness has several definitions: a large area of wild land, a wasteland, a space of sea or air, a place of danger and difficulty and yet the most intriguing to me is a place of abundance. Gary Snyder advises, that “the etiquette of the wild world requires not only generosity but a good-humored toughness that cheerfully tolerates discomfort, an appreciation of everyone’s fragility, and a certain modesty.” We can celebrate our humanity and its true freedom as we “give up hoping to be eternal and quit fighting dirt”. A place of true wilderness, a place where the

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1 Gary Snyder, *The Practice of the Wild : Essays* (San Francisco: North Point Press, 1990).

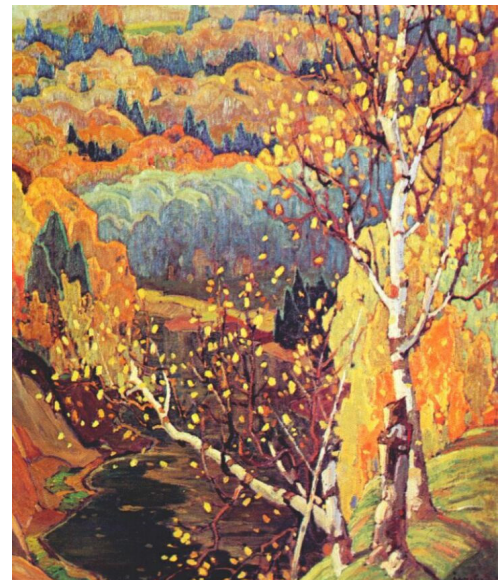
2 Ibid.



0.2 *Fire Swept, Algoma 1920* by Frank H. Johnston



0.3 *Serenity Lake of the Woods - 1922* by Frank Johnston (Famously part of the ‘Group of Seven’ society of painted pastoral scenes of Ontario and Quebec.)



0.4 *October Gold, 1922*. Artist: Franklin Carmichael (Part of the ‘Group of Seven’ society of painters who used the medium of watercolour and oil to depict scenes of northern Ontario landscapes.)



0.5 *Children experiencing nature in the wild.*

*Left: Paintings depicting characteristics of a wilderness*

*Right: Children intrigue awakened by nature*

wild systems are fully expressed is hard to find in our civilized world. It is generally destroyed by “nature-denying mechanistic ideology” and hence we lose the opportunity for direct experience of nature. Although “wildness”, shifting scales exists everywhere: in the moss and fungi around our houses, pigeons in the park, spiders in the corners.

We enjoy the dense vitality of the city only to complain that there are not enough green spaces where we can be alone with nature.<sup>3</sup> It is advised and accepted by many, to be close to nature in the open country is a wholesome experience.

Today, people who grow up in towns or cities have fewer opportunities to learn about how wild systems work. Returning wilderness to the world is now in the hands of the next generations. For this to happen and to prevent people from becoming nature-illiterate, we must find ways to educate our children and generate sensitivity towards the environment.

## 0.2 Returning Wilderness to Children

Nature inspires creativity in a child by demanding visualization and the full use of the senses.<sup>4</sup> Many studies support this belief. R.C. Moore writes, “Natural settings are essential for healthy child development because they stimulate all the senses and integrate informal play with formal learning.”<sup>5</sup> According to Moore, multi-sensory experiences in nature help to build “the cognitive constructs necessary for sustained intellectual development” and stimulate imagination by supplying the child with the free space and materials for what he calls children’s “architecture and artifacts”. Natural spaces and materials stimulate children’s limitless imaginations and serve as the

---

3 J. B. Jackson, *A Pair of Ideal Landscapes*. (New Haven: Yale University Press, 1984), 9-57.

4 Richard Louv, *Last Child in the Woods : Saving our Children from Nature-Deficit Disorder*, 1st ed. ed. (Chapel Hill, NC: Algonquin Books of Chapel Hill, 2006).

5 Ibid.

medium of inventiveness and creativity observable in almost any group of children playing in a natural setting.<sup>6</sup>

Children who live in increasingly dense cities may be further distanced from nature, especially children who live in impoverished communities with inadequate parks and open spaces and concerns about safety. In addition, a plethora of electronic devices for education and entertainment are a major pulling factor for children to stay indoors.

In the initiative towards nature-child reunion, it is vital to understand that while knowledge imparted in the classrooms is important unless it is substituted by actual immersion and play it fails to inculcate passion, that is the long-distance fuel for the struggle to save our natural heritage. In the move to save environmentalism and the environment, we must also save an endangered indicator species: the child in nature.<sup>7</sup>

*It is not the language of painters  
but the language of nature which one should listen to...  
The feeling for the things themselves,  
for reality, is more important than the feeling for pictures.  
-Vincent Van Gogh*

### **0.3 Rediscovering the Leslie Street Spit**

The Leslie spit is great example for understanding our environment as the Anthropocene. However, it is a unique relic of human environmental degradation, once an active landfill turned into a flourishing ecology showing nature resilience in its true sense. The site provides a holistic learning environment for ecological knowledge that will certainly form a foundation for a constructive relationship of children with nature.

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6        *ibid.*

7        *ibid.*



0.6 a.



0.6 b.



0.6 c.



0.6 d.

**0.6** *Showcase of the unique condition at the Leslie Street Spit: a reverse and unexpected course of action where nature empowers human constructed land. Clockwise from top: History of Site, Lake filling for port related activities, Natural Succession after site is abandoned, Future development.*

Tommy Thompson Park has been designated as an Environmentally Significant Area (ESA) and was designated as an Important Bird Area (IBA) by Birdlife International in 2000.<sup>8</sup> It is therefore, necessary to consider building for birds here as much as it is in the city, allowing nesting spaces, ensuring year-round food and shelter with the right habitat.

Much of the land area of the Leslie Spit has, through natural successional processes been colonized by a variety of plant and animal communities since the Spit's natural succession. Overall, the Spit represents the largest area of existing natural habitat on the central Toronto waterfront.

The dominant vegetation community in the park is meadow, followed by poplar forests, meadow marshes, sand dunes and beach/bar communities. There are, however, smaller vegetation communities as well including thickets, savannahs, swamps and other wetlands. Vegetation communities will continue to change as the park evolves and natural succession progresses.

Hence, building for vegetation is imperative ensuring their deliberate growth using green roof and living-wall systems. Buildings provide firm, rocky substrate, habitat for species that would otherwise be absent. Purpose-built solutions for plants on buildings minimise the potential problems for the building structure while maximising gains for biodiversity.

The Park is home to a complex mosaic of habitats, which support a diverse community of plants and wildlife. So, for any future development, ecology will be a key consideration in the design. It must defer to the natural landscape of the park and support park staff and visitors without encouraging activities that would impact park ecology.

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8 Dan Derbyshire, *Migration Monitoring at TTP-BRST* Toronto and Region Conservation Authority, Tommy Thompson Park Bird Research Station, 2008).

#### **0.4 Objectives for Education Center**

An aim of this thesis will be to discover how architecture can help sensitize children about their environment and ecological processes. How can architecture help children gain a better sense of their relationship with nature? How can children use this understanding to develop an ability to take action as environmental advocates?

This thesis is not specifically aimed at a certain age and school grade, but most studies and facilities/institutes target K-5 (Kindergarten through Grade 5), or the age between toddlerhood and preadolescence, for environmental education. Although affective, cognitive, and evaluative development can happen in any stage of life and age, educators concur that developmental growth is more significant in early childhood. The proposed education center caters to children of all age groups offering suitable activities. Endeavour endeavour

The concept for the Education Centre must address two challenges from its inception:

- i. to make the site accessible to the public without endangering the rich flora and fauna present, and
- ii. to engage building with landscape; architecture acting as a mediator between children and nature.

In this endeavour, environmentally sustainable technologies are deployed in the building structure such as solar panels, Trombe wall, radiant heating. The site is addressed by creating two zones: a relatively protective play area requiring minimum supervision and the open wilderness that exists within the site.

##### **0.4.1 Ecological Education through Environment**

- Expose children to nature early in life, beginning in toddlerhood.

- Provide them with hands-on experiences of nature that are adult-supervised.
- Provide a knowledge base of the history of their immediate environment so they form a connection to the landscape in their memory.
- Encourage learning through and from ecological processes that can be witnessed in their surroundings (or placed surroundings; as the site chosen for the Education Centre).
- Develop interest in children through directed activities to become environmental stewards in their surrounding community in the future.

#### **0.4.2 Ecological Education through Architecture**

- Site learning environments in the ecological parts of the city that offer opportunities for children to interact with nature i.e. soil, water, and wildlife.
- Building Design strategies that engage with the landscape, natural or constructed in different ways.
- Building Design elements that combine nature, interesting architecture, materials, natural lighting, and ‘white sounds’



(e.g., running water)<sup>9</sup> to develop interest in sustainable architecture.

This book is comprised of four chapters starting by laying the foundation for the need of a more nature engaging environmental education and creating environmental awareness in children and adults alike. It then shows how the selected site serves as a valuable tool in the above mentioned discourse. And finally, offers a design intervention.

*Chapter One - Environment Based Experiential Learning*, highlights the importance and benefits of experiential learning and provides a framework for its successful implementation. It also briefly describes the guideline followed for the design of playscapes.

*Chapter Two - Site : The Leslie Street Spit*, offers a brief history of the construction of the site, changes that occurred during the course of time to convert it into place of natural abundance, its current use and why it has a special place in the hearts of nature loving Torontonians. In doing that it defines why and how the Leslie Street Spit could serve as an educational tool.

*Chapter Three - Design Proposal*, consists of two parts, *the Education Center and Playscapes*. Part I proposing the design of the environment education center for groups of students tied with their school environment program or as an option for an independent educational retreat. Part II proposes constructed playscapes within the premise of the education center providing a protected playzone for children.

*Chapter Four - Conclusion*, reflects on the proposed intervention and projects speculations about further implications of the tapping the potential of such a unique site.

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9 David W. Orr, *Earth in Mind : On Education, Environment, and the Human Prospect* (Washington, DC: Island Press, 1994).



0.7 *View of Toronto Skyline from the Leslie Street Spit*

*“To resolve the dichotomy of the civilized and the wild, we must first resolve to be whole.*

*The etiquette of the wild world requires not only generosity but a good-humored toughness that cheerfully tolerates discomfort, an appreciation of everyone’s fragility, and a certain modesty.*

*We can celebrate our humanity and its true freedom as we give up hoping to be eternal and quit fighting dirt.”*

*– Gary Synder, Practice of the Wild*

## 01 ENVIRONMENT BASED EXPERIENTIAL LEARNING

## 1.1 Importance of Experiential Ecological Education

*“If literacy is driven by  
the search for knowledge,  
ecological literacy is driven  
by the sense of wonder, the  
sheer delight in being alive  
in a beautiful, mysterious,  
bountiful world.” - David  
Orr*



1.8 *A stroll in a nature preserve within the city*

Experiential education and nature-based experiences provide individuals of all ages with a unique and powerful opportunity to immerse themselves in the natural world in a constructive and beneficial manner. It allows them to explore several relationships including connection to oneself, connection to others, and connection to land. These connections, especially when created at a young age, have the potential to significantly increase personal wellbeing by providing an avenue for healthy development and exploration, fostering interpersonal relationships, and instilling core environmental values. Connecting children and youth to our natural world is thus, essential. Unfortunately, the opportunities for children to be exposed to the natural world are decreasing. Providing children with a safe and accessible means to be exposed to the natural world is a challenge. Richard Louv has coined the term “Nature-Deficit Disorder”<sup>1</sup> to describe the loss of nature connection. This concept of nature deficit disorder is not a medical condition. It is however, Louv’s attempt to describe the importance of rich encounters with nature as an integral component of childhood development. With the negative impacts of nature deficit disorder becoming increasingly apparent,

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1 Richard Louv, *Last Child in the Woods : Saving our Children from Nature-Deficit Disorder*, 1st ed. ed. (Chapel Hill, NC: Algonquin Books of Chapel Hill, 2006).

it is imperative that actions be taken to reconnect individuals with nature, ultimately creating a healthier and happier population.

Learning how to live well with one's surroundings is called "ecological literacy".<sup>2</sup> Ecological literacy results in an affection for the ecologies of a particular place, but even with increased literacy of its ecological systems, "a sense of place still requires more direct contact with the natural aspects of a place, with soils, landscape, and wildlife".<sup>3</sup> As nature is ever more threatened by people-designed built environments, children have no way of learning how to develop a less destructive relationship with their surroundings.

*"Now, my tree-climbing  
days long behind me,  
I often think about the  
lasting value of those early,  
deliciously idle days. I  
have come to appreciate  
the long view afforded by  
those treetops. The woods  
were my Ritalin\*. Nature  
calmed me, focused me and  
yet excited my senses." –  
Richard Louv, Last Child  
In The Wood*

Environment-based experiential learning has been at the core of educational theory for at least a century. According to John Dewey in 'The School and Society' benefits of such "experience has its geographical aspect, its artistic and its literary, its scientific and its historical sides". Experiential education teaches a well-rounded perspective through senses in the natural world.

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2 David W. Orr, *Ecological Literacy : Education and the Transition to a Postmodern World* (Albany: State University of New York Press, 1992).

3 Ibid.. p. 89

\* *Ritalin* A trade name for Methylphenidate drug prescribed for attention-deficit hyperactivity disorder (ADHD)



1.9 Kinder-Forest School Program. Brock University, St. Catharines, Ontario Source: <https://brocku.ca/childcare/about-us/kinder-forest-school-program/>

Finland's education system has been scored number one in the review by the Organisation of Economic Cooperation and Development (2003). According to Finland's Ministry of Social Affairs and Health, "The core of learning is not in the information being predigested from the outside, but in the interaction between a child and the environment."

The child's experience of nature is an essential, critical, and irreplaceable dimension of healthy maturation and development<sup>4</sup>. However, increases in children's indirect and vicarious contact with nature do not appear to offer an adequate substitute for the significant declines that are occurring nowadays of direct experience.<sup>5</sup> That is, children need direct experience with nature to develop in cognitive, affective, and evaluative ways. But how should that direct experience occur if it is to be educational?

Richard Louv projects that "school nature programs will go beyond curriculum or field trips: they will involve the initial, physical design of a new school; or the retrofitting of an old school with playscapes that incorporate nature into the central design principle; or the use of nature preserves by environment-based schools."

#### 1.1.1 The Restorative Environment

According to study by environmental psychologists at the University of Michigan, Stephen and Rachel Kaplans, too much directed attention leads to 'directed-attention fatigue', "it occurs because neural inhibitory mechanism become fatigued by blocking competing stimuli. The fascination factor associated with nature is restorative, and it helps relieve people from directed-attention fatigue."<sup>6</sup> A paper presented to the American Psychological Society in 1993 by the Kaplans showed that those corporate office workers with a direct view

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4 Peter H. Kahn Jr. and Stephen R. Kellert, *Children and Nature Psychological, Sociocultural, and Evolutionary Investigations* (Cambridge, Mass.: MIT Press, 2002). p. 141

5 Ibid.

6 Louv, *Last Child in the Woods : Saving our Children from Nature-Deficit Disorder*

of trees, bushes, lawns had lower stress levels and ended being more productive. Another study by Terry A. Hartig, applied psychology professor at the Institute for Housing and Urban Research at Uppsala University in Gavle, Sweden in 2001 demonstrated that nature can help people recover from “normal psychological wear and tear”. It can be established at that nature improves the capacity to pay attention.”<sup>7</sup>

Researchers Andrea Faber Taylor, Frances Kuo, and William C. Sullivan at Human-Environmental Research Laboratory at the University of Illinois have found that green outdoor spaces foster creative play, improve children’s access to positive adult interaction. Although research on nature-induced positive behaviour is in its nascent stage, our intuitions on benefits of nature for children can be well-reasoned on theoretical arguments.

A positive relationship and regular contact with nature can be as important to children as good nutrition and adequate sleep. We don’t have to wait for more, needed, research to act on common sense, or to give the gift of nature-even when it might seem to be too late.<sup>8</sup>

## 1.2 Importance of Play

Children learn to socialize with others through play. They learn leadership and fellowship, cooperation and rights of self in relation to the rights of others, compromise, teamwork, sharing, conflict resolution and group decision making. Play provides (or should provide) children with the opportunities to engage in problem solving, through play youngsters learn communication skills, especially oral language development. Concepts such as shape, number, force texture and frequency are understood through play.

Play provides a child with the means of learning about himself. He learns self-confidence, self-reliance and independence if he is provided with an environment

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7        *ibid.*

8        *ibid.*



1.10        *Island Wood Environmental Education Center.*  
*Source: <http://mithun.com/project/islandwood/>*





1.11 *Island Wood Environmental Education Center.*  
Source: <http://mithun.com/project/islandwood/>

which tests him. The child must take risks in order to achieve the more difficult – that step just beyond his present experience, ability and grasp – in order to learn and grow.<sup>3</sup>

### 1.2.1 **Constructed v/s Natural play**

Objectively identifying the two types of play environments i.e. constructed or natural helps make a correlation between landscape structure and play functions<sup>9</sup> showing that the physical environment has direct relationship to the types of play children participate in.

Natural playscapes are primarily natural process driven<sup>10</sup>, most commonly these include areas such as forests, fields, wooded areas, creeks, wetlands. The essence of natural play can be entailed in wilderness play and “playfulness may be the essence of wilderness experience”.<sup>11</sup> Wilderness is defined as those areas which are completely untouched by human impact. A wilderness can be as small and simple as a flood plain in an uninhabited area or as complex as the Grand Canyon. The major difference between cities and wilderness is that cities are designed for one species and designed to be inhospitable for other species.<sup>12</sup>

Constructed playscapes can offer children the security they may need to enjoy outdoor playscapes. Characteristics similar to a natural playscape can be recreated by carefully designing a constructed playscape which can offer opportunities that may arise in the wild. Playscapes can be ‘greened’ to incorporate natural elements and processes.

### 1.2.2 **Creative Play**

9 Fjortoft, Ingunn and Sageie, Jostein, *The Natural Environment as a Playground for Children: Landscape Description and Analyses of a Natural Playscape*, Vol. 48, 2000), 83-97. [https://doi.org/10.1016/S0169-2046\(00\)00045-1](https://doi.org/10.1016/S0169-2046(00)00045-1).

10 *Ibid.*

11 Gary Paul Nabhan and Stephen Trimble, *The Geography of Childhood : Why Children Need Wild Places*, ed. Stephen Trimble (Boston: Beacon Press, 1994).

12 *Ibid.*

The greatest strength of the creative playground is its abstract design. It encourages a great range of imaginative physical and mental responses which are aimed at satisfying the physical, emotional, mental and social needs of children. The creative playscapes should provide the raw materials upon which the child can exercise his imagination and his muscular ability. It is the diversity of sensory experiences that initiates a more creative learning environment for children.<sup>13</sup>

The theory of “loose parts” first proposed by architect Simon Nicholson in the 1970’s has an important influence on design of playspaces for children today. Nicholson believed that it is the ‘loose parts’ in our environment that will empower our creativity. Loose parts can be natural or synthetic. In a preschool outdoor environment, we can provide an array of loose parts for use in play such as stones, stumps, sand, gravel, fabric, twigs, wood, pallets, balls, buckets, baskets, crates, boxes, logs, stones, flowers, rope, tires, balls, shells and seedpods. ‘Loose parts’ theory is about remembering that the best play comes from things that allow children to play in many different ways and on many different levels.

Structuring of playscape: linked apparatus concept; child to move from one piece of apparatus to another, thereby advance them to more difficult tasks. Some of the elements and apparatus that foster creativity are as follows:

- Climbing: Primary climber, the scaling wall, the log pyramid, the serpent walks, the island hoppers and tire hoppers
- Playing with sand
- Water: Pond, stream, aquatic life
- Stepping stones

When children have the opportunity of alternate between different types of play equipment or local environments, they have tendency to develop a fond interest in such play. Hence, this self-discovered

13 Louv, *Last Child in the Woods : Saving our Children from Nature-Deficit Disorder*

fondness can enable them to develop sensitivity towards the environment.

The creative playscape provides challenges to the action of play and its enabling environment thus offering a positive or negative stimulus to a child's overall development. Manipulative equipment and abstract design are used to encourage a greater range of imaginative, physical and mental responses from the child, aimed at satisfying his physical, emotional, mental and social needs.

### 1.3 Design guidelines and Art Influences

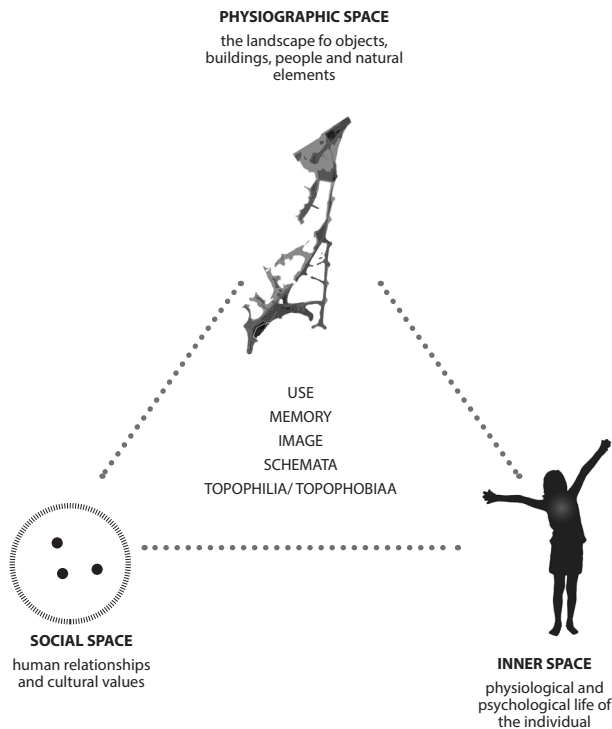
A thoughtfully designed playscape with a focus on nature is an alternative to traditional playgrounds, one that is environmentally sound. Research indicates that children learn academic concepts, engage in physical activities, investigate scientific principles, and enhance development in all domains through nature play. Playscapes promote early science learning and demonstrate sustainability principles. In essence, playscapes can sanction play and recess as an academic learning venue while serving as an early educational model for the next wave of environmentalism.

Playscapes can address our generation's interest in both STEM education and the next wave of environmentalism. Outdoor nature play provides rich opportunities for meaningful learning that schools ought to integrate into more standard curriculum. It appeals to a child's sense of being in a special place, promotes curiosity, and demonstrates sustainable practices.

Three broad perspectives on children's education, land-use planning and design of natural and human-built environment<sup>14</sup> used as design guideline for this thesis:

- i. Evolutionary significance of nature during childhood – humans are biological beings with an evolutionary history
- ii. Psychological – children form conceptions, values, and sympathies toward the natural

14 Kahn and Kellert, *Children and Nature Psychological, Sociocultural, and Evolutionary Investigations*



1.12 Diagram describing the three perspectives on children's education.

world

- iii. Sociocultural – educational and political consequences arising from the changing quality and quantity of childhood experiences of the natural world in modern society.<sup>15</sup>

### 1.3.1 Elements and principles of a Playscape

Playscapes can be aesthetically pleasing to adults but must be built to let children develop a sense of identity without causing irrevocable damage to the landscape elements. Elements of a well-designed playscape can be manipulated by children, creating a sense of ownership. As explained by Sue Elliot, playscapes for young children contain the following minimum features:<sup>16</sup>

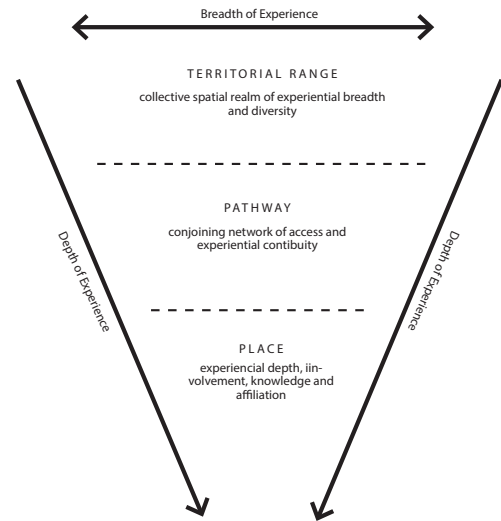
- local landscape or a reconstruction of the indigenous environment;
- natural elements dominate – trees, shrubs, sand, rocks, soil, and flowers;
- loose natural materials and possibilities for open-ended interactions, explorations, and manipulations;
- opportunities for risk-taking, spontaneity and discovery, sensory in all aspects;
- accessibility;
- a sense of place;
- multiple spaces or mini-environments; and
- a dynamic environment.

Playscapes elicit hands-on, multi-sensory, unique and personal experiences for children where nature is the focus, not man-made materials.

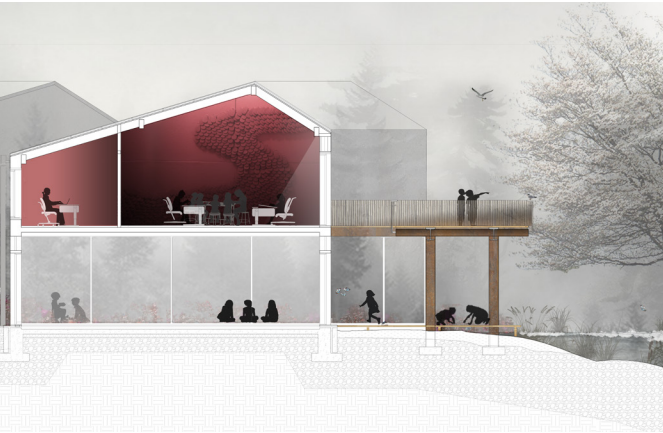
Areas within the playscape are designed to be open-ended with multiple and divergent uses. Materials and

15     *ibid.*

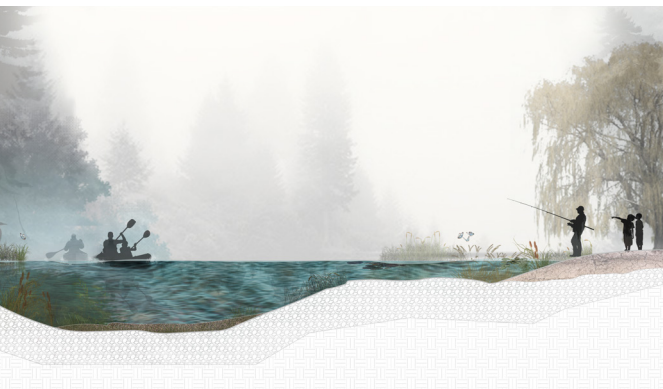
16     Victoria Carr and Eleanor Luken, *Playscapes: A Pedagogical Paradigm for Play and Learning*, Vol. 3 (Routledge, 2014), 69-83. doi:10.1080/21594937.2013.871965 . <https://doi.org/10.1080/21594937.2013.871965>.



1.13     Diagram describing principals for designing nature-based play spaces for children. Source: Kahn and Kellert, *Children and Nature Psychological, Sociocultural, and Evolutionary Investigations*



1.14 Classroom learning enabled with directly accessible natural features.



1.15 'Wild' spaces in proximity to the Education center.

spaces are not designed to be used in pre-determined ways. Selected playscape plants and materials are ones that can be found in nature, preferably indigenous to the local landscape.

Playscape materials provide opportunities to be touched, manipulated, dug, moved, picked, dammed, climbed, built, and experienced by children as they choose to do so. They are built to encourage risk-taking, investigation, language, sensory experiences, child-directed dramatic and themed play, and collaborative and active play. Within the scope of these principles, playscapes should also have the following features:<sup>17</sup>

- Accessible water – streams, fountains, wading ponds
- Unlevel topography
- Gardens and/or edible landscape materials
- Sand, rocks, boulders
- Trees, grasses, shrubs, flowers, herbs, etc.
- Nature-themed art or some play equipment may be included, but do not intrude upon or dominate the playscape
- Pathways and gathering spaces
- Hiding places, tunnels, felled logs, and digging pits
- Seating for adults to observe children's play
- Storage for child-sized equipment (shovels, buckets, etc.).

The playscapes need to be connected by a circulation path diverging into secondary and tertiary paths.

The constructed play area is needed to be protected therefore, perimeter fence or a similar less imposing perimeter must be designed.

Such a playscape environment is dominated by natural materials, creates a sense of place, and includes microhabitats that reflect local ecology. Spaces for dramatic and construction play could be typically

17 *ibid.*

infused into the playscape environment using loose parts, such as rocks, sticks, leaves, etc., and vegetated niches. Small, multi-use platforms also serve as backdrops for drama and construction of towers, roads, or whatever the children create. Lastly and very importantly, the creative and inventive benefits of loose parts for play increase with the variety of objects in the outdoor play space.<sup>18</sup>

Essentially, playscape features and materials are not designed to be used in pre-determined, specific ways like those on a traditional playground. Natural materials are available for open-ended, self-motivated play. Thus, although structures are often placed within playscapes, nature is the focus, not human-made elements. Plants, soil, and water are integrated into the playscape and are available to be touched and manipulated, not just observed. The integration of natural local flora is essential because the amount of vegetation in play areas makes a significant difference in the incidence of play and maintains sustainable practices.<sup>19</sup>

Moore asserts that imaginative play, creativity, and social interactions can be supported by a highly manipulative environment having plants as its primary play material. Therefore, the extensive use of plant material in playscapes provides for the complexity children need for sensory explorations and environmental education.

### 1.3.2 Art in Design

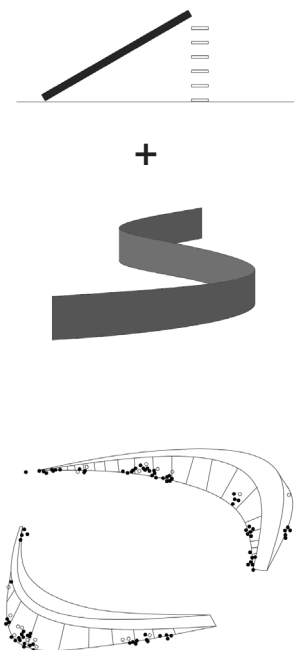
As opposed to public sculptures conceived as monuments to be looked at in isolation from their surroundings, the playground ‘learns’ from its context. The overall design of the education complex is realised while keeping in mind some of the urban sculptures by Richard Serra, James Turrell, and Christo. They relate to Aldo Van Eyke’s playground design which was done

<sup>18</sup> Simon Nicholson, *How NOT to Cheat Children – the Theory of Loose Parts.*, 1971), 30-34.

<sup>19</sup> Robin C. Moore, *Childhood’s Domain : Play and Place in Child Development* (London ;Dover, N.H.; London; London : Croom Helm, c1986: Croom Helm, 1986).



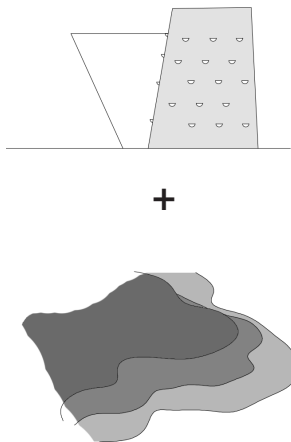
**1.16** Richard Serra’s *Te Tuhirangi Contour*, a giant ribbon of Corten Steel at Gibbs Farm Art Park in New Zealand. A form of Land art, the ribbon installation sculpture folds along the landscape.



**1.17** Slide from a traditional children’s playground is incorporated into the landscape.



1.18 Constructed Climbing wall in a children's contemporary playground. Source: <http://naturalplaygrounds.com/gallery/index.html>



1.19 Constructed Climbing wall integrated with landscape terrain



1.20 Island Wood Environmental Education Center. Source: <http://mithun.com/project/islandwood/>

almost twenty years earlier.<sup>20</sup>

## 1.4 Precedents

The following precedent studies illustrate that urban environments can expose children to an ecologically beneficial relationship between the natural and built world.

### 1.4.1 Exposure to nature out of the city fabric

- IslandWood, Bainbridge Island, Washington

Size: 70,600 sf      Completion: 2002

*IslandWood is a residential environmental education center that provides people with a deeper understanding of the natural environment through hands-on project and outdoor field experience in a curriculum combining science, technology and the arts. This complex undertaking preserves a variety of wetlands, streams and ponds, while restoring an earthen dam and salmon habitat. Careful master planning minimizes the project's disturbance of the site's heavily forested ecosystem, which includes rare wetlands, bogs, plants, and a restored salmon-bearing stream. The on-site wood from the solar meadows was milled to provide all interior trim and 50% of exterior siding. Strict clearing limits were enforced around all structures. Building sites only occupy six out of 255 acre.<sup>21</sup>*

It consists of the following program: Welcome Center (interpretive center, gathering hall, administration), Learning Studios, Dining Hall, Art Studio, four residential lodges, graduate student cabins, Living Machine greenhouse,

20 Liane Lefavre and Ingeborg de Roode, *Aldo Van Eyck : The Playgrounds and the City* (Amsterdam : Rotterdam: Stedelijk Museum ; NAI Publishers, 2002).

21 Accessed Feb 5, 2018. [http://mithun.com/projects/project\\_detail/islandwood/](http://mithun.com/projects/project_detail/islandwood/).

and a variety of site structures including tree-house, bird blind, and suspension bridge.

- YMCA Environmental Learning Centre, Solarium Building, Paradise Lake , Ontario by Charles Simon Architect

Total Area: 3600 sf                      Completion: 1996

*The day center provides space and programming for children's summer camps. Church and youth group retreats as well as occasional conferences. The building is divided into four principal areas: a foyer and office, a large greenhouse, an assembly room, and a washroom area. The orientation of the building is based on access to natural daylight. Methods are adopted to reduce the embodied energy of the building to the lowest; windows are triple glazed to minimise heat loss. The design aims to purify all water used in the building through a living machine.<sup>22</sup> The cooling and ventilation of the building is brought forth in a very natural way as it utilizes the earth's natural soil as well as a clever system of natural ventilation. The Day Centre building is made 65% of recycled materials. Since these materials are from 'waste products', it saves on the cost of the building a great deal, and reduces waste by giving it a use.*

#### 1.4.2 Exposure to nature within an Urban Site

- Fuji Kindergarten, Tokyo by Tezuka Architects

Total Area: 14,000 sf                      Completion: 2007

*Fuji Kindergarten is a large, one-story, oval-shaped kindergarten, well known to accommodate over 600 children freely running around the oval-shaped*



1.21 YMCA Environmental Learning Centre, Solarium Building Paradise Lake , Ontario. Source: <http://www.tboake.com/solari.html>



1.22 Fuji Kindergarten, Tokyo by Tezuka Architects

22 Caroline Prochazka, YMCA Environmental Learning Centre, Solarium Building.



roof. All of architectural spaces were designed to be at the scale of a child, so there is an extremely close relationship between the floor level and rooftop level. Three pre-existing Zelkova trees shoot through the architecture and are splendid climbing points for children on the roof. There is not a single piece of play equipment on the roof. The rooftop itself becomes the play equipment. Even children who don't usually run will most certainly race around this roof.<sup>23</sup>

- Nature & Environment Learning Centre, Amsterdam by Bureau SLA

Total Area: 3025 sf                      Completion: 2015

The nature and environment learning center comprises of the program for special education, part of all primary schools in Amsterdam about nature and environment. This new building that replaces two previous temporary structures, is unique because it works as an education tool; its sustainability can be seen and be felt. The building is optimally oriented for solar gain and towards the gardens. The roof ridge is positioned exactly east-west facing south with solar panels on top. The building uses application of operable windows and a trombe wall. Trombe wall consisting of a dark concrete slab which warms up by sunlight and accumulates (by its mass) the heat. In the cavity between the glass pane and the hot concrete slab ventilation air is guided by means of natural draft. The hung window leads the fresh, pre-heated ventilation air into the classroom. In the warm months of the year, the hung window may close, and other parts of the façade can be opened. The Trombe-wall has never secured a foothold in the design of sustainable buildings, a handful of self-construction projects of some fanatical ecological builders after. However, the Nature and Environment Learning Centre shows that Trombe-walls not only work very well, but that



1.23 Nature & Environment Learning Centre, Amsterdam. Source: <https://www.bureausla.nl/project/natuur-milieu-educatiecentrum-amsterdam/?lang=en>

23 Accessed August 2, 2018. [http://moriyama.raic.org/sites/default/files/fuji\\_kindergarten.pdf](http://moriyama.raic.org/sites/default/files/fuji_kindergarten.pdf).

they can also create an architecturally interesting setting. In order to increase the surface area of the concrete walls a pattern of recessed half-shells is fitted. The pattern can be read, with some effort, as an anthology of Dutch nature poetry.<sup>24</sup>

### 1.4.3 Playground Oriented

- Italian fragment, Grand-Metis, Quebec, Canada by Studio eu

*This garden for the festival of Métis is a symbolic fragment of Italy. A carpet-like lawn is gently raised to create a hill, on which one is invited to enjoy the sunset. The topographic variation contains water bottles for visitors to drink from. The design features soccer playing fields scattered across the landscape with hundreds of gallons of water they require for sustenance.*<sup>25</sup>

- Waldpark Potsdam, Potsdam, Germany by Bureau B + B

*The intensive programme was concentrated on the park's periphery, around four 'terminals': large, brick-red concrete elements equipped with slides, climbing holds or trampolines. The magical attraction of the terminals brings the recreational function of the Waldpark into*

24 bureau SLA bureau, *Nature & Environment Learning Centre*

Amsterdam, [http://www.bureauSLA.nl/wp-content/uploads/2018/05/bureau-SLA\\_-\\_Nature-and-Environment-Learning-Centre-Amsterdam-LR.pdf](http://www.bureauSLA.nl/wp-content/uploads/2018/05/bureau-SLA_-_Nature-and-Environment-Learning-Centre-Amsterdam-LR.pdf) ed., Vol. 2018.

25 Marta Rojals del Alamo, *Design for Fun : Playgrounds*, ed. Carles Broto (Barcelona, Spain: Links Internations, 2004).



1.24 Italian fragment. Source: Marta Rojals del Alamo, *Design for Fun : Playgrounds*,



1.25 Waldpark Potsdam. Source: Marta Rojals del Alamo, *Design for Fun : Playgrounds*,



1.26 Shiru-ku Road Children's Park. Source: Marta Rojas del Alamo, *Design for Fun : Playgrounds*,

*focus – only nature lovers penetrate deeper into the park.*<sup>26</sup>

- Shiru-ku Road, Tokyo, Japan

*To contest our increasing dependency on visual perception, with print-media, on-line material and visual imagery of television and movies dominating our attention, the Shiru-ku road project attempts to restore sensitivity to the capacities of touch, smell, hearing and taste. "Shiruku Road" literally translates to "know your district". It is centered on two large-scale circuit pathways linking the principal parks and public facilities of Suginami. Residents can extend their knowledge of the local environment by walking these paths, riding their bikes, playing, stopping at the museums or just relaxing and enjoying the trees and flowers.*

*The Barefoot Oasis is designed to awaken tactile sensitivity, with visitors being led through a system of paths.*<sup>27</sup>

- Birken III, Marktheidenfeld, Germany by Robin Winogrand

*According to Robin Winogrand, catalogue play equipment comes with two general problems. It is virtually impossible to integrate into its urban context, making it look something like a landed UFO. Furthermore, toys are replaced as quickly as children's interests and abilities develop, whereas a child playing at the same kindergarten for 4 years is confronted with the same slide, swing and sand year after year*

26 B+B Bureau, Waldpark Potsdam, <http://www.landezine.com/index.php/2011/03/waldpark-in-potsdam-by-bureau-bb/> ed., Vol. 2018, 2011).

27 Alamo, *Design for Fun : Playgrounds*

regardless of his or her developmental stage. Therefore, in the program for the Birken III Kindergarten Playground, Winogrand decided to do away with conventional play equipment and instead provided unique elements which would be open to multiple uses. In Birken III, large sculptural play elements have been designed to stimulate the imagination; they act in a capacity similar to a theatrical set design which gives clues to the content of the play, yet here the story is completed by the authors; the children who make use of the equipment. The pedagogical principal that children respond to contrasting experiences such as high / low, alone / in groups, hiding / being the center of attention, physically active / mentally active was also used. The entire space can be read as an enormous plaything with over a dozen ways to ascend and descend the terraces.<sup>28</sup>



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28      Ibid.



**1.27**      *Birken III Kindergarten Playground. Source: Marta Rojals del Alamo, Design for Fun : Playgrounds,*

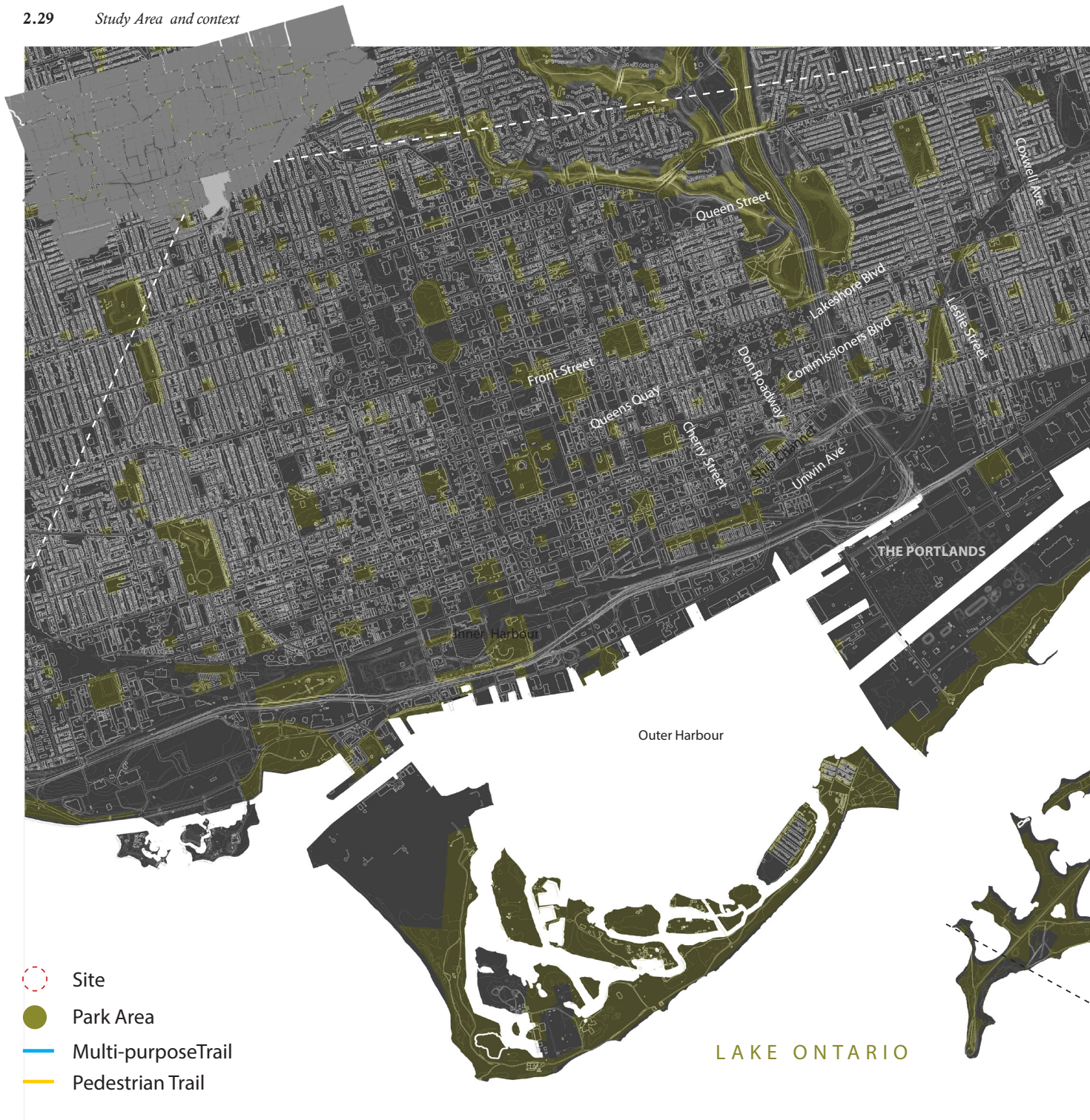
## 02 SITE : THE LESLIE STREET SPIT

*“The sum of a field’s forces becomes what we call very loosely the “spirit of the place”. To know the spirit of a place is to realize that you are a part of a part and that the whole is made of parts, each of which is whole. You start with the part you are whole in.”*

*— Gary Snyder, 1990 Practice of the Wild*

**2.28** *The Leslie Spit (Tommy Thompson Park):  
Toronto’s Urban Wilderness*

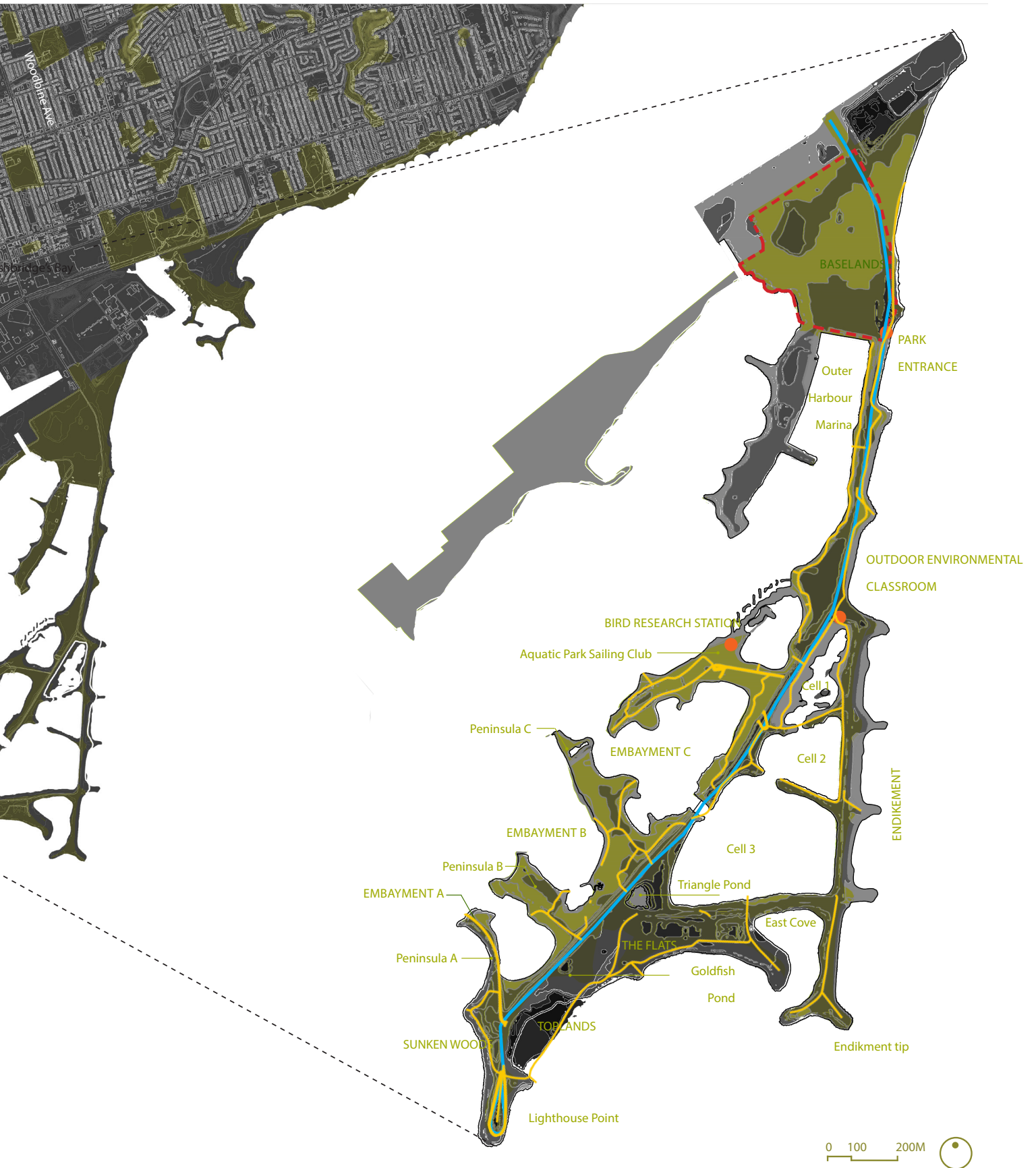




Part of Toronto's Central Waterfront, the Leslie Street Spit a unique ecological occurrence is the city's cherished urban wilderness.

**The Baselands**

Site selected for the intervention is the baselands, part of the Tommy Thompson Park as it bridges between future development in the portlands with the urban wilderness of Leslie Street Spit.





## 2.1 The Beginning

The Leslie Spit is a 'Site in Transition'. Its temporal character is projected by changing habitats, natural succession of vegetative species, emerging new terrestrial, aquatic, aerial habitat and species. This chapter seeks to document, map and analyze existing and emergent ecosystems on the Leslie Street Spit with an aim to identify rules for new development.

Construction of the spit started in 1959, when the Harbour Commission started to make a breakwater for an outer harbour. Plans for a such a project were annulled when massive shipping hubs formed along the East Coast, but the Spit was still extended five kilometers into the lake, reaching its peak in the early 1980s. At the time, it was a barren tract of land covered in wood, garbage, and huge flocks of seagulls.<sup>1</sup> Today, the Spit has become one of Toronto's most cherished park space within a span of a few decades.

1 Derek Flack, *A Love Letter to the Leslie Street Spit*, [https://www.blogto.com/city/2016/08/a\\_love\\_letter\\_to\\_the\\_leslie\\_street\\_spit/](https://www.blogto.com/city/2016/08/a_love_letter_to_the_leslie_street_spit/) ed., Vol. 2018, 2016).



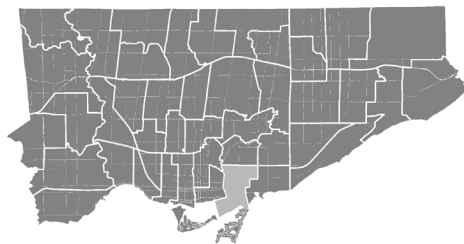
2.30 *The Spit through its contraction timeline and present areas.*



Canada Provinces



Ontario Districts & Regions



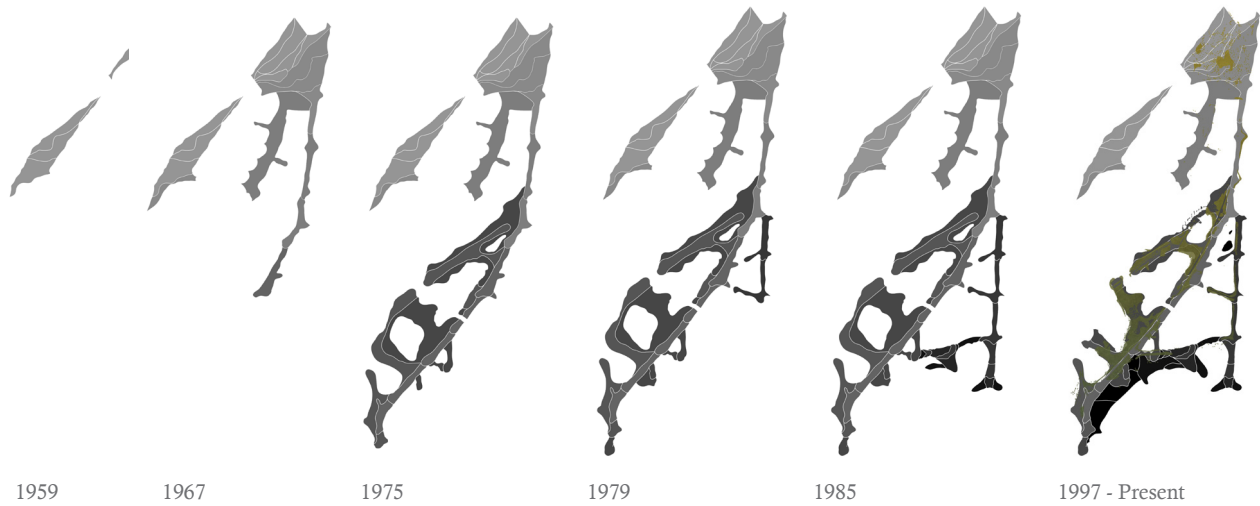
City of Toronto Wards

2.31 Large scale mapping of the Site



2.32 Topographic Map of the Leslie Street Spit. Source: <https://map-maker.nationalgeographic.org/>

Visualized in the mid-1900s as an expansion to existing harbour facilities, the spit was constructed over a long period of time through lake filling and dredging processes. Part of the Leslie Spit that forms Tommy Thompson Park represents Toronto’s urban wilderness and constitutes the largest area of existing natural habitat on the central Toronto waterfront. The site functions in two distinct ways as of now, a public wilderness park during evenings and weekends and as an active lake



2.33 Construction timeline of the Leslie Street Spit

filling site during weekdays. Two important aspects that characterize the spit are: its transformation from a lakefill through natural succession and the material evidence it stores of Toronto's lost architectural heritage.

Construction followed a three phased design with the formation of the Eastern Headland first, followed by the peninsulas on the north side of the spine in 1973-74 and the Endikement, which was initiated in 1979. The Park has a total land base of approximately 160 hectares and a water surface area of 100 hectares composed of embayments and the disposal cells.

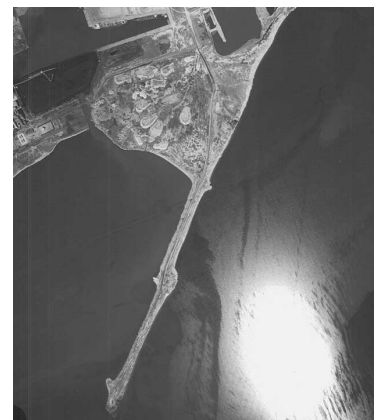
**1959** The St. Lawrence Seaway opened, and to accommodate an expected increase in shipping traffic., the Toronto Port Authority began the Leslie Street Lake filling Project to create land for new port related infrastructure

**1967** The Baselands and the Neck and Spine were constructed from earth, bricks and large construction rubble totaling more than 9.5 million cubic meters

**1975** The four Peninsulas were created from silty sand material dredged from the Outer Harbour. Over 7 million cubic meters of material was deposited on



1959



1967



1975



1979



1985



1997



Present

**2.34** (Left & Right) Photographic evidence of the construction timeline of Leslie Street Spit. Source: <https://tommythompsonpark.ca/about/>

the city-side of the Spine 1979 The Endikement was created from earth, bricks and large construction rubble to house three Confined Disposal Facilities to hold dredged materials from the Keating Channel and the Inner Harbour.

**1985** The first Confined Disposal Facility (Cell One) was filled to capacity, covering an area of 8.2 hectares.

**1997** Cell One was capped with a thick layer of clay, following positive results from the Triangle Pond. A wetland was installed above creating habitat for a variety of species (birds, amphibians, fish, and mammals).

**2004** The second Confined Disposal Facility (Cell Two) was filled to capacity, covering an area of 9.3 hectares.

Material that was used to fill up the site include bricks, tiles, rubble from demolished buildings, rebars; the rubble at the shorelines have become smooth and rounded in just 50 years of erosion; and sand/soil

## 2.2 Buried Materiality

Dwelling into the materiality of the spit helps realise that “the Leslie Street Spit is not just a landscape defined by its wilderness, but is also a by development, destruction, and renewal of the built form of the city.” The materials comprising the Spit are a well-recognized archive of Toronto’s built form, but they also point to lesser-known stories of slum clearance and urban dispossession.<sup>2</sup>

### Dated Material

- Marked brick e.g. J Price, Cooksville, Toronto Brick, Don, T.B. Co., etc.

<sup>2</sup> Heidy Schopf and Jennifer Foster, *Buried Localities: Archaeological Exploration of a Toronto Dump and Wilderness Refuge*, Vol. 19 Routledge, 2013), 1086-1109. doi:10.1080/13549839.2013.841660. <https://doi.org/10.1080/13549839.2013.841660>.

- Makers marked teacup
- Medicine bottles

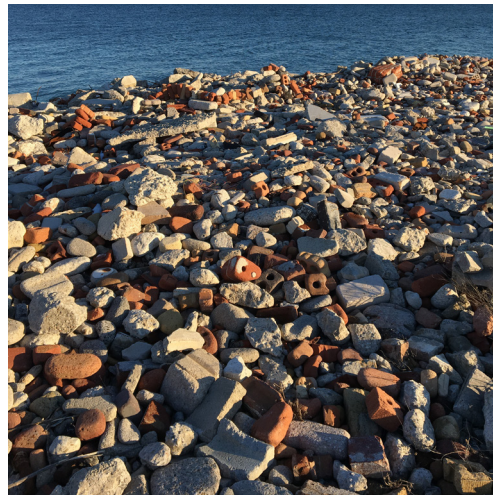
**Non-dated associated material**

- Broken telephone poles,
- smashed sidewalks,
- shattered tiles,
- demolished culverts
- pieces of lavatories
- household debris/ personal artifact



**Mineral deposits**

- sandstone
- limestone
- clay



**Disassociated Material**

- Concrete
- Rebars
- Unmarked Bricks
- Tile

“The activities of the City during the years 1964 and 1980 are studied and linked to specific sections of the Leslie Street Spit. The exercise reveals that the Spit is

2.35 Spit constituents exposed on the shores and non-vegetative parts



2.36 *Rubble Gradient & A New Archaeology for the Leslie Street Spit*; Artist: Ben Watt-Meyer.

*“Rubble Gradient is an assembly of material collected solely from the Spit. Through the process of sorting hundreds of building fragments, long lost material neighbours are reunited. Their organization by colour, texture and geologic properties represents an aesthetic reconstruction of something lost.”*

Source: <http://cargocollective.com/urbanworm/filter/public-art/Rubble-Gradient-A-New-Archaeology-for-the-Leslie-Street-Spit>

linked to slum clearance and urban renewal initiatives of the 1960s and the development-driven construction boom of the 1980s.”<sup>3</sup>

### 2.3 Advent of Change

Tommy Thompson Park is located on the Leslie Street Spit, a man-made landform that extends five kilometers into Lake Ontario in Toronto. When construction of the Spit began in 1959 by the Toronto Port Authority, the intention was to create new lands for port related facilities. However, for a variety of reasons port related expansion did not occur and natural succession could progress. As such, the Province of Ontario awarded Toronto and Region Conservation Authority (TRCA) the responsibility of creating a Master Plan for a public park. Although construction of the landform continues to the present day by the Toronto Port Authority to mitigate shoreline erosion, the final size of the Spit (including the waterlots) is complete at approximately 500 hectares.

Over the years, the Spit evolved into the largest area of natural habitat on the Toronto waterfront, both through natural succession and habitat enhancement projects by the TRCA. A range of vegetation communities, including successional forests, meadows, coastal wetlands and sand dunes, provide diverse habitats for a wide range of species. Several regionally rare plants have earned TTP the designation of an Environmentally Significant Area. The geographical location of the Spit is also significant for migrating wildlife; it is the first/last natural area for wildlife as they migrate across the lake or through Toronto. Additionally, the Spit is within proximity to the Don River valley which provides a corridor of natural vegetation through the city, to larger green spaces, including the Oak Ridges Moraine.

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3 *Ibid.*

### 2.3.1 Vegetation Species

Much of the land area of TTP has, through natural successional processes been colonized by a variety of plant and animal communities since the Spit's construction. Overall, the park represents the largest area of existing natural habitat on the central Toronto waterfront

The dominant vegetation community in the park is meadow, followed by poplar forests, meadow marshes, sand dunes and beach/bar communities. There are, however, smaller vegetation communities as well including thickets, savannahs, swamps and other wetlands. Vegetation communities will continue to change as the park evolves and natural succession progresses.<sup>4</sup>

Hence, building for vegetation is imperative ensuring their deliberate growth using green roof and living-wall systems. Buildings provide firm, rocky substrate, habitat for species that would otherwise be absent. Purpose-built solutions for plants on buildings minimise the potential problems for the building structure while maximising gains for biodiversity.

4 TRCA, *Vegetation Communities of Tommy Thompson Park*, <https://tommythompsonpark.ca/park-species/trees-shrubs/> ed.



Balsam Poplar



Eastern cottonwood



Common Cattail



Blue-Vervain



Red-Osier Dogwood



Sandbar Willow



Trembling aspen



Silky Dogwood



Bulrush



Honeysuckle



Common Reed



Meadow Sweet



Common cattail



White water-lily

2.37 *Vegetation Species in the Baselands - Woodlands, Thickets, Wetlands* Source: <https://sierraclub.bc.ca/ecomap/>

ACCESS

SOME COMMON SPECIES



**MEADOWS**

Open areas, characterized by a mix of grasses and wildflowers with few trees and/or shrubs



- Canada thistle (Cirsium arvense)\**
- Common tansy (Tanacetum vulgare)\**
- Canada goldenrod (Solidago canadensis)*
- Boneset (Eupatorium perfoliatum)*



**FORESTS, WOODLANDS AND THICKETS**

Dominated by trees or shrubs. Forests have more than 60% tree cover; Woodlands have at least 35% but less than 60% tree cover; Thickets have less than 25% tree cover, but more than 25% shrub cover



- Eastern cottonwood (Populus deltoides)*
- Trembling aspen (Populus tremuloides)*
- Balsam poplar (Populus balsamifera)*
- Sandbar willow (Salix exigua)*
- Red-osier dogwood (Cornus stolonifera)*



**BEACHES, SAND BARRENS AND SAND DUNES**

Consist of sand, however at TTP barrens consist of slabs of concrete covered by little or no soil



- Canada bluegrass (Poa compressa)\**
- Sandbar willow (Salix exigua)*
- Eastern cottonwood (Populus deltoides)*
- Common mallow (Malva neglecta)\**
- Lamb's quarters (Chenopodium album)\**



**WETLANDS**

Meadow marshes are seasonally inundated with water and are usually situated at the wetland-terrestrial boundary therefore may have a mixture of both terrestrial and wetland plants.



- Common cattail (Typha latifolia)*
- Common reed (Phragmites australis)\**
- Willow species (Salix sp.)*
- Red-osier dogwood (Cornus stolonifera)*
- White birch (Betula papyrifera)*
- Poplar species (Populus sp.)*



**AQUATIC**

Submerged and/or floating vegetation communities.



- Northern water milfoil (Myriophyllum sibiricum)*
- Coontail (Ceratophyllum demersum)*
- White water-lily (Nymphaea lotus)*

\* indicates non-native species



### 2.3.2 Bird Species

The park is one of the best places in the city to view birds being home to hundreds of species. There are reported sightings of 290 species of birds on the spit with 40 of them breeding here. The Double Crested Cormorant first arrived in the park in 1990. As reported by ‘The Star’ in May 2009 that the cormorant colony had reached 30,000 birds and that they were stripping trees to build their nests.<sup>5</sup> Hence, it is important to consider the presence of birds and the design of buildings should least affect their habitat, allowing nesting spaces. Therefore, choosing the clear barren land for construction as much as possible.

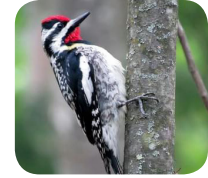
5 Leslie Street Spit, <https://hikingthegta.com/2016/04/20/leslie-street-spit/> ed., Vol. 2018, 2016).



2.39 Double Crested Cormorant. Source: <https://hikingthegta.com/2016/04/20/leslie-street-spit/>



Common Tern



Downy Woodpecker



American Robin



Eastern Kingbird



Barn Swallow



Killdeer



Red-headed Woodpecker



Tree Swallow



Ring-billed Gull



Tree Swallow

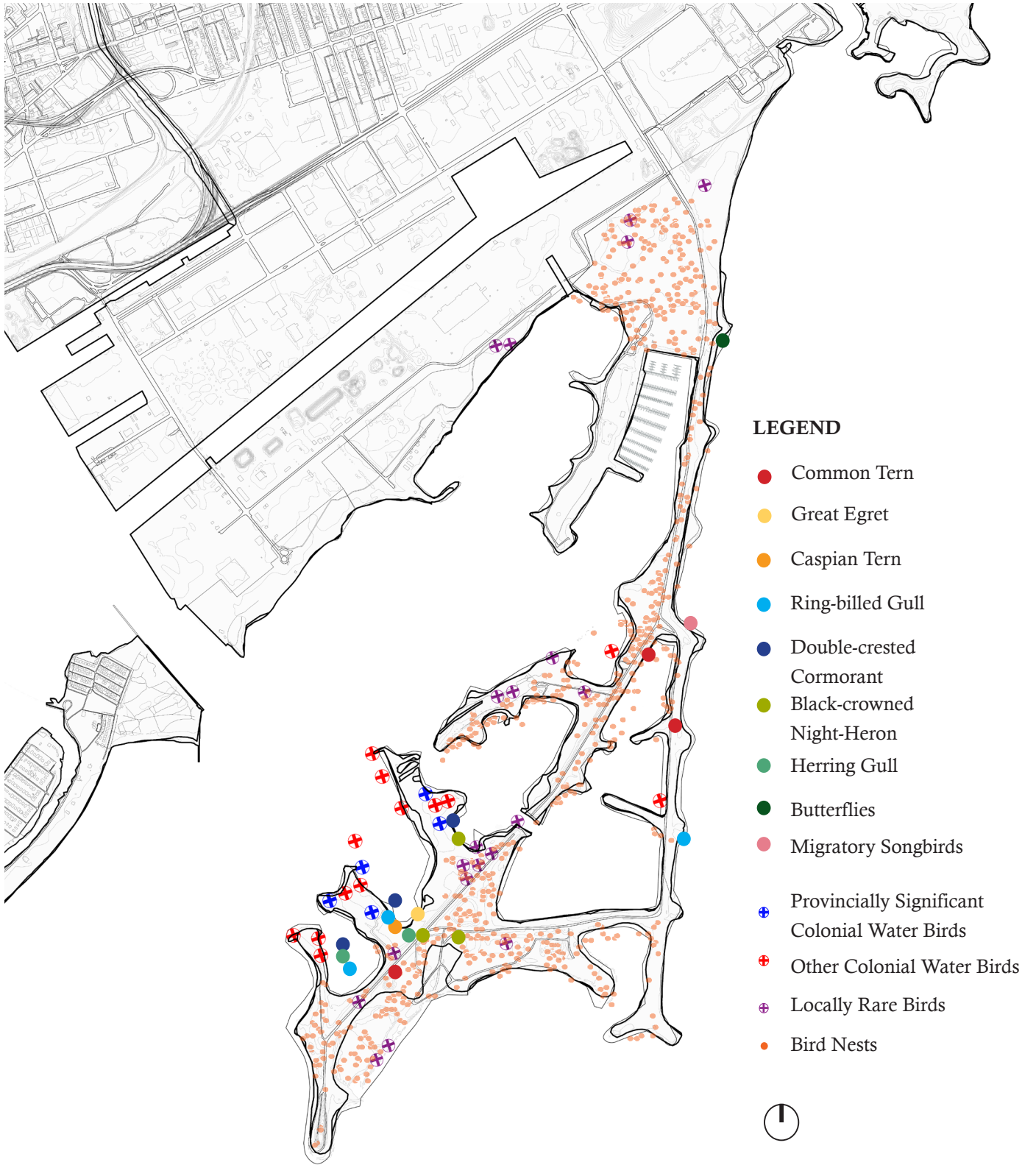


Spotted Sandpiper



Herring gull

2.38 Bird Species in the Baselands. Source <https://sierraclub.bc.ca/ecomap/>



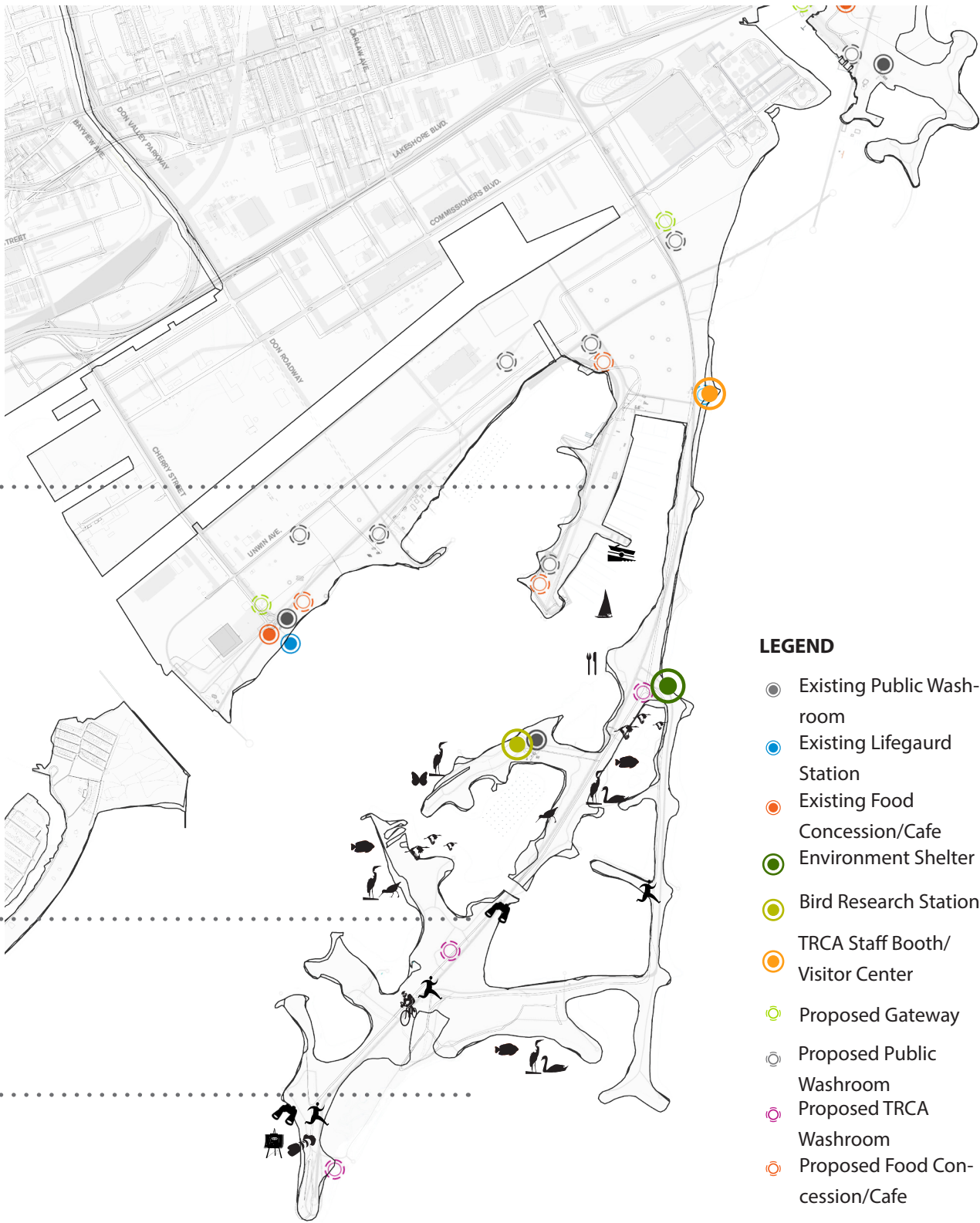
**2.40** Mapping of Bird Species found at the Leslie Street Spit. Source: <http://www.beachesliving.ca/pages/index.php?act=landmark&id=2>. TRCA with additions by North-South Environmental Inc.

### 02.2.2 Cultural

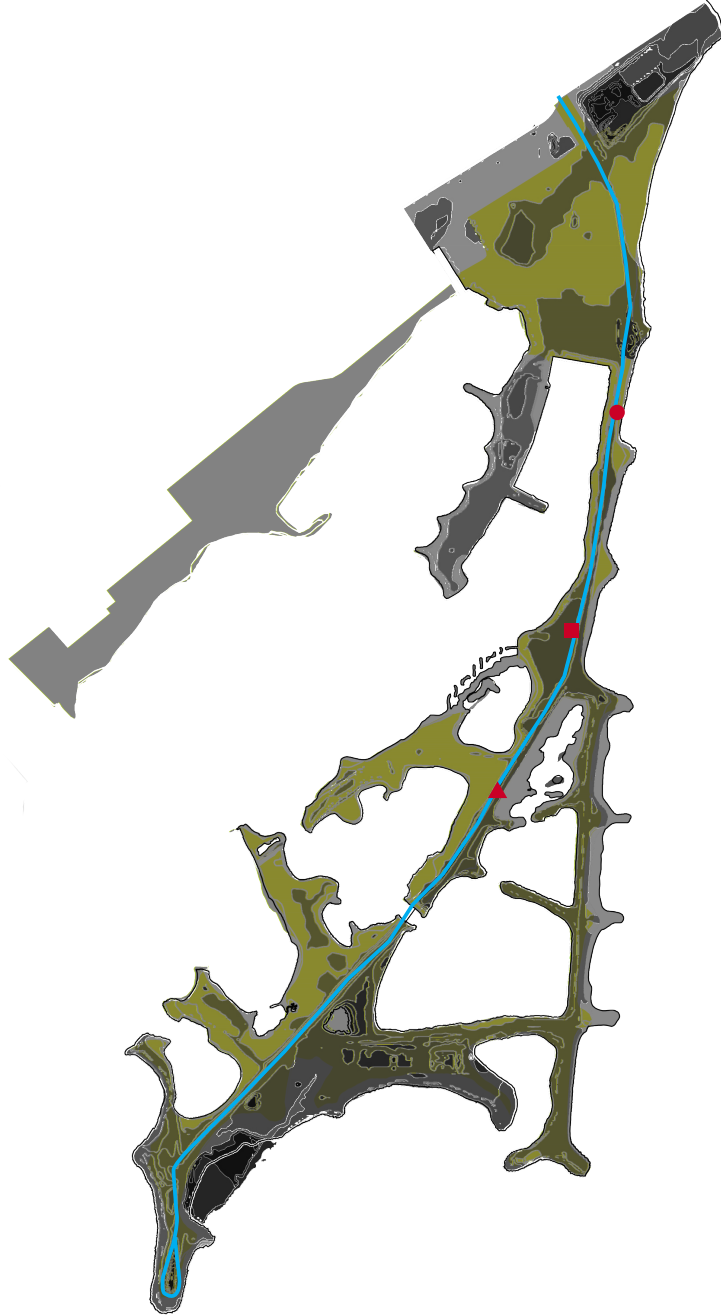
Infrastructure existing at the Tommy Thompson Park consist of a visitor center, outdoor classroom and a bird research station. “The Environmental Shelter offers respite from the elements to visitors. Nested within a hill it provides panoramic views from an accessible green roof and sheltered views from the covered outdoor classroom below. A long semicircular bench accommodates an entire classroom. The Bird Banding Station was designed for transportability and flexibility. Two dismantlable modules can be easily transported to follow the best location to set up the mist nests that trap the birds”<sup>6</sup>

6 Montgomery Sisam, *Tommy Thompson Park Infrastructure*, <http://www.montgomerysisam.com/projects/tommy-thompson-park-infrastructure> ed.



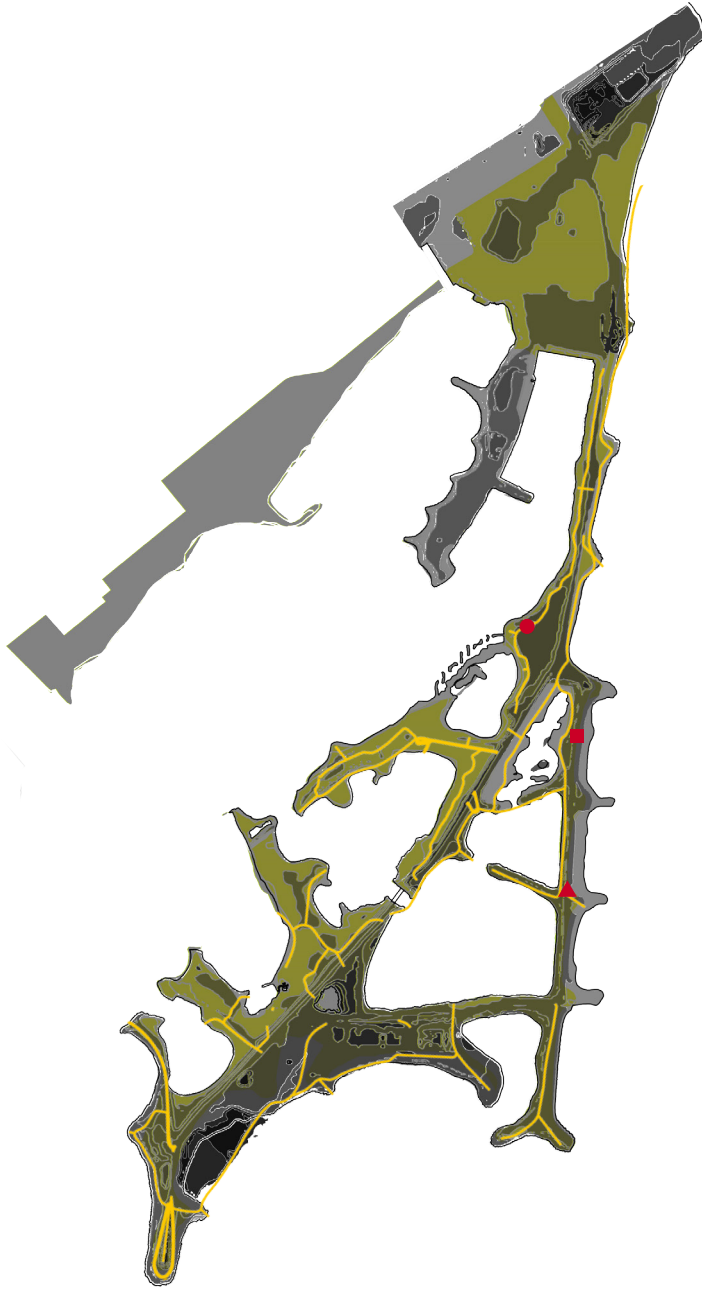


2.41 Activity Map of the Leslie Street Spit. Source: Lake Ontario Park Plan. Waterfront Toronto



— Multi-purposeTrail

Currently there is one transect that cuts-through the center of the spit that is multi-use trail mainly for bicycle and pedestrian access. Private vehicles are not allowed here except a TRCA shuttle van for staff to manage the area. The pedestrian trails are along the shoreline and around wetlands for bird watching.



— Pedestrian Trail



The Leslie Street Spit is an intersection between many different territorial and jurisdictional boundaries. The name Leslie Street Spit is used to describe the physical landscape south of Unwin Street. Initially identified as the Outer Harbour Eastern Headland, the Leslie Spit is now known as Tommy Thompson Park. The current



urban designation accounts for most of the Leslie Spit apart from the area known as the Baselands. The park itself is divided into two areas. One is managed by the Toronto and Region Conservation Authority (former the Metropolitan Toronto and Region Conservation Authority) while the other is leased to the Toronto Port Authority (formerly the Toronto Harbour

**2.42** *Environmental Designations. Source: TRCA & City of Toronto*

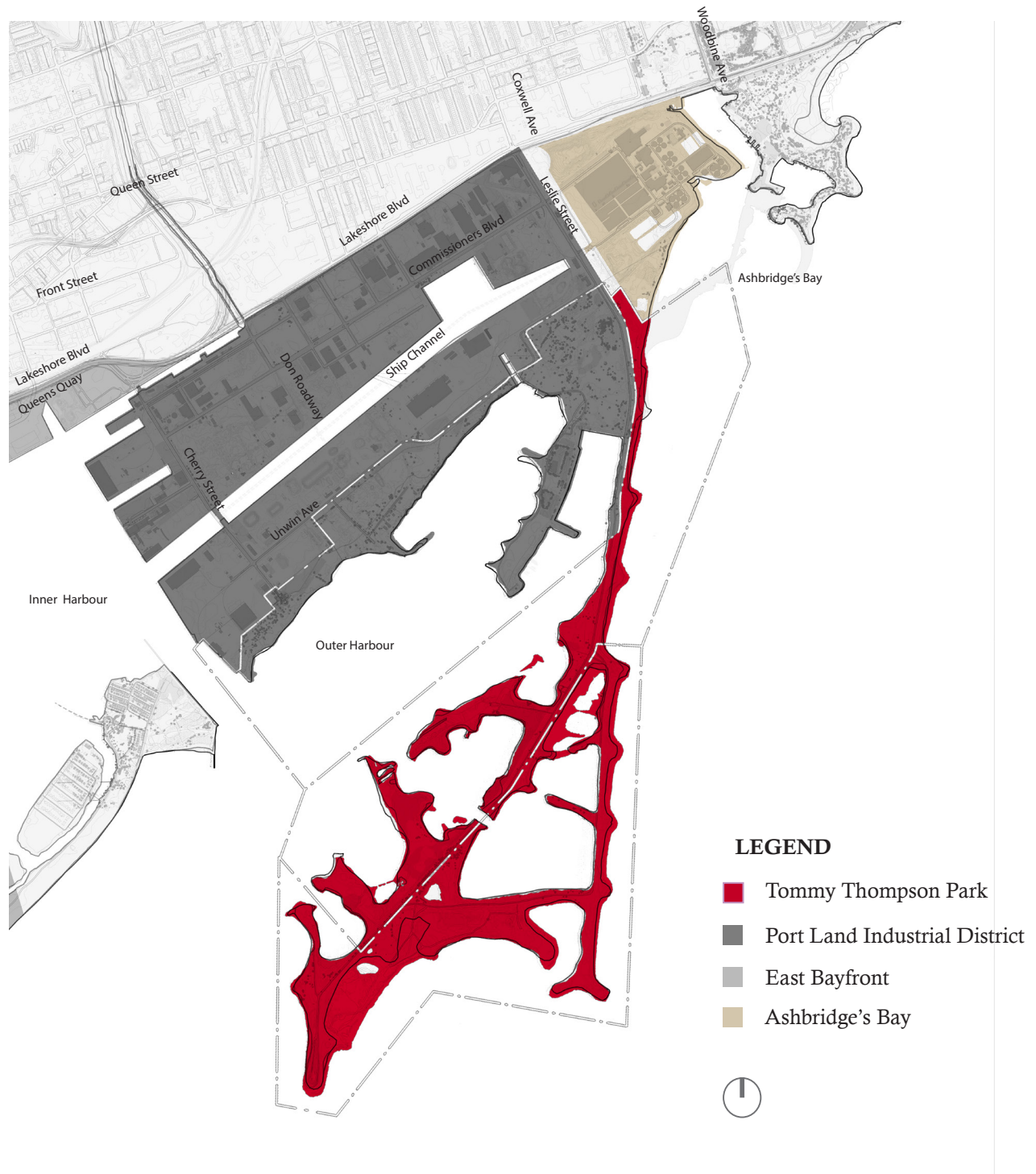


2.43 Land Ownership. Source: TRCA & City of Toronto

Commissioners). The entire headland is owned by the Ontario Ministry of Natural resources.

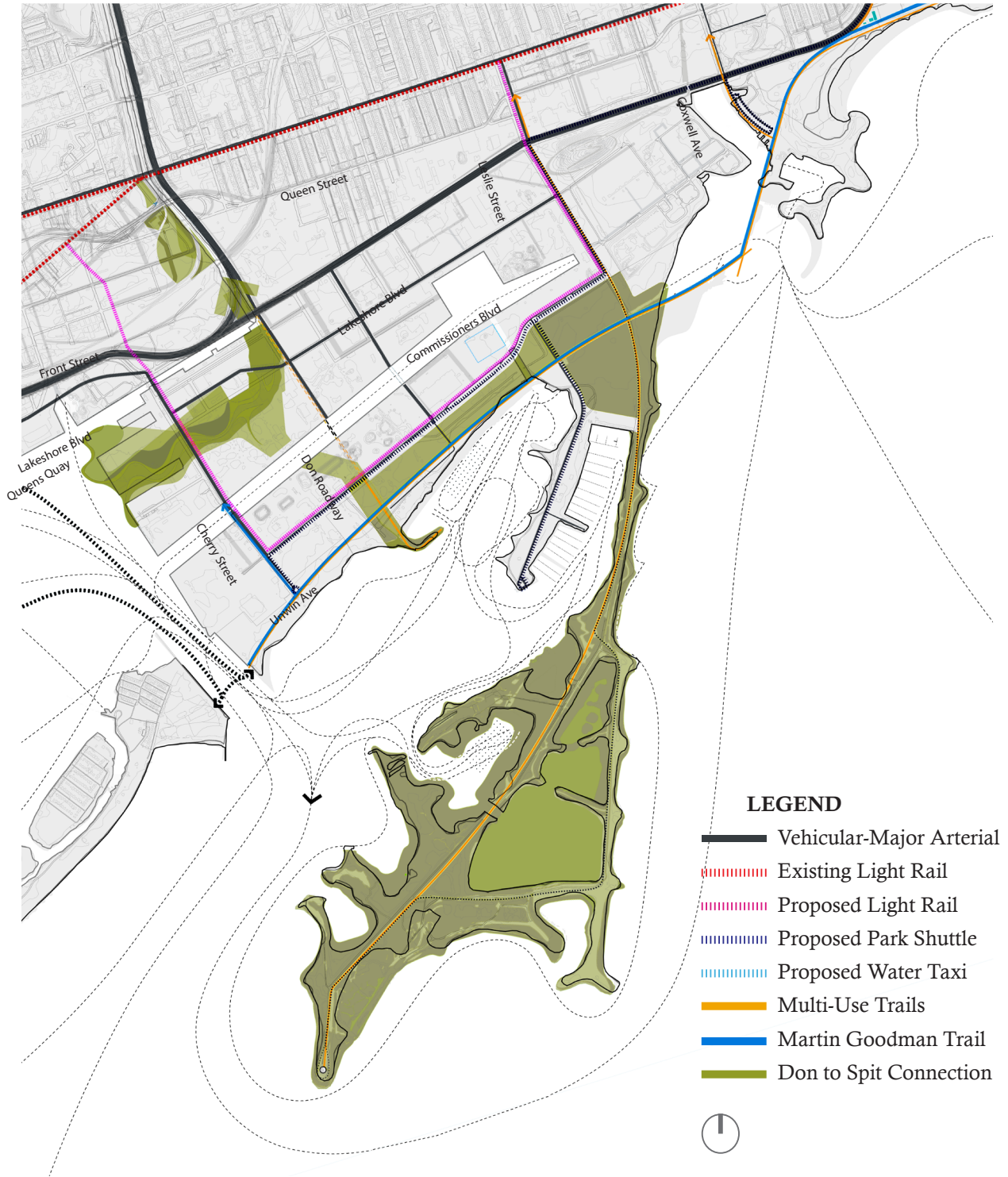
The Leslie Spit is divided into three areas: the Baselands, the Tommy Thompson Park and the Endikement. The Baselands is west of Spine Road near Unwin Avenue. This area is separated into three properties that are owned





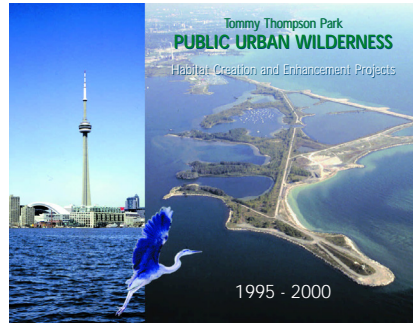
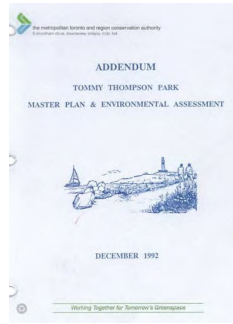
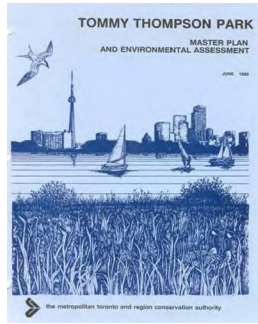
separately by the Toronto Port Lands Company, the city, and the Toronto Port Authority. The 247 hectares of water and land of Tommy Thompson Park is owned by the Toronto Region Conservation Authority

2.44 Jurisdictional Boundaries. Source: TRCA & City of Toronto



2.45 City Connections. Source: City of Toronto  
Lake Ontario Park plan.

# Interventions and proposals Timeline



1989

1992

1995-2000

2006

**Tommy Thompson Park Master Plan**

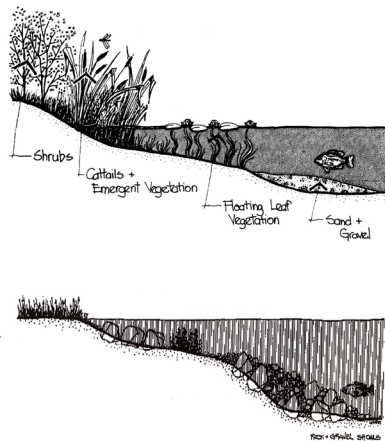
- Preserve significant species
- Protect environmentally significant areas
- Enhance aquatic and terrestrial habitat
- Enhance public recreational opportunities

**Tommy Thompson Park Master Plan Addendum**

**Habitat Creation and Enhancement Projects**

- Habitat Enhancement and preservation projects added

**Baselands Trails Master Plan**





2008

- Promote a bold, flexible and resilient landscape framework.
- Create a vibrant lakefront of distinctive activities and unique water-oriented programming.
- Build a connective system



2013

Completion of Park Infrastructure

- Set of three buildings by Montgomery Sisam Architects as part of the Lake Ontario Park Master Plan



2017

TTP Park Entrance Development Project

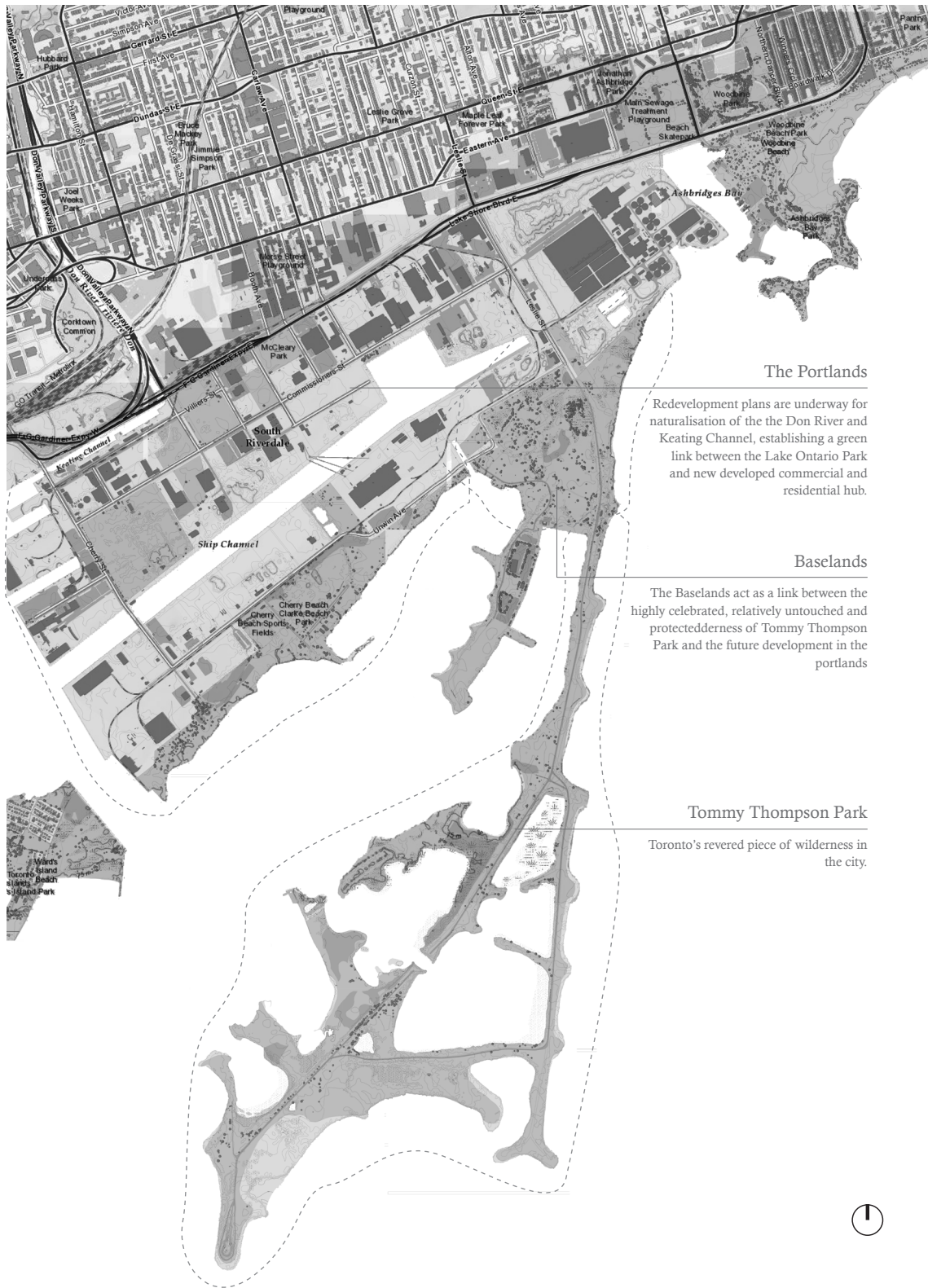
- Tommy Thompson Park Entrance Development Project
- A serviced park entrance, parking, accommodation for bus turnaround, and;
- A serviced public pavilion / outdoor interpretive arwa

Lake Ontario Master Plan





## 03 DESIGN PROPOSAL



### The Portlands

Redevelopment plans are underway for naturalisation of the the Don River and Keating Channel, establishing a green link between the Lake Ontario Park and new developed commercial and residential hub.

### Baselands

The Baselands act as a link between the highly celebrated, relatively untouched and protectedness of Tommy Thompson Park and the future development in the portlands

### Tommy Thompson Park

Toronto's revered piece of wilderness in the city.



**3.47** *Topographic Map of the Leslie Street Spit and context. Source: <https://mapmaker.nationalgeographic.org/>*

### 3.1 Existing Conditions and Proposals

The selected site is part of the proposal for Lake Ontario Park Plan that “assembles a series of lakeshore sites into one magnificent ensemble.”<sup>1</sup> Master Plan is imagined as a flexible organizational tool that will guide all future planning at Lake Ontario Park and support six primary goals:<sup>2</sup>

- Promote a bold, flexible and resilient landscape framework.
- Create a vibrant lakefront of distinctive activities and unique water-oriented programming
- Build a connective system to unify the large park.

1 field operations + schollen and company, *Lake Ontario Park Master Plan* (Toronto: WaterfrontToronto, 2008).

2 Ibid.

3.48 Concept and extent of Lake Ontario Park MasterPlan by Field Operations and Schollen & Company Source: WATERFRONTToronto







**3.49** *Local ranks for vegetation communities*  
 Source: TRCA Baselands Trails Master Plan Public Meeting, 2015

- L4**  
*Generally secure in the rural matrix; of conservation concern in the urban matrix.*
- L3**  
*Of regional concern; restricted occurrence and/or requires specific site conditions; generally occurs in natural rather than cultural areas.*
- L2**  
*Of regional concern; typically occurs in high quality natural areas and under highly specific site conditions; probably at risk in the Toronto area.*

- Cultivate a rich mosaic of terrestrial and aquatic life that becomes the center of a continuous regional greenway.
- Create a realistic and sustainable landscape.
- Preserve and amplify the remarkably unique settings.

Strategies for new planning are based by carefully considering the existing planning guidelines for the baselands.

### 3.1.1 Ecological Land Classification

The ‘Baselands trail masterplan’ public meeting in 2015, established that a strategy is needed to enhance the trails as they were unplanned, unsustainable and

3.50 Projection of strategies retained for Education Center proposal

- Waterway
- Marsh
- Thicket
- Grassland
- Successional Scrub
- Mixed Woodland
- Existing Woodland



3.51 Intervention at the Baselands. Source: WATERFRONToronto field operations + schollen & company, Lake ontario park Master Plan 2008

ad-hoc; in excess with multiple, unnecessary parallel paths, had poor user experience, etc. The concepts applied to the new development of the Education Center in the baselands conforms to this strategy and respects the existing vegetation species.

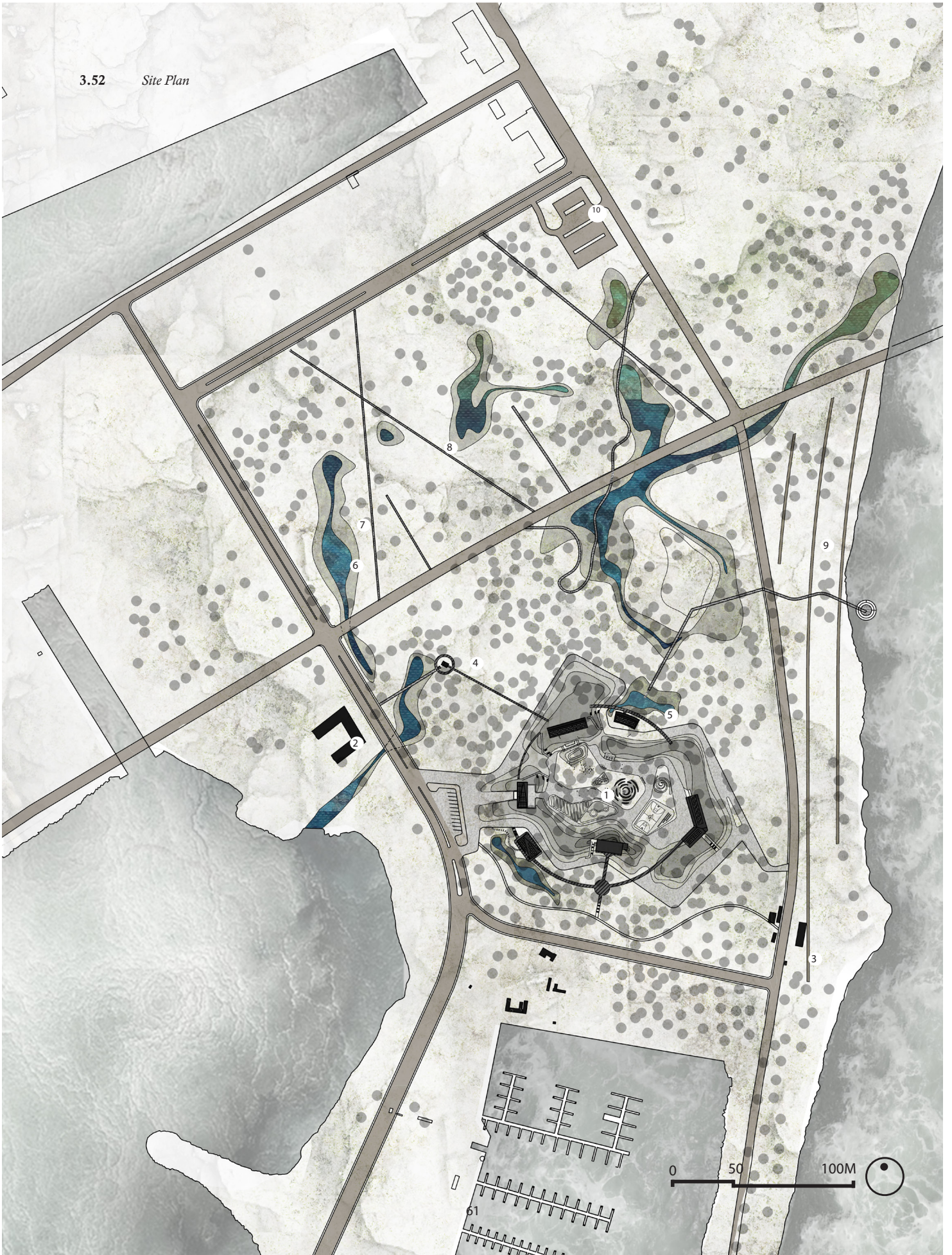
### 3.1.2 Lake Ontario Park Master Plan

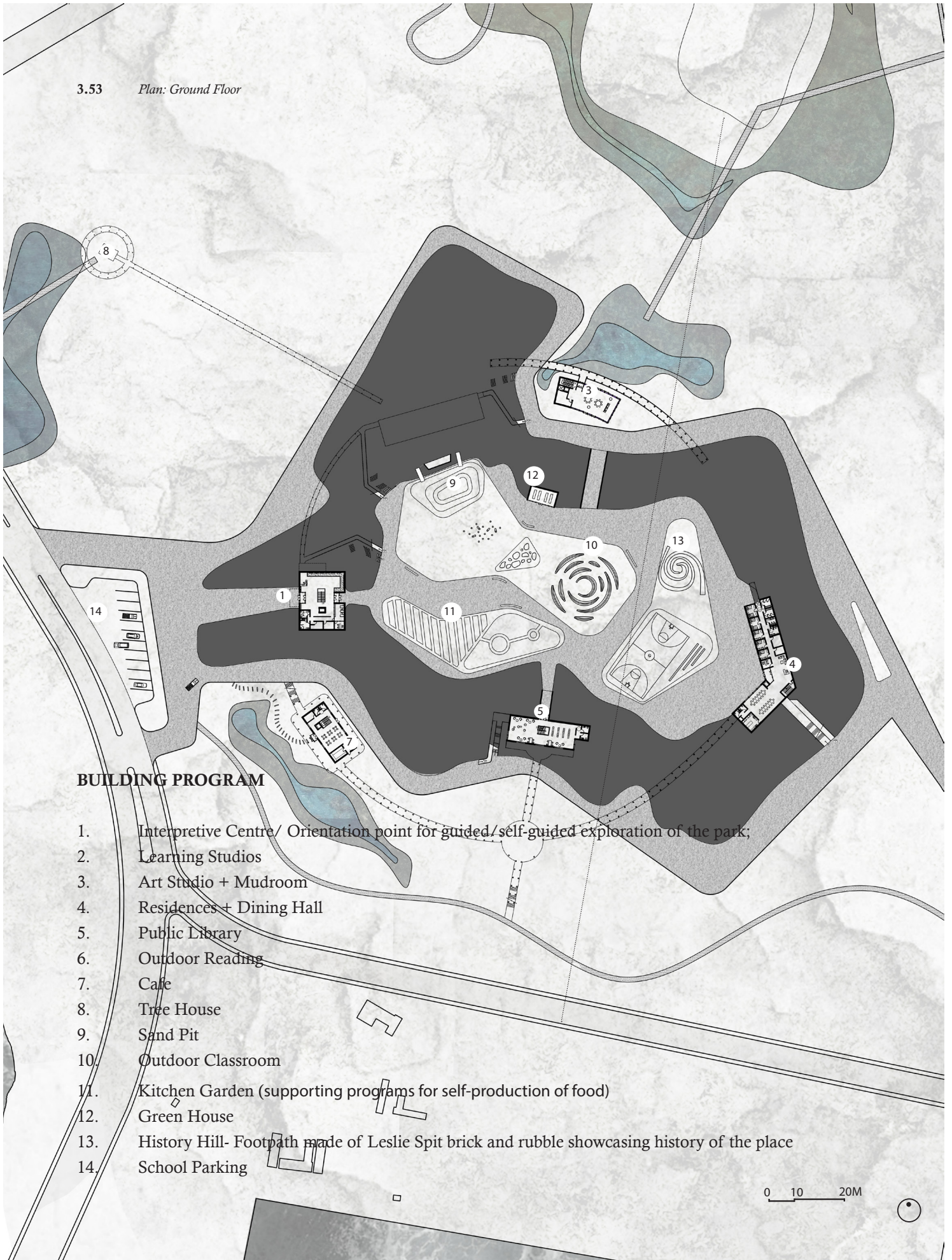
Plan shows part of the strategies by Field Operations in their 2008 Lake Ontario Park Master Plan. Imagined with Canadian water portages and canoe routes, marsh, thicket, wetlands, shrubs, mixed woodland. Some of these strategies are retained for the development of the Education center which are overlaid with the new program.

## EDUCATION CENTRE

### SITE PROGRAM

- Education Centre
- Proposed Adventure Centre (*Lake Ontario Park Master Plan 2008*)
  - Bike Rental;*
  - Canoe/kayak rentals and instruction, with a focus on boating safety and etiquette;*
  - Canoe/kayak public storage and launching;*
  - 1 *Referral to boat clubs for sailing, rowing, windsurfing instruction;*
  - 2 *Fishing piers;*
  - Equipment Rental;*
  - Multi-purpose community rooms and meeting spaces;*
- 3 Existing Visitor Center (*Montgomery Sisam Architects, 2013 as part of Lake Ontario Park Masterplan*)
  - Staff to interact with park visitors and monitor their activities*
  - Place to wait for TRCA's shuttle van.*
- 4 Tree House
- 5 Overhead Walkway; second level connections in Education Centre
- 6 Waterway Portage
- 7 Marsh
- 8 Ground level Pathway Trails for pedestrians
- 9 Ridge and Trough Forest
- 10 Parking





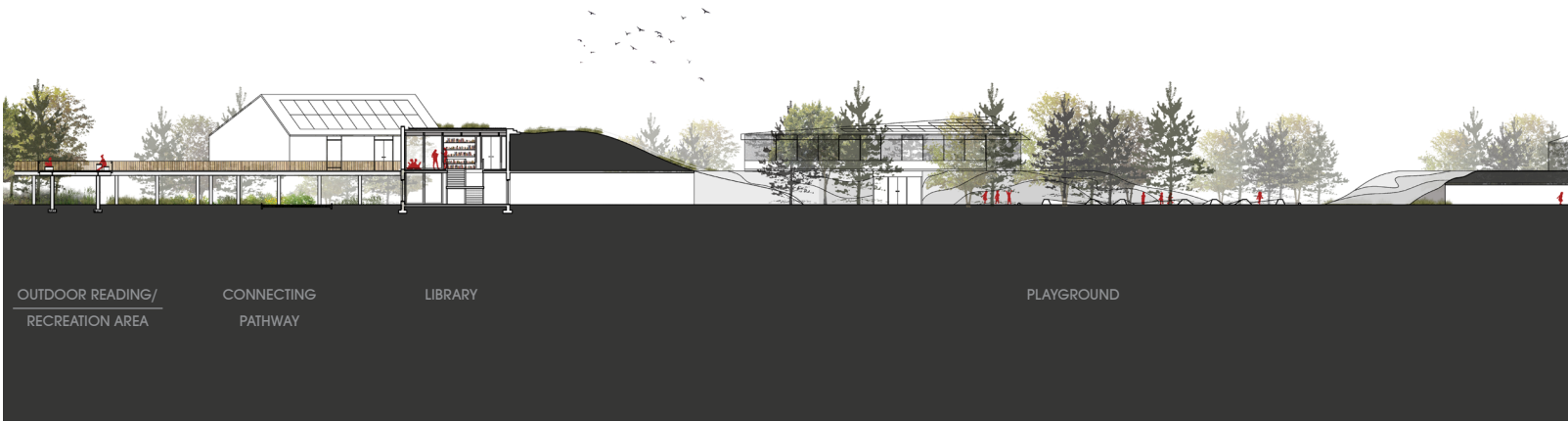
**BUILDING PROGRAM**

1. Interpretive Centre/ Orientation point for guided/ self-guided exploration of the park;
2. Learning Studios
3. Art Studio + Mudroom
4. Residences + Dining Hall
5. Public Library
6. Outdoor Reading
7. Cafe
8. Tree House
9. Sand Pit
10. Outdoor Classroom
11. Kitchen Garden (supporting programs for self-production of food)
12. Green House
13. History Hill- Footpath made of Leslie Spit brick and rubble showcasing history of the place
14. School Parking

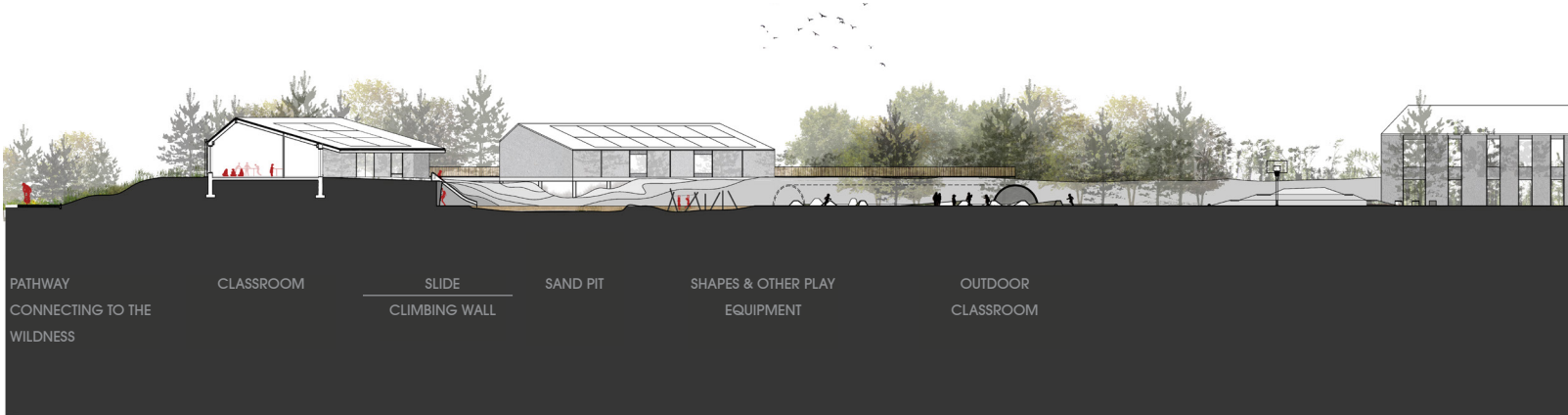
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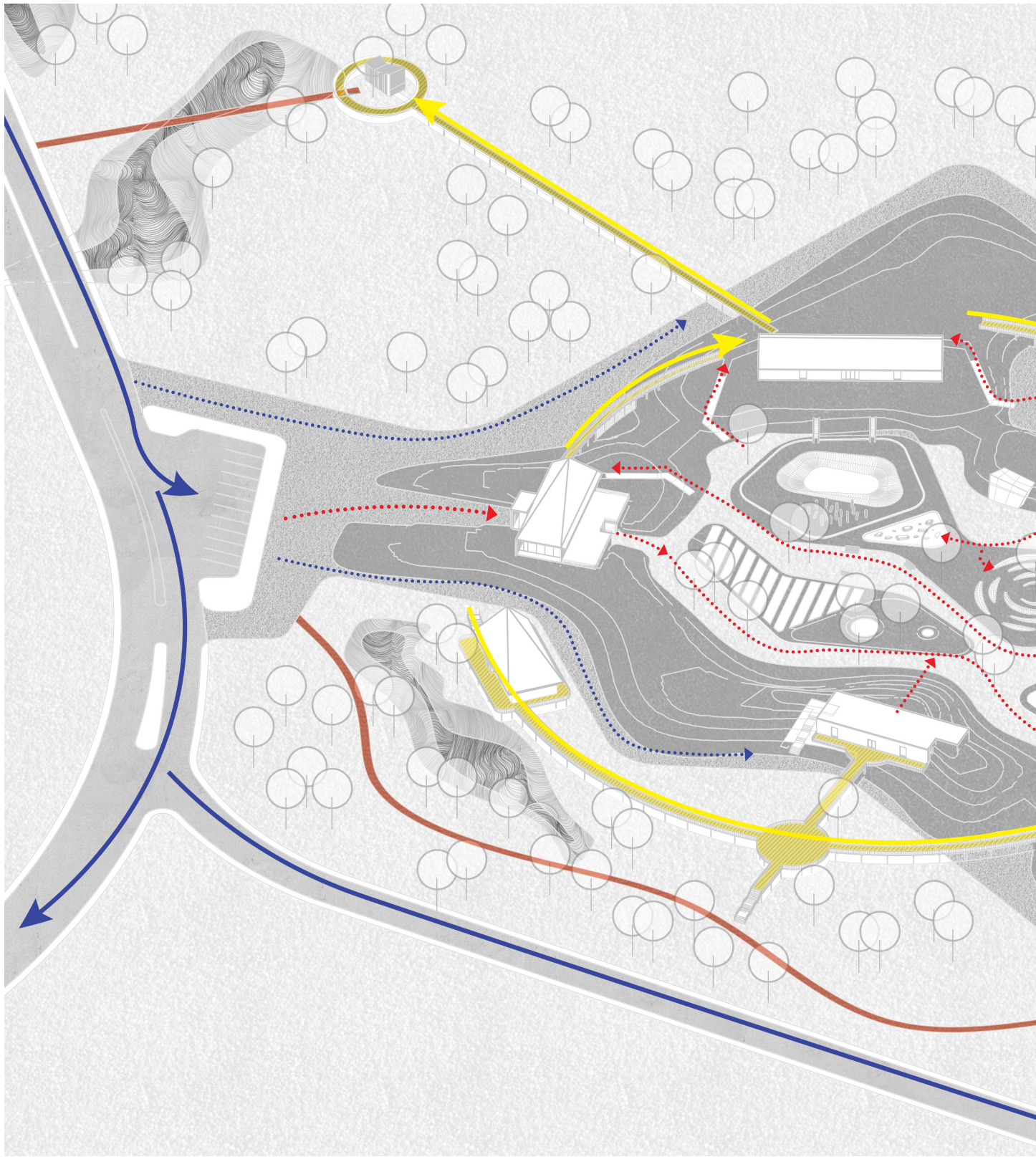
3.55 SECTION A



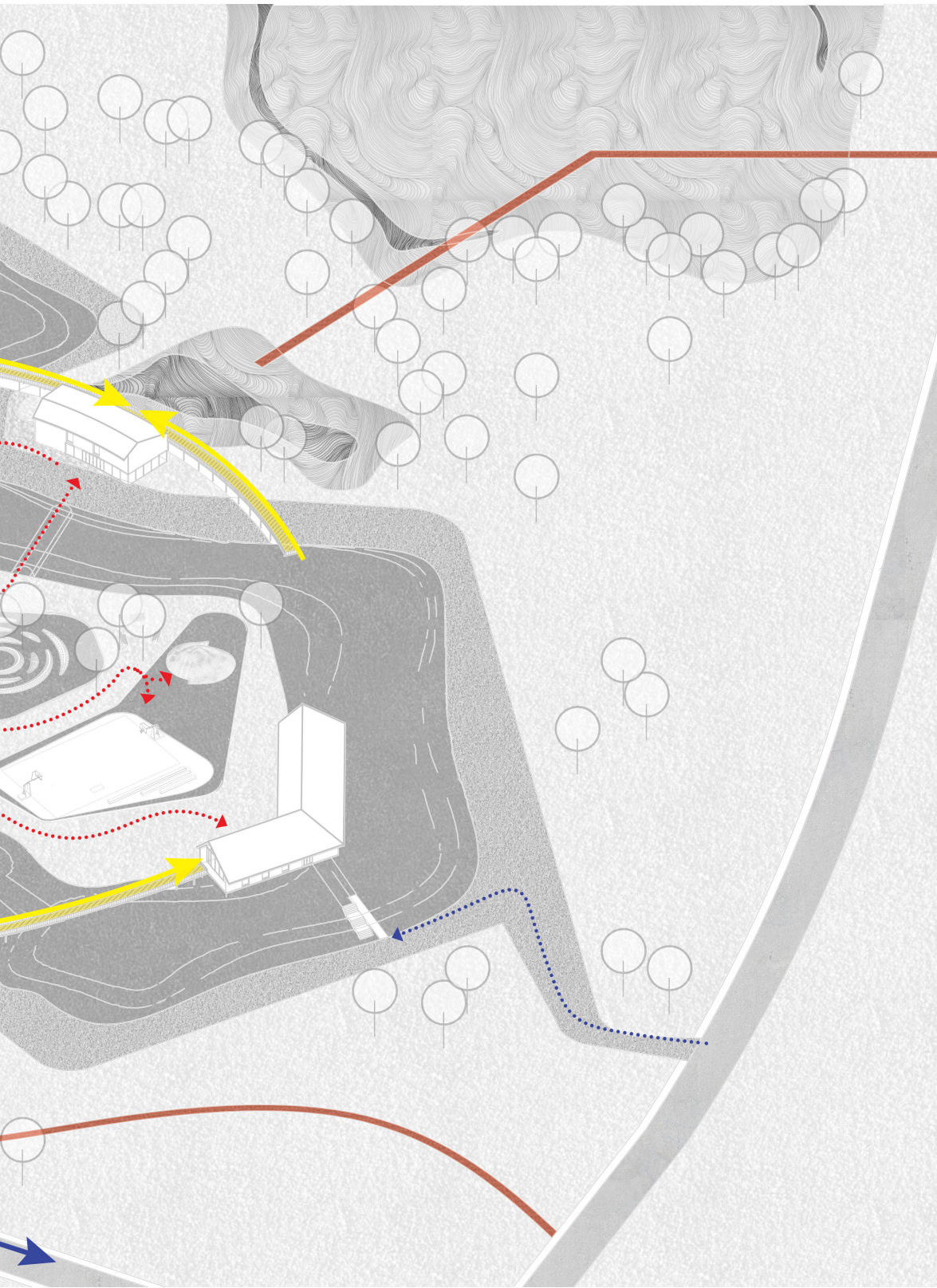
3.56 SECTION B








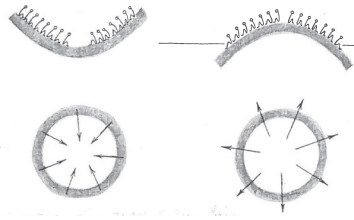




3.57 *Internal Circulation*



-  Elevated Pedestrian
-  Pedestrian Ground Movement
-  Surface Pathway
-  Vehicular Access to Site
-  Vehicular Access within site



3.58 Aldo Van Eyke's twinphenomena

3.59 Site planning concept development

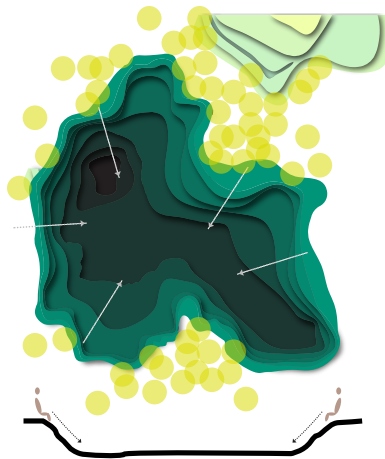


### 3.2 Design Development

In order to retain most environmentally significant plant species existing in the baselands, boundary is carved for the education center around the most vacant part of the site. Since, the site is still constantly receiving debris from local and surrounding areas, it is utilised to create mounds as a symbol of the site's initial creation. The mounds create a sense of play and engagement with the landscape. Having a subtle slope and a average height of 2.5 m , they act as protective playzone for children while being surrounded by wildness.

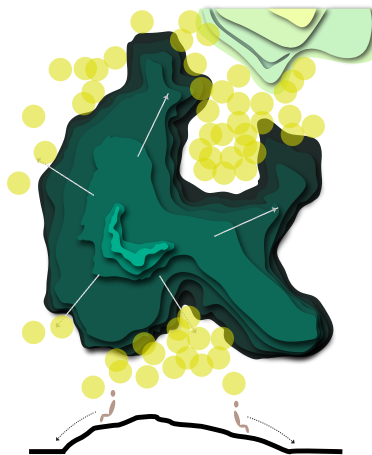
Undulations in the mounds are explored in three different ways:

- (i) Hollow Depression.
- (ii) Hill.
- (iii) Hybrid.



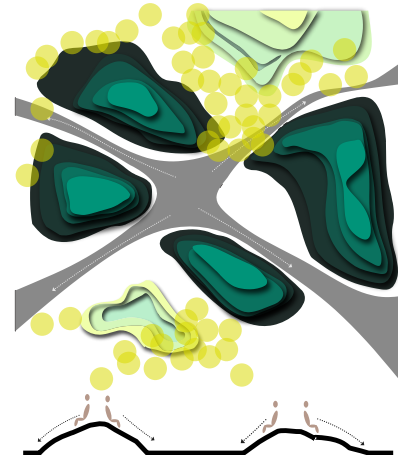
HOLLOW

'Gazing Inwards Towards the Centre'\*



HILL

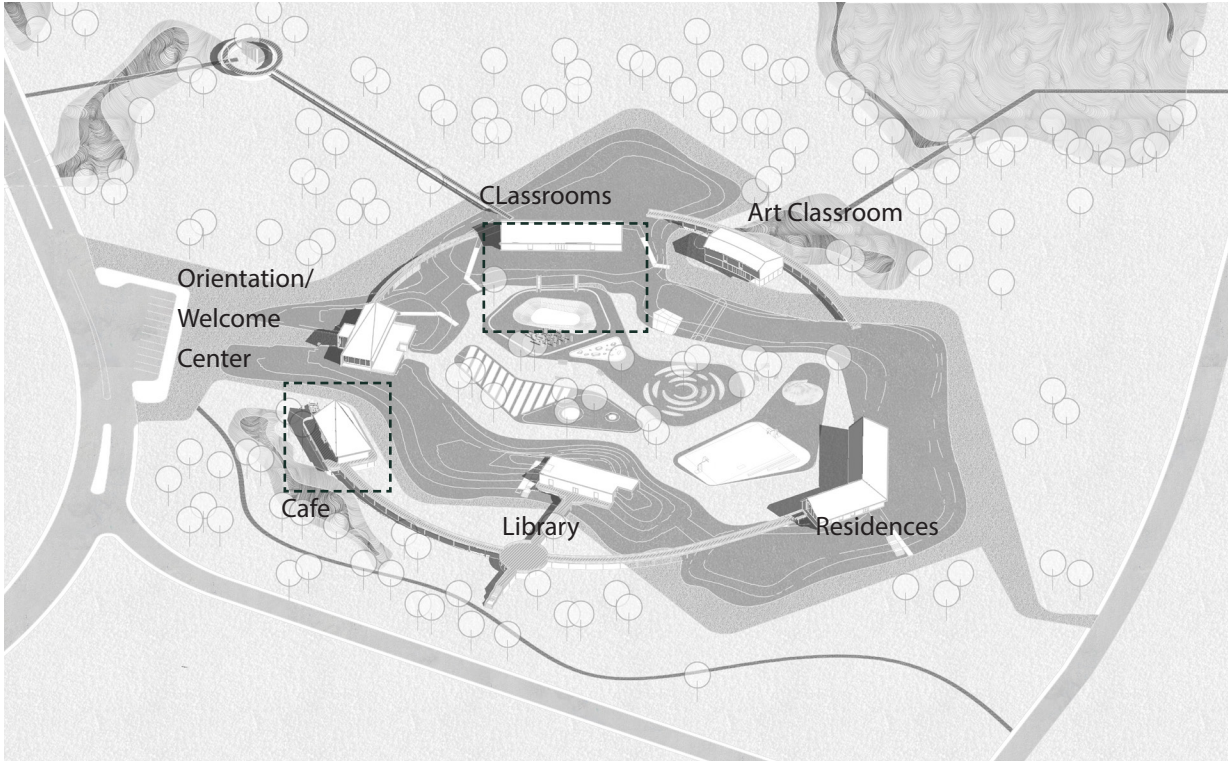
'Gazing Outwards Towards the Horizon'\*



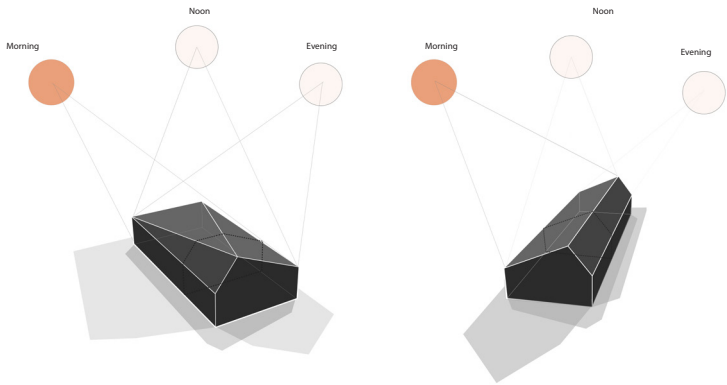
HYBRID

'Simultaneous awareness of what is significant on either side

Man is both Centre-bound and Horizon-bound'\*



3.60 Showing Building Classification and sun angles



Cafe

Two-pitch roof designed for maximum sun exposure to roof top solar panels

Classrooms

Facing south; modified pitch roof to maximise sun exposure



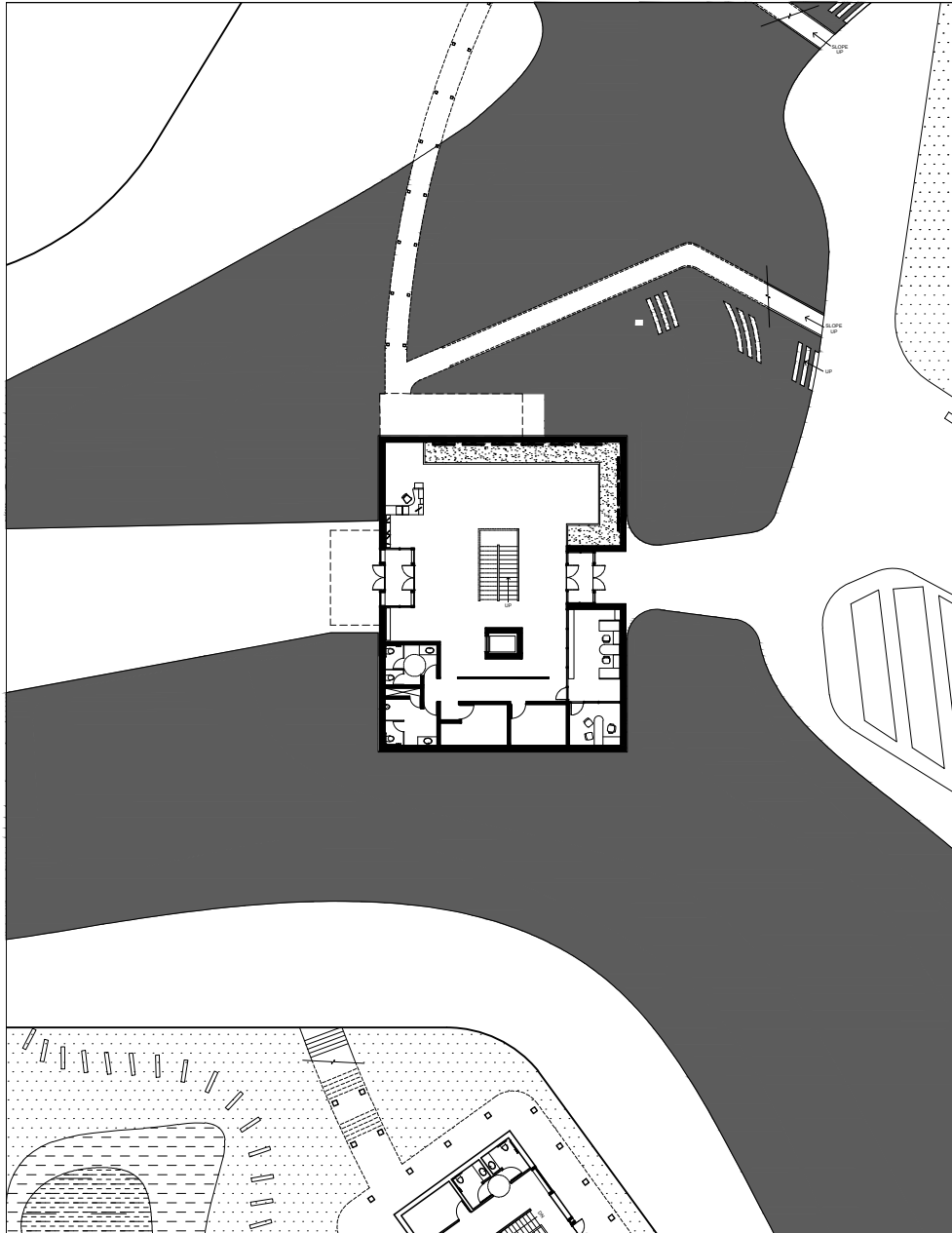
Common Areas/Studio



Green House



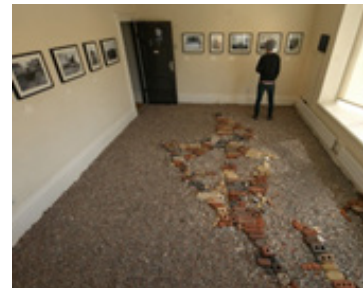
Library



*Part Plan:  
Orientation and  
Visitor Centre*

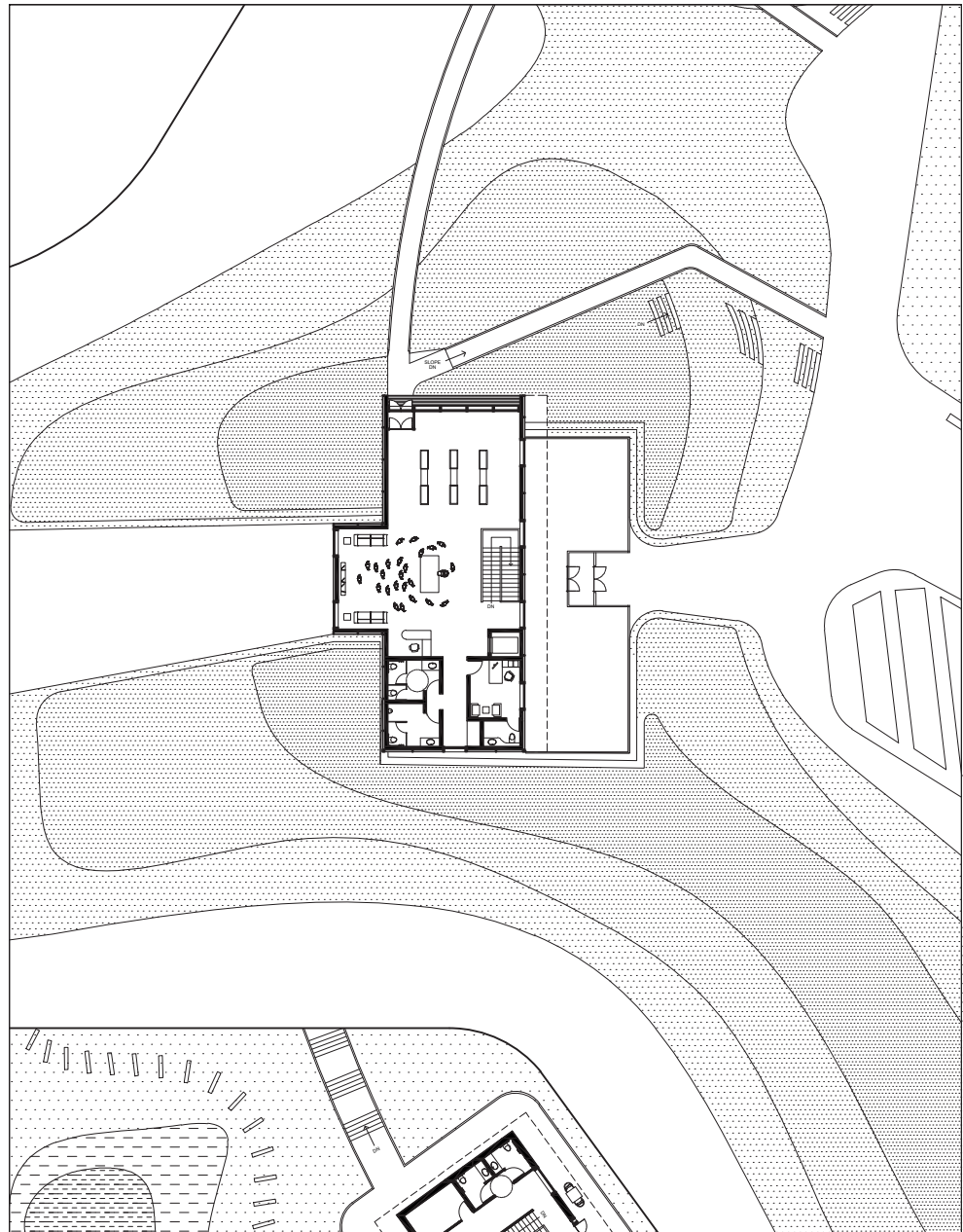
○  
Ground Level

Lower Floor: Visitor Information and Exhibition Gallery. The Gallery showcases history of the Leslie Spit - its construction, constituents and more. Students are able to exit into the Playzone through here.



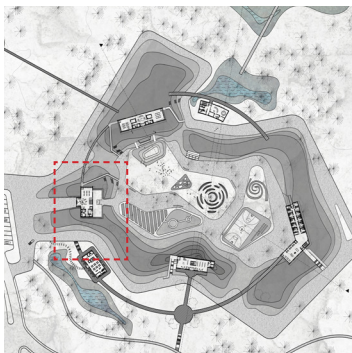
**3.61** *A New Archaeology for the Leslie Street Spit*  
Temporary Art by Ben Watt-Meyer 2015 GLADSTONE  
GROW OP Annual Exhibition of Landscape, Urbanism and  
Contemporary Art, April 23 - 26, 2015

*Part Plan:  
Orientation and  
Visitor Centre*



○  
Level -1

**Key Plan**



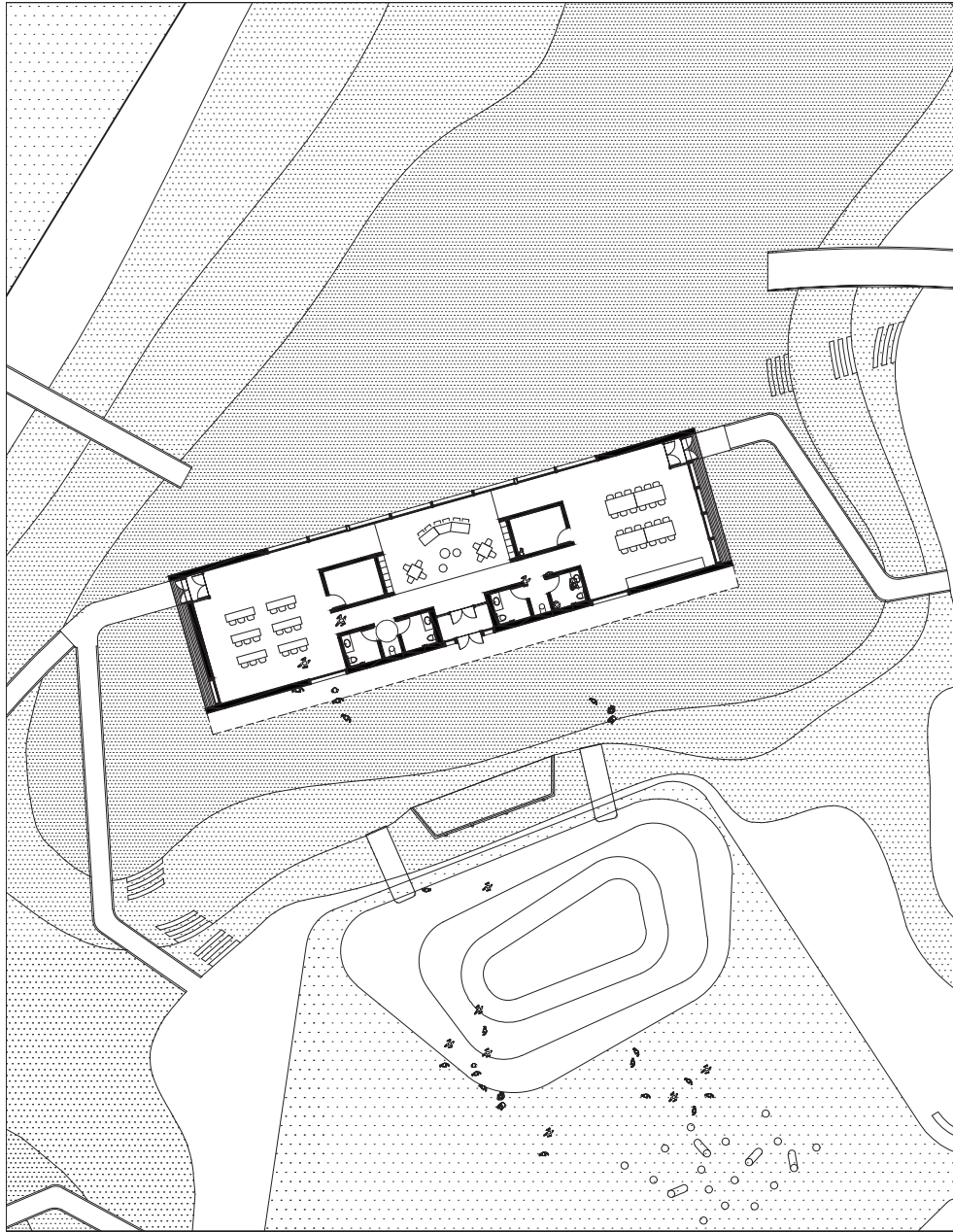
Upper Level: Student Orientation and Gallery. First point of entrance to the Education Center. This level leads students to the classrooms or the playzone.





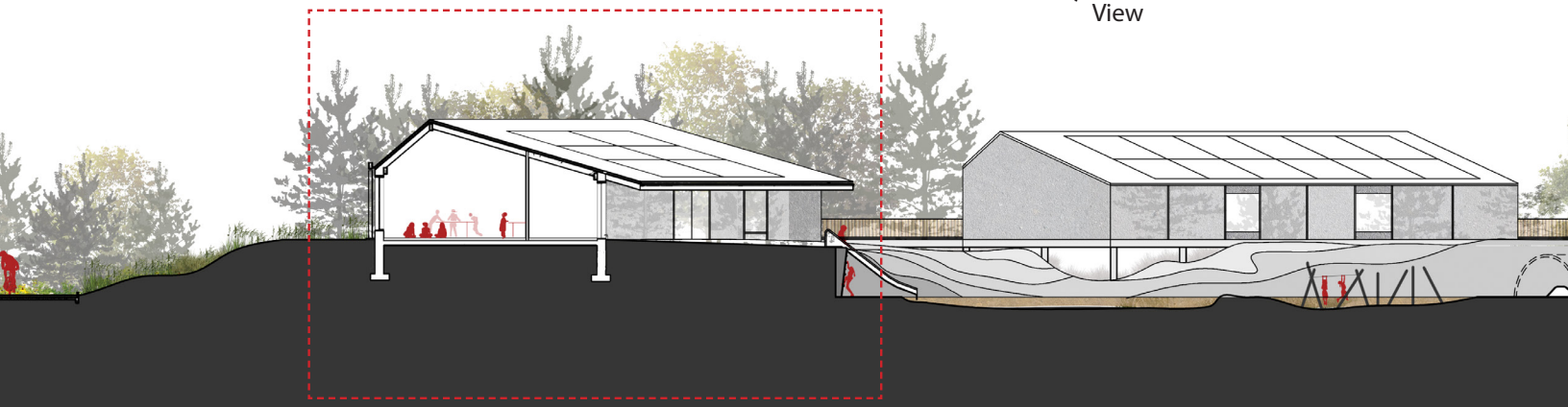


*Part Plan:*  
*Classrooms Building*



Ground Level

View

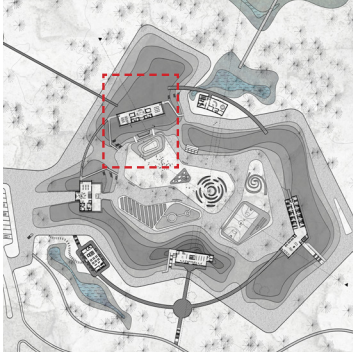


CLASSROOM

SLIDE ON HILL  
CLIMBING WALL

SAND PIT

SHAPES PLAY EQUIP



Key Plan

Classroom building is divided into two large studio rooms and a common children's zone. Plan is maintained as open and without direct segregation through walls as much as possible. The building has direct access to the playground through ramp/steps and via slides/ climbing wall to add an element of interest. It engages children with the landscape which can be accessed in different ways.

- **Classroom K-4 grades (Role Play Activities)**

3-6 yrs.: dynamic/static play equipment, group/social activities; interpersonal relationships [hiding spaces, running field w/ obstacles]

6-8 yrs.: movement & action-based activities, organizational + physical skills [climbing nets; less complex equipment]

- **Classroom (Common for Grades 5-8) (9-13 yrs.)**

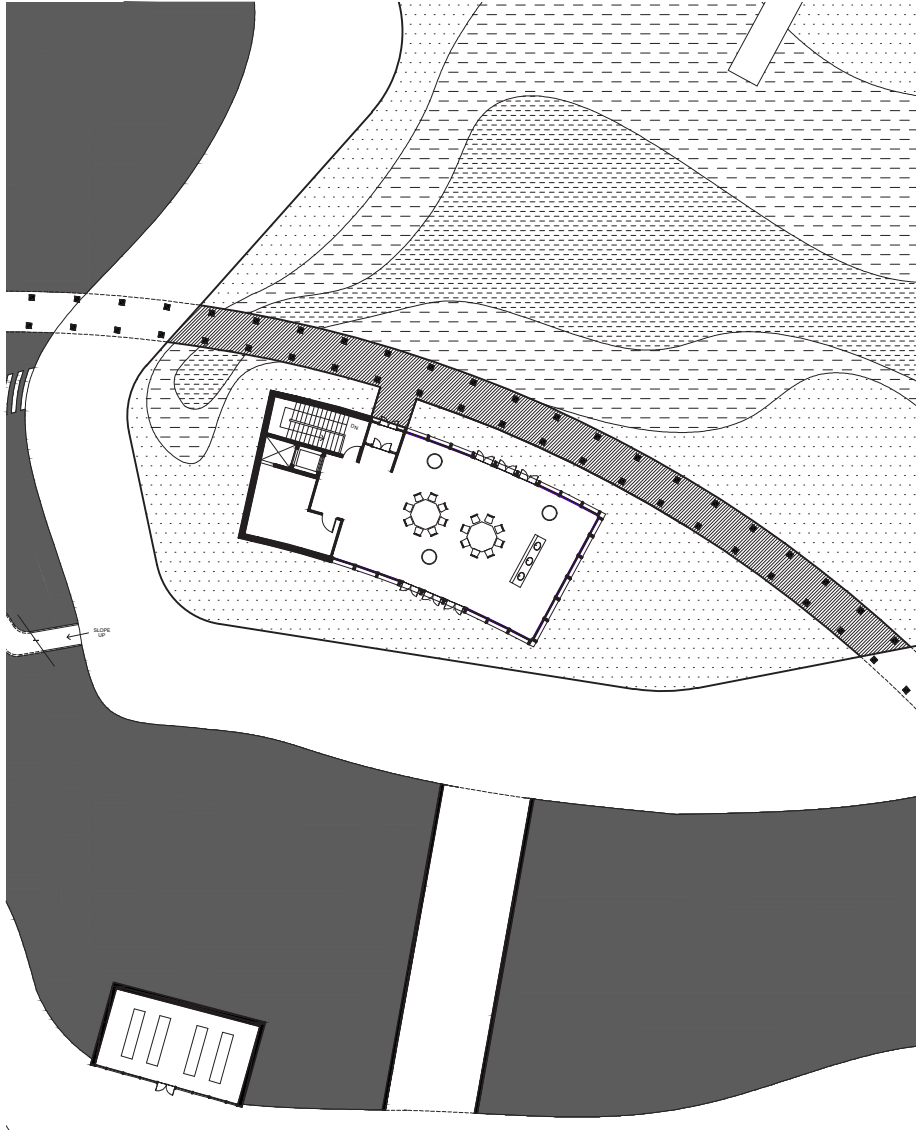
Group activities w/o adult supervision; balance and coordination based complex climbing [high & complex climbing equipment]

Experimental learning of renewable energy technology [Science lab]







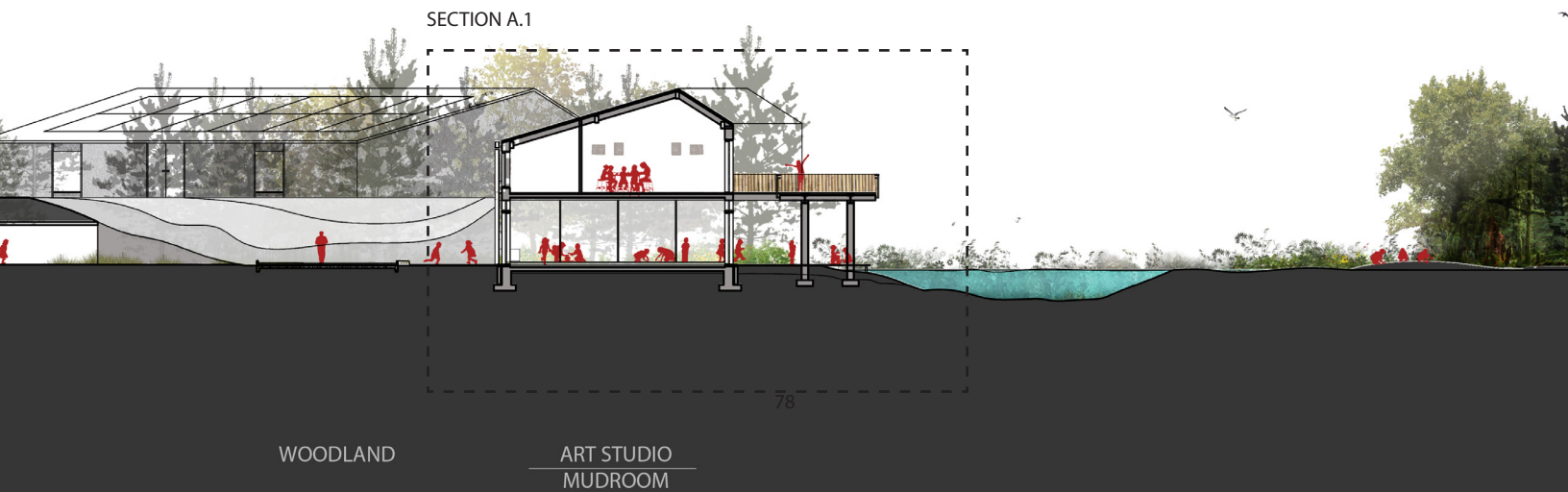


Part Plan:  
Artstudios



Ground Level

Artstudio Lower Floor: An open plan for creative activities with minimum furniture allowing indoor space to be an extension of the outdoor.

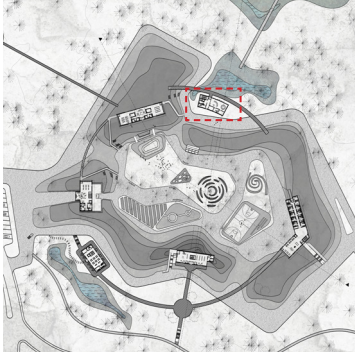


SECTION A.1

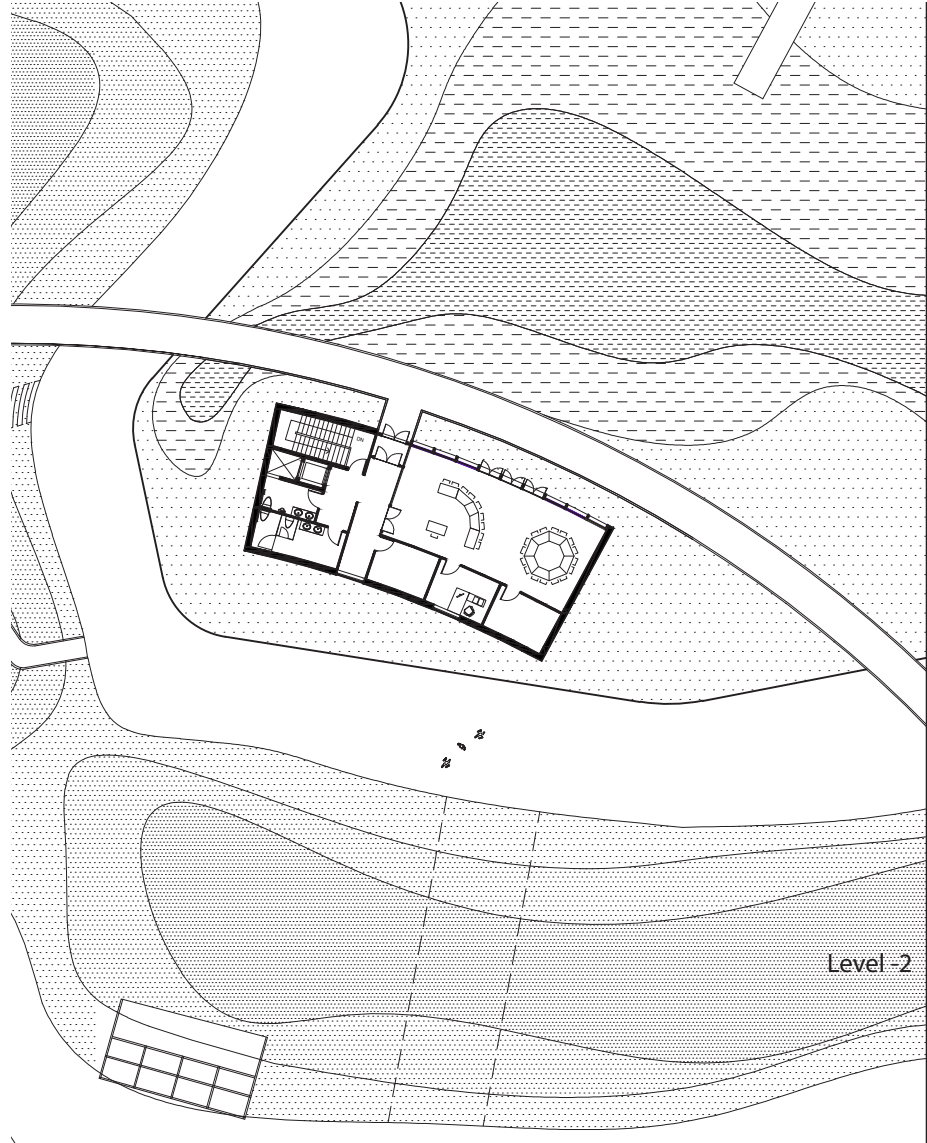
78

WOODLAND

ART STUDIO  
MUDROOM



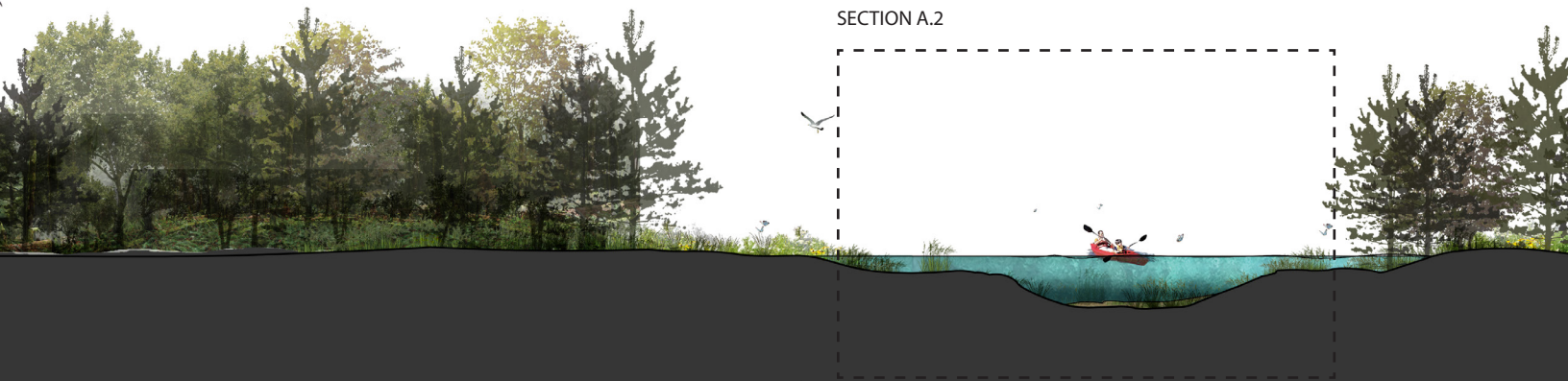
Key Plan



Level -1

ArtStudio Upper Floor: Accessed by the overhead walkway from classroom building leading on to the residences. Providing an elevated view to the waterbody and wildlife.

SECTION A.2







Walkway

Waterbody

Deck for access to play with natural waterbody

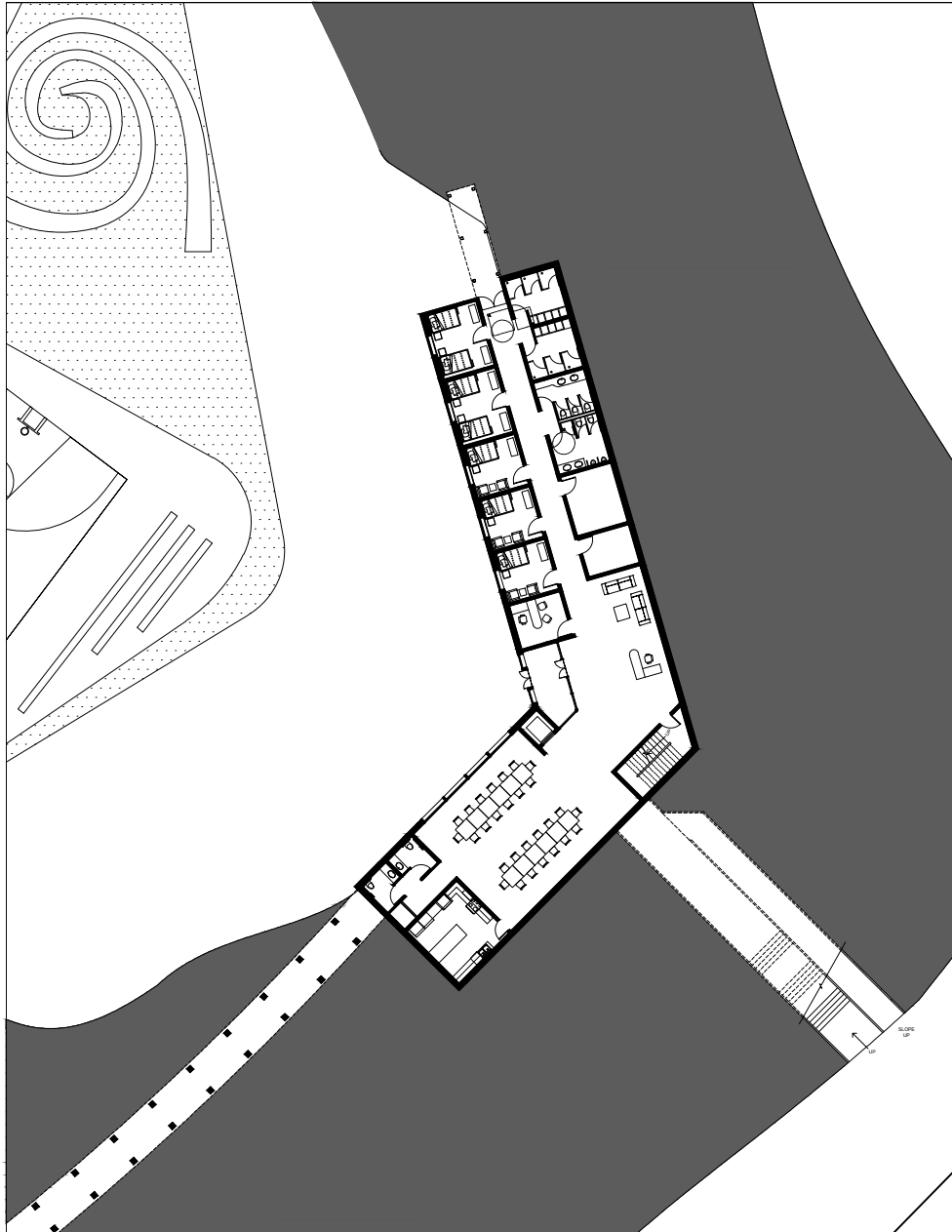




Sand + Gravel

Waterway



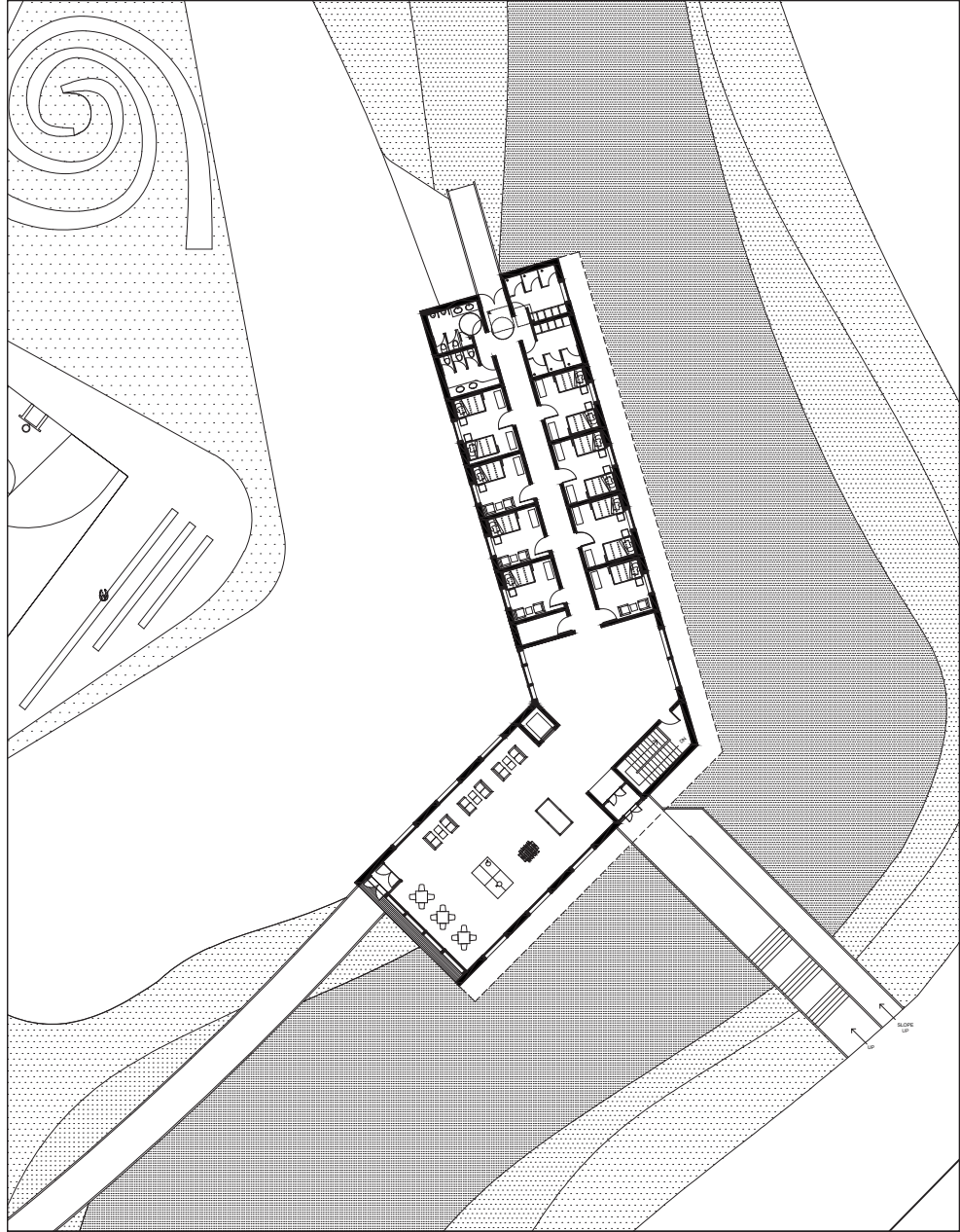


*Part Plan:  
Residences*

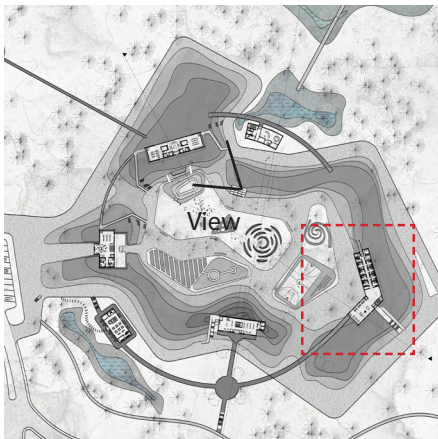


Ground Level

Residences are directly accessed from the open playzone. It consists of 24 beds on each floor along with a dining hall and indoor common area. A back entrance is provided for kitchen loading and fire safety.



○  
Level -1

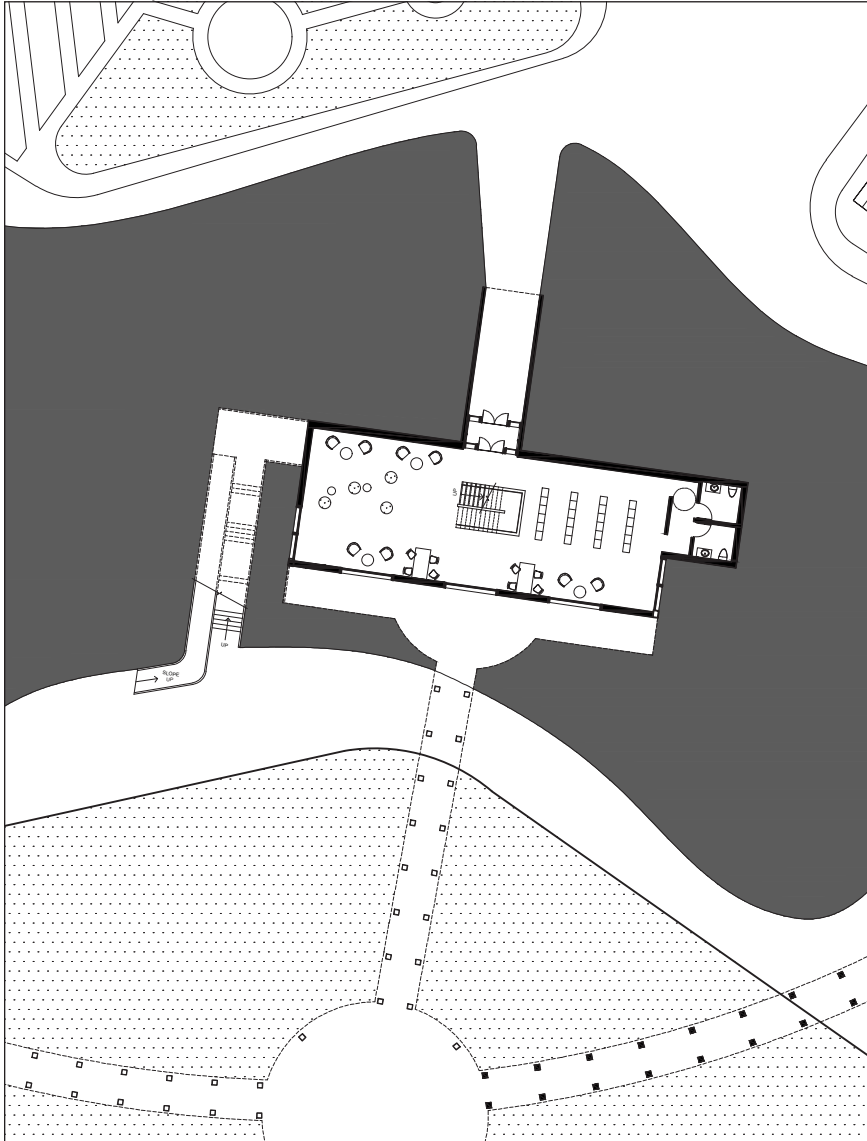


The building is merged into the landscape berms. On the ground floor open up to the basket ball court heading towards the kitchen garden. Upper floor is connected to the library via walkway and elevated recreation zone.





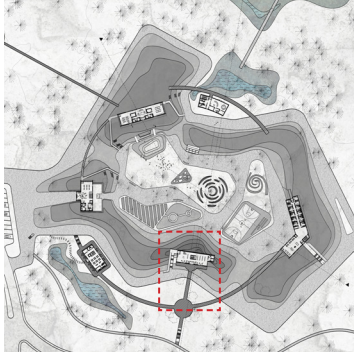
*Part Plan: Library*



○  
Ground Level

Library building sits as a hybrid inside a mound with a green roof acting as an extension to the mound from the playground.





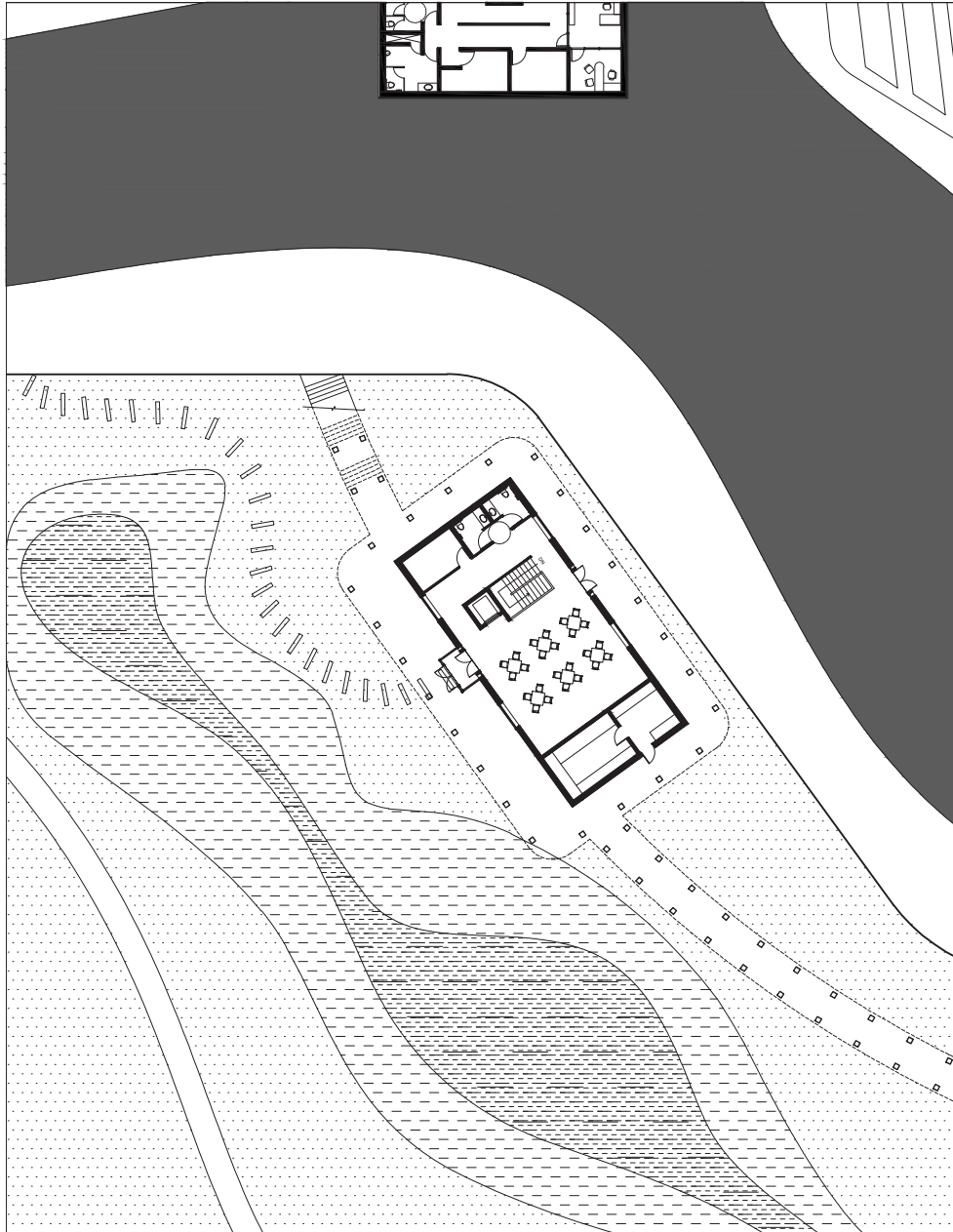
Key Plan



Level -1





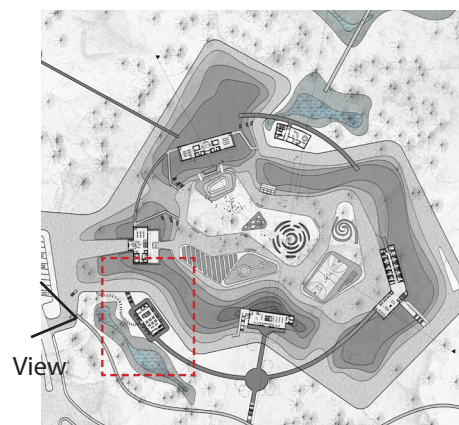


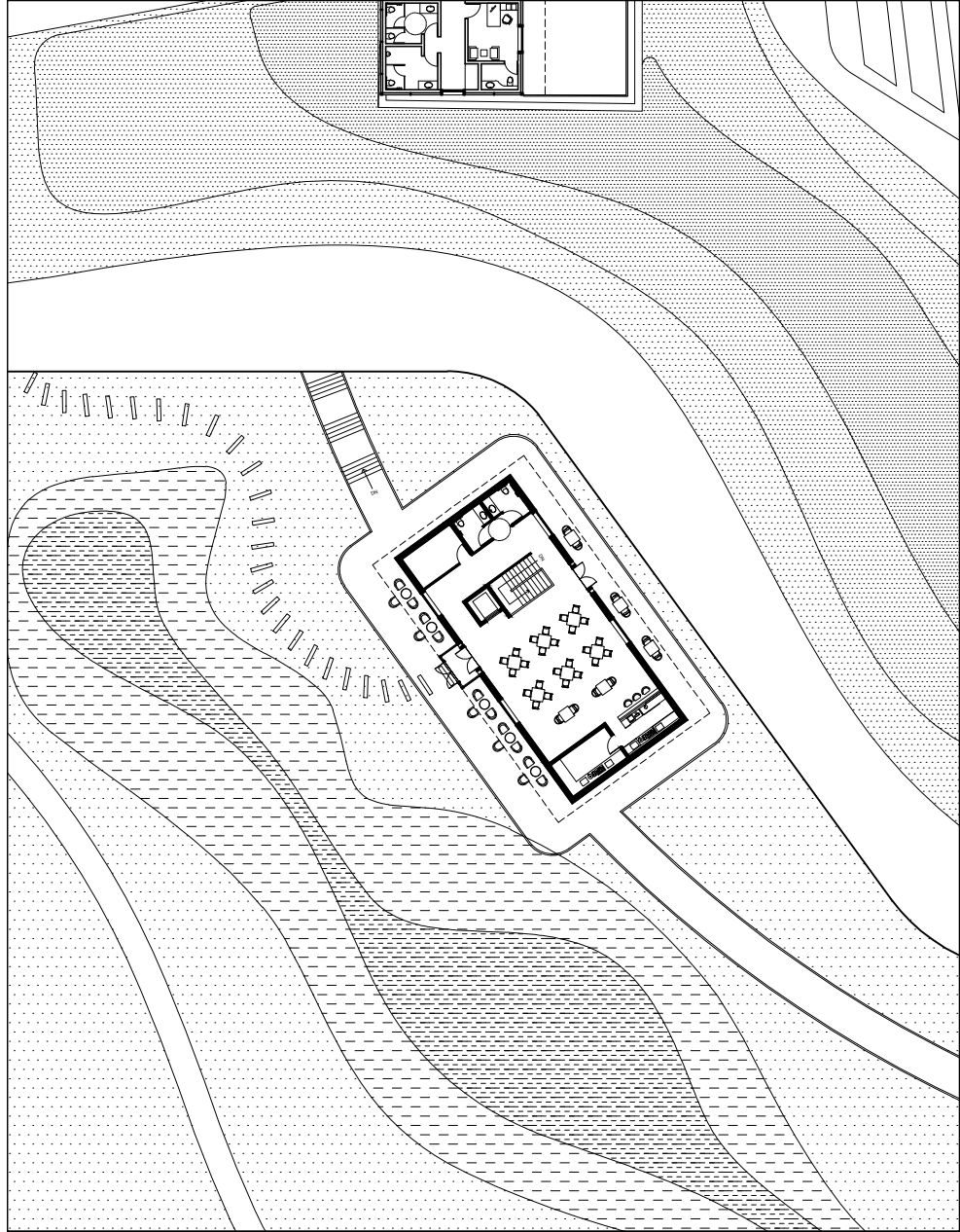
*Part Plan:  
Cafe*



Ground Level

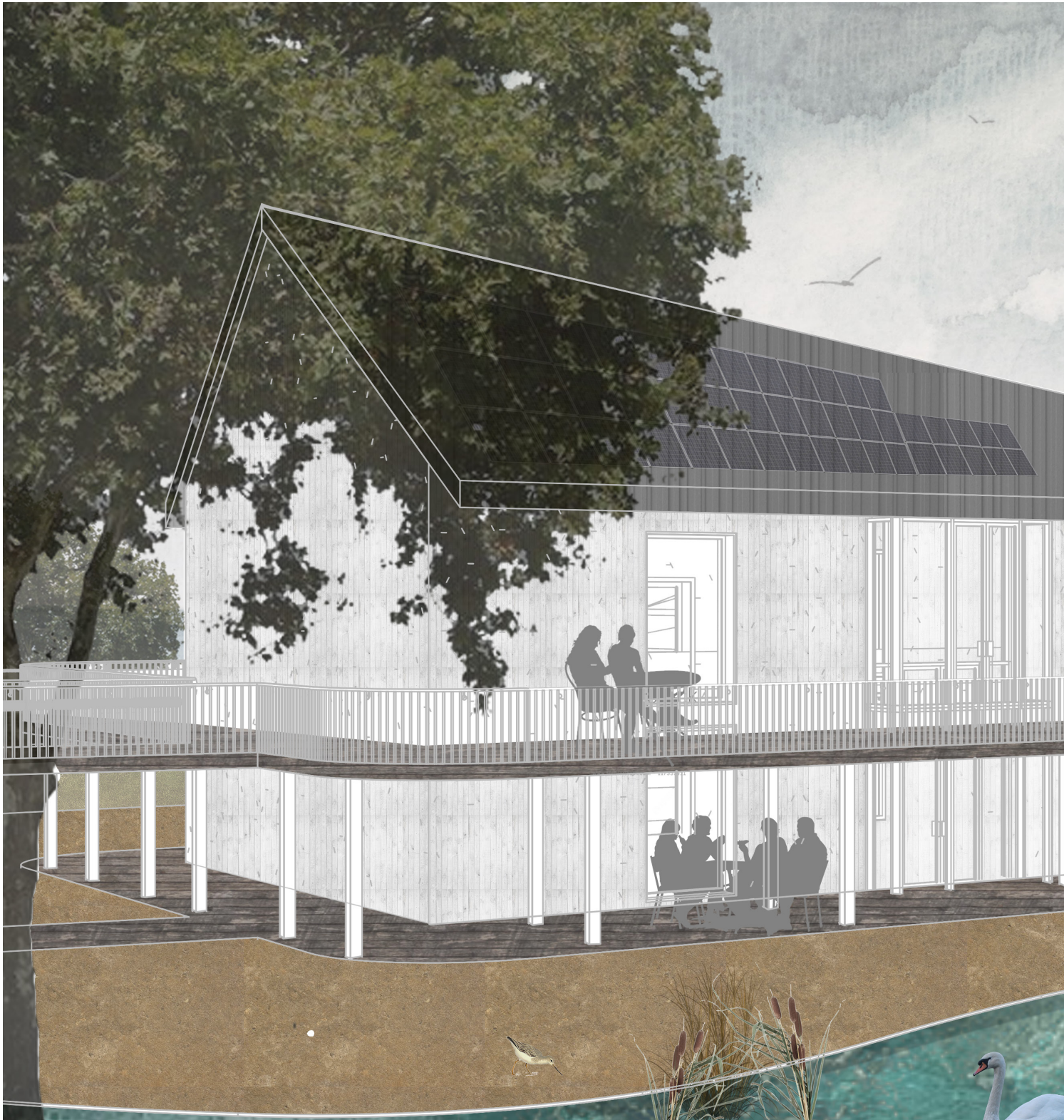
Cafe on the ground floor sits within the wild site separated from the playzone and education center. It has access to the artificially created water pond developed with multiple aquatic and plant species.



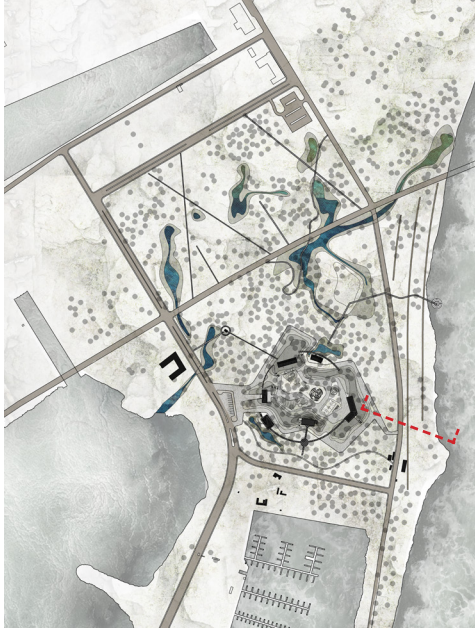


○  
Level -1

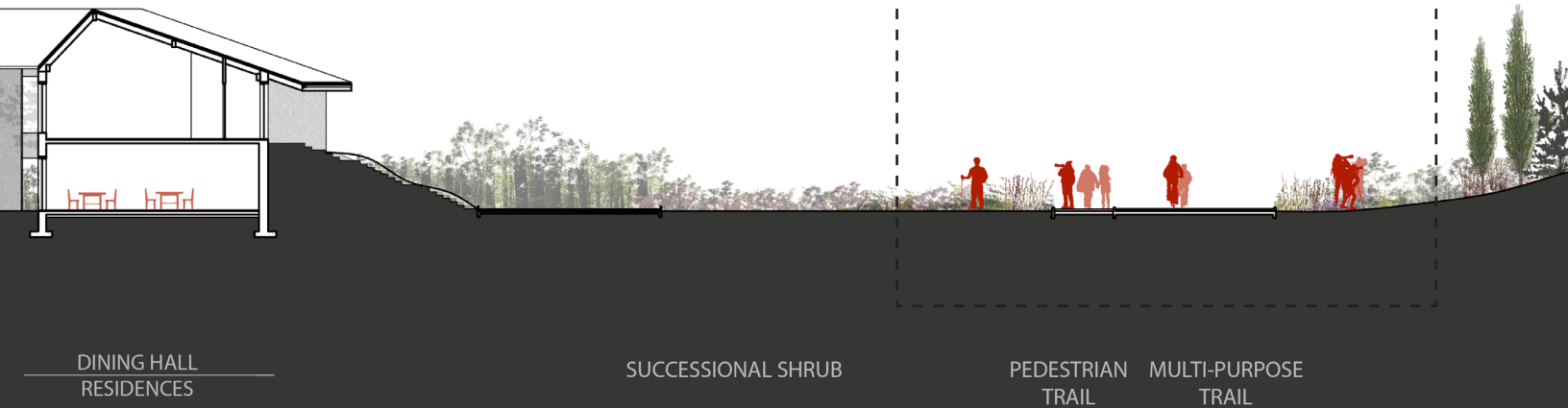
Upper floor of the cafe is connected to the library and its elevated recreation zone through direct walkway.







Key Plan



SECTION B.1

DINING HALL  
RESIDENCES

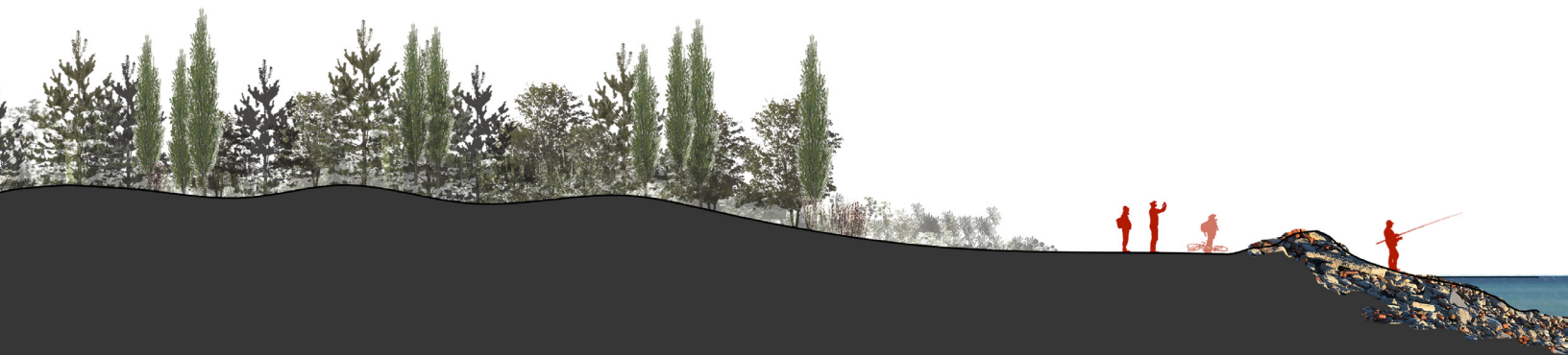
SUCCESSIONAL SHRUB

PEDESTRIAN  
TRAIL

MULTI-PURPOSE  
TRAIL

Trail path and boardwalk connecting to different habitats offer varying degree of user experience.

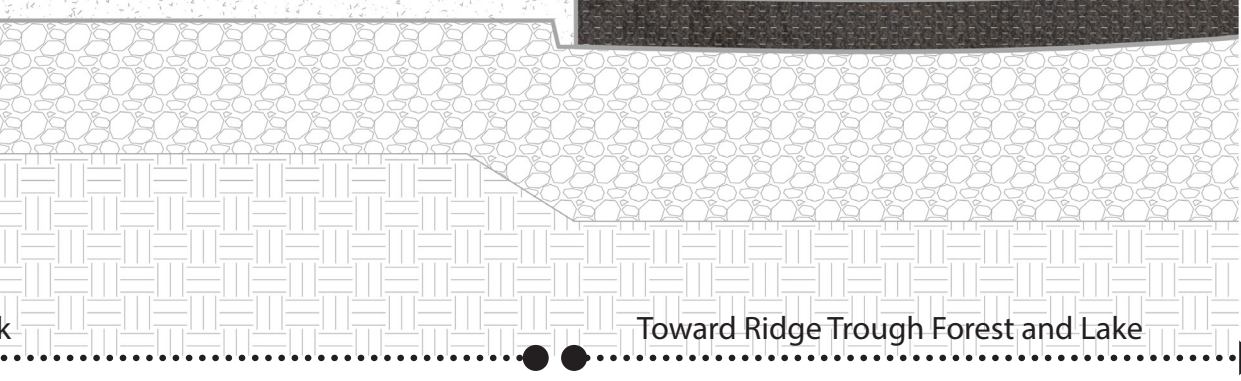
The existing multi-purpose trail is re-imagined with a division for soft-paved pedestrian unhindered by cyclist or motor vehicles. (Section B.1).



RIDGE AND TROUGH FOREST

LAKE ONTARIO

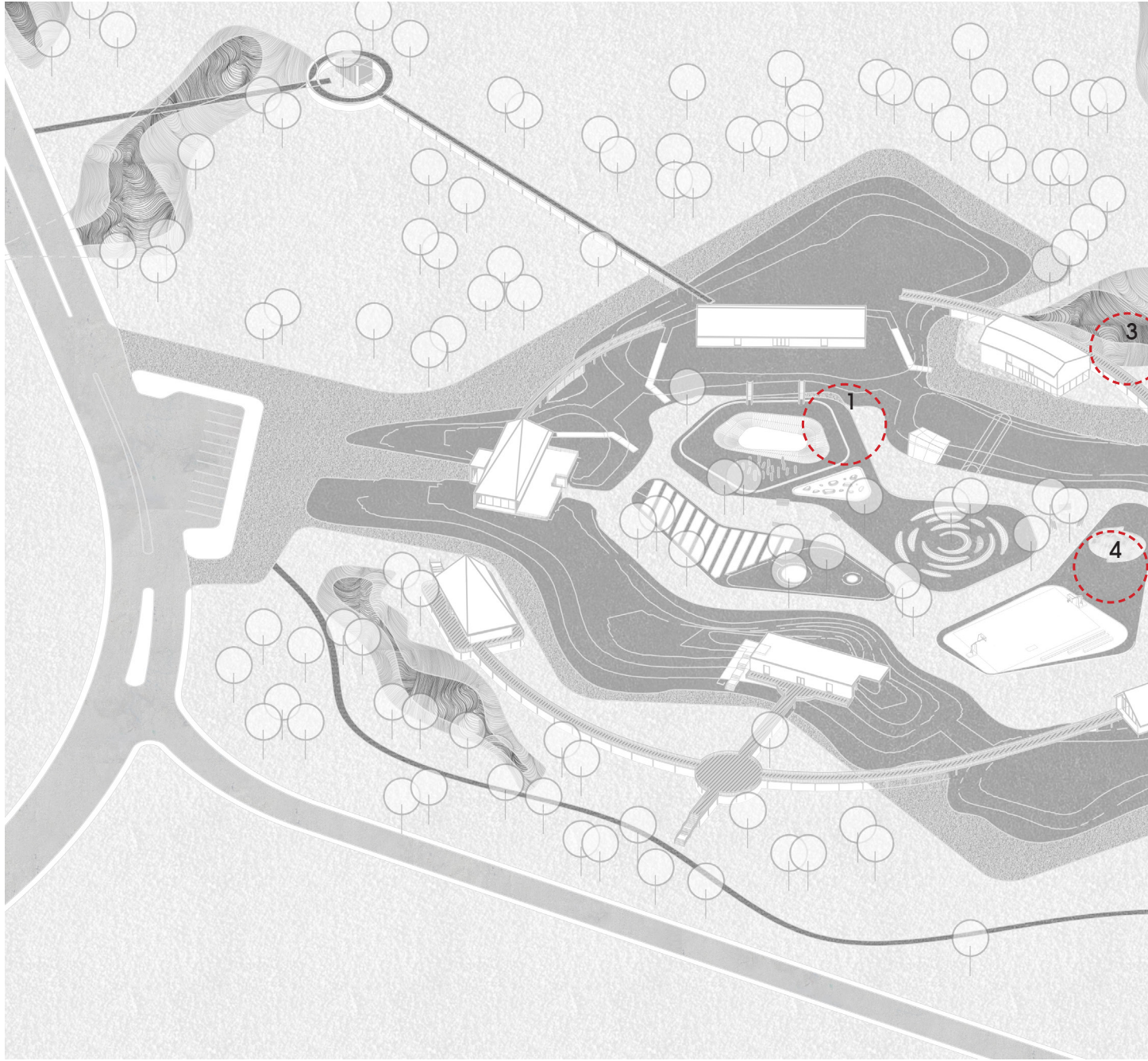




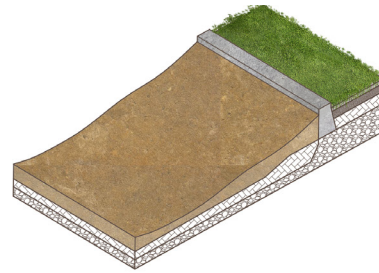
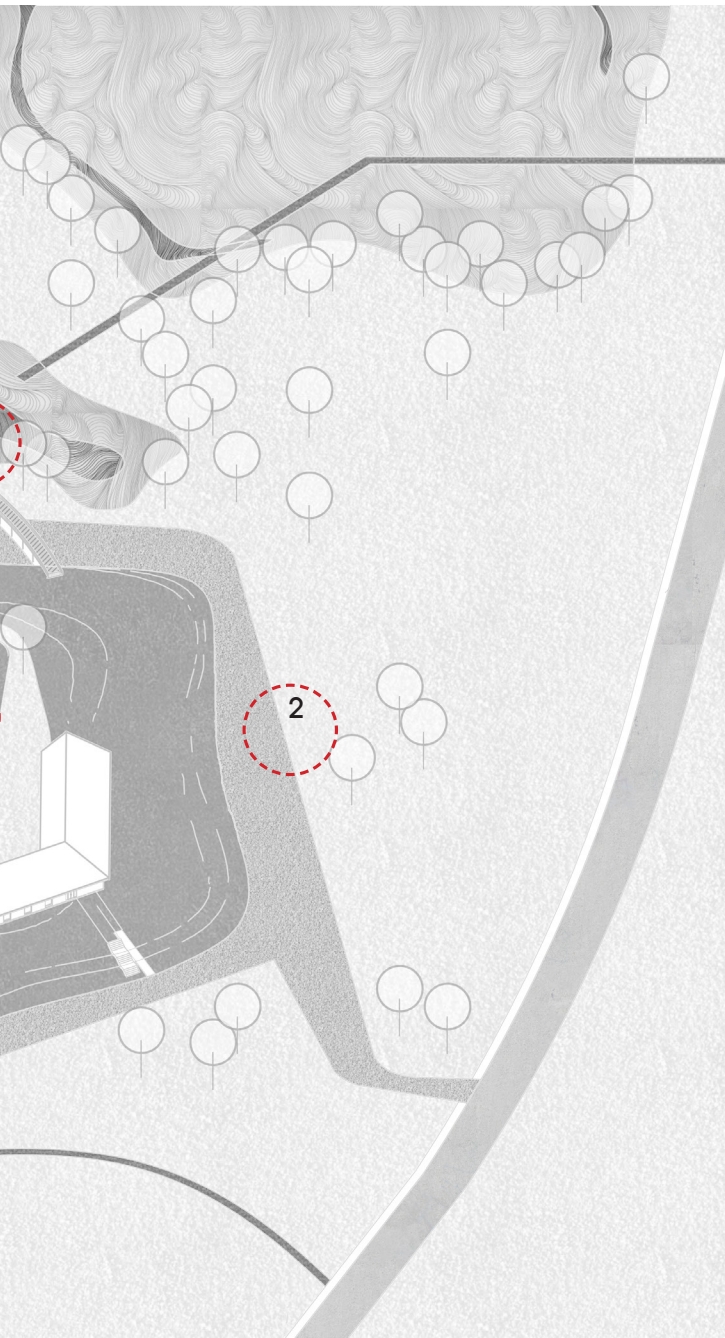
k

Toward Ridge Trough Forest and Lake

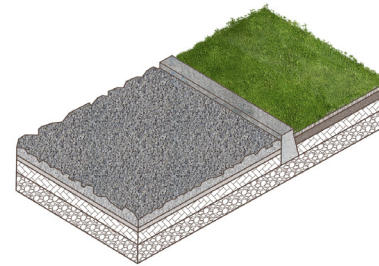




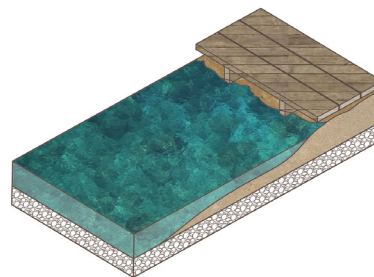
**3.69** *Axonometric view of the Education Center indicating variation in surface treatments for different areas depending upon use and appropriateness.*



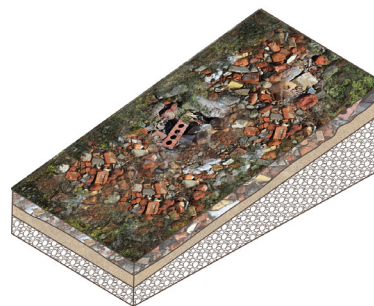
*Sand Pit in the playground*



*Crushed limestone as road surface within Education Center*

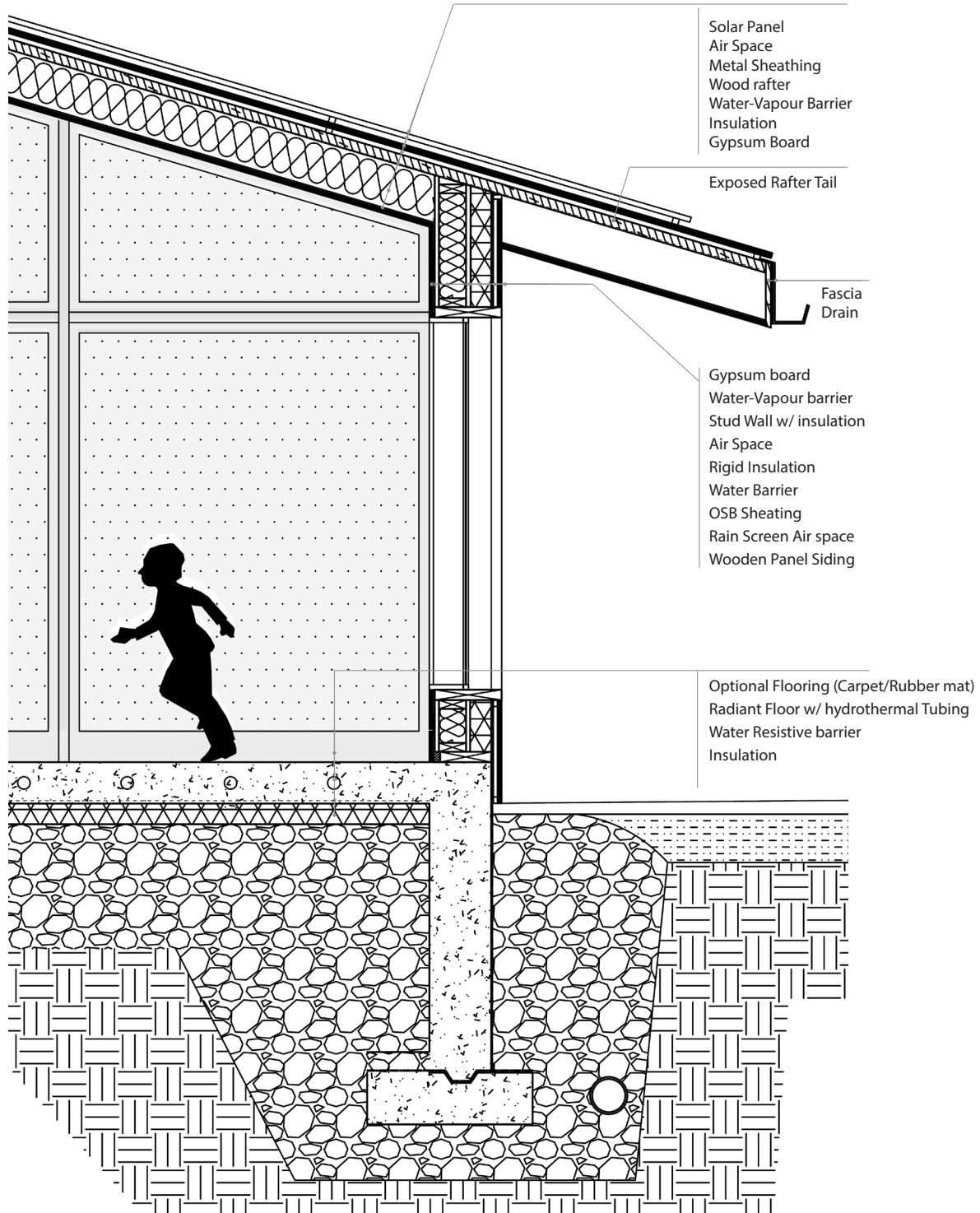


*Artificially created waterbody with deck access*

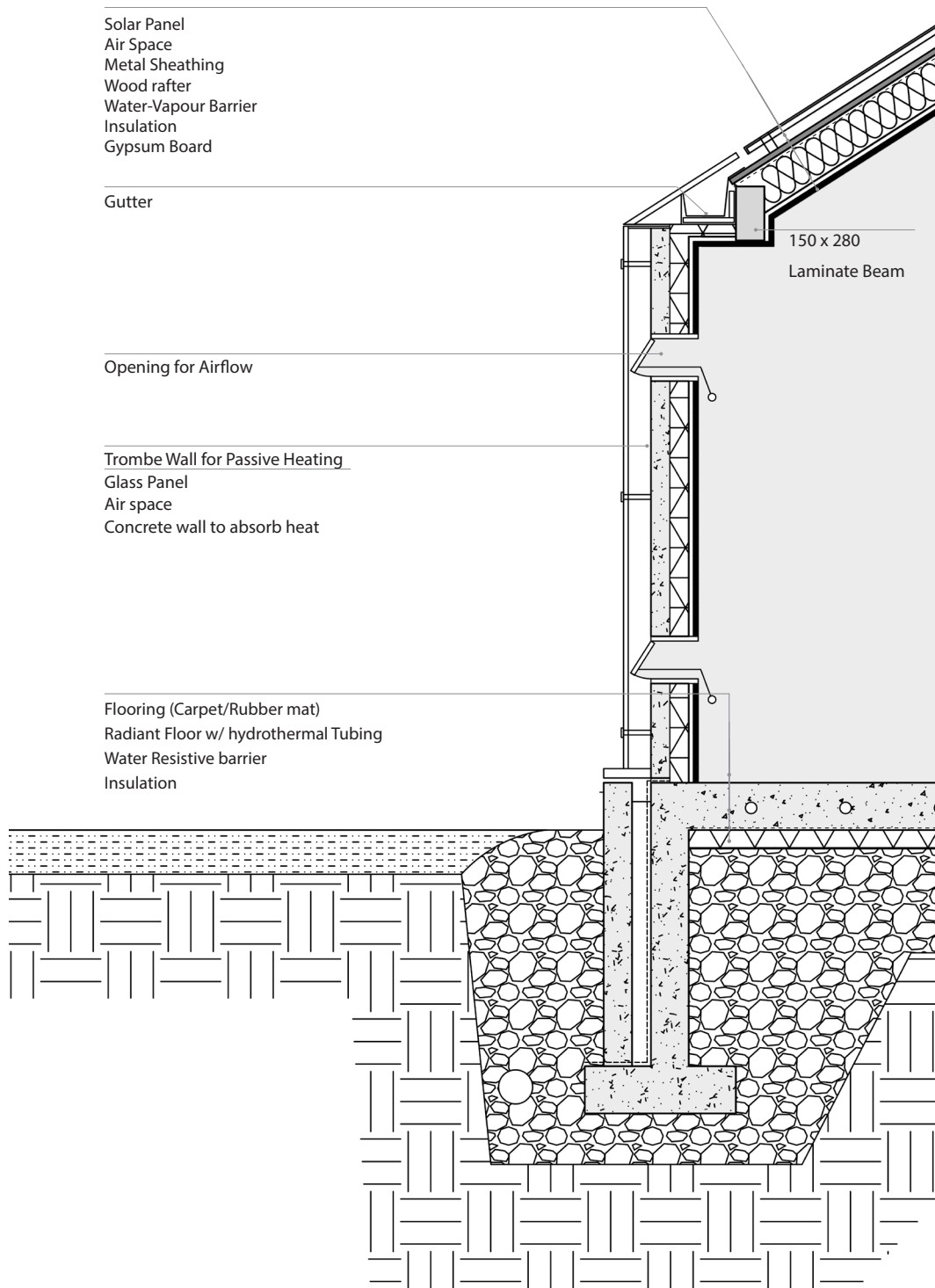


*Sloping Hill with exposed debris forming the Spit*

**3.70** *Surface Treatment variations*



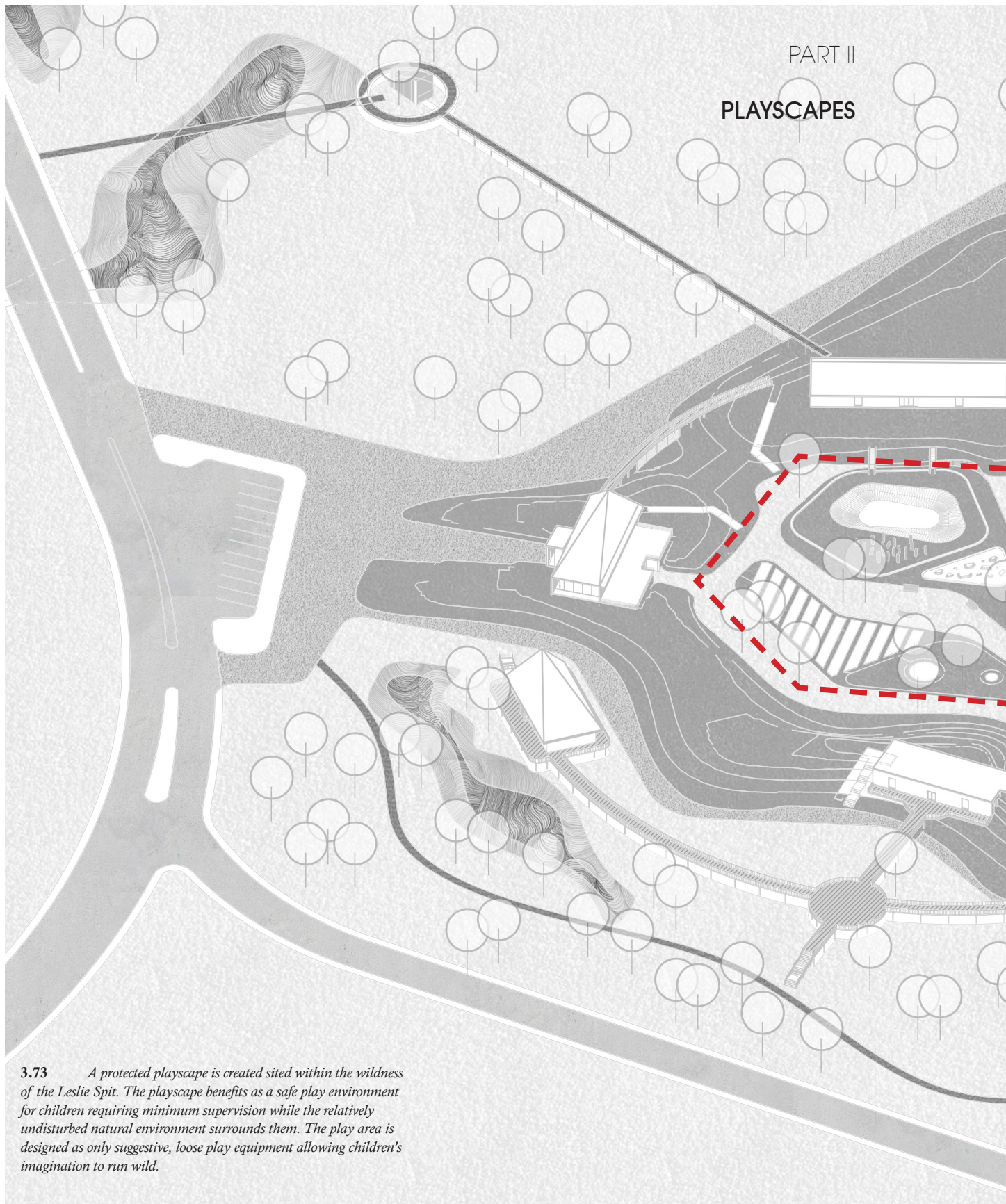
3.71 *Typical wall Section*



3.72 *Trombe wall Section*

A trombe wall detail is applied to west wall of the orientation center building as an experimentation and test wall condition to gauge the effectiveness of this passive energy system in the local climate.

PART II  
PLAYSCAPES



**3.73** *A protected playscape is created sited within the wildness of the Leslie Spit. The playscape benefits as a safe play environment for children requiring minimum supervision while the relatively undisturbed natural environment surrounds them. The play area is designed as only suggestive, loose play equipment allowing children's imagination to run wild.*



### 3.3 Design of Playscape

Two distinct ways to approach children's playscapes were applied, first, direct exposure to natural environment and second, children's ability to choose their own activity and create their playscape. Both provide different opportunities for learning. The two types of play are created as described in the following:

#### Natural Play

The case of the Art Classroom directly involves exposure to the surroundings providing a varied experience of the natural landscape. The waterway design adjacent to it provides opportunity to learn about aquatic wildlife. Adjoining trail paths lead more 'wild' areas within the site, allowing for witnessing the environment in its most natural form.

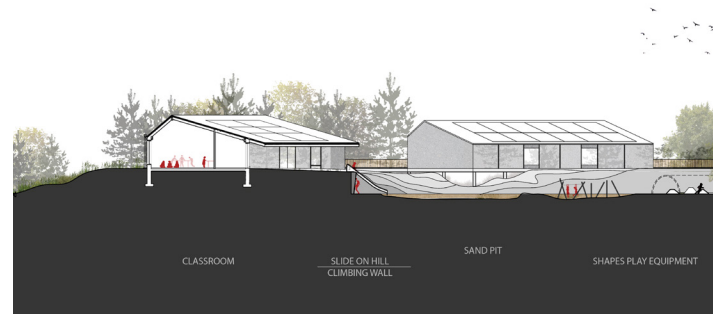
#### Constructed Play

The protected playground space within the mounds offer a regulated yet open ground for inventive and intuitive play. Children are provided with non-prescriptive but suggestive play equipment which they can interpret and utilize in their own way.

Further, the design is informed by the following guidelines.

#### 3.3.1 Based on overall development

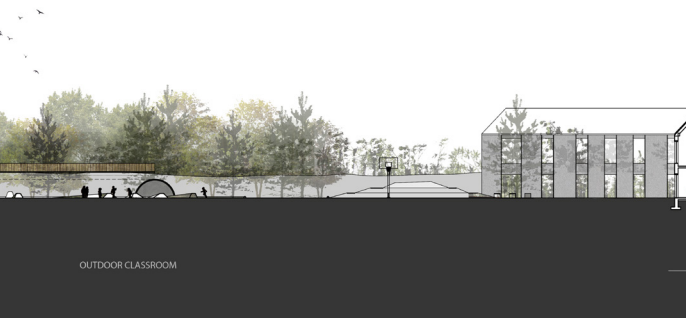
Various aspects considered that have different benefits in child-play environment for overall development of the child.



3.74 Section from constructed playzone within the mounds

3.75 Section showing art classroom connected with surrounding natural landscape.





- **Physical**

Playground facilitating exercises such as jumping, running, cycling, crawling, climbing, sliding with the help of fixed/ loose play equipment

- **Imaginative**

Moldable/transformational material: sand, grass, water, gravel, clay

- **Social**

Chasing, hiding, role-play; abstract, suggestive elements adaptable by children: hiding tunnels, circular/wall mazes

- **Sensorial**

Stimulating sense of touch (texture & material- paving/walls), visual, olfactory (fragrant garden)

- **Individual**

Rest & reflection opportunities through rest zones; noise barrier through tree buffer; indoor area protected from excessive exposure to sun and elements.

### 3.3.2 Based on interaction with Surroundings

- **Land**

Variation in configuration of ground surfaces, as children respond more enthusiastically to irregular forms than to uniform, rectilinear shapes the possibilities of a natural area in and of itself for providing ample play opportunities are considered.





- **Vegetation**

Vegetation is used for environmental and aesthetic aspects, for protection against the elements – sun, wind, and as noise barrier.

- **Water**

Important as enjoyable play element; children learn about lifecycles and natural ecosystems.



**3.76** *Playground view describing varied types of suggestive play equipment/ environment*



**3.77** *Outdoor classroom view with landscape berms offering a playful environment.*

## 04 CONCLUSION

This thesis was conducted in order to investigate the possible re-connection between children and the natural environment, and the role architecture can play in helping children make a re-connection that is ecologically literate. Children's active participation in hands-on experiences of the natural environment, whether in nature or in the city. Children's participation in activities in the natural environment helps them develop a sense of ownership and stewardship; these two characteristics lead to mature thinking and decision making, and a sense of responsibility. Activities, from farming to sensory play with water, can help children connect to the natural environment mentally and physically, which leads to the development of competence and awareness. adult involvement in designing learning environments that illustrate sustainable building strategies.

The role architecture plays in connecting children to the natural environment can be in different forms, from preservation to representation of time through material and technology. However, it is the designed response to the natural environment and how occupants use the facilities that matters the most. "In other words, we have always modified our environments to one degree or another, but the level of ecological damage has increased with the level of civilization and with the scale and kind of

technology”<sup>1</sup>. To reverse this damage, architects can draw on many successful examples, like the precedent studies above, to take ecological design throughout the creative process, from asking both adults and children about their needs and use of places, to incorporating all possible harmonized strategies.

The connection between children and the natural environment, ironically, cannot happen naturally through wandering around and free play in a natural setting. Although children’s self-exploration and discovery have beneficial features, children’s participation, adult guidance and facilitation of programs, and architecture design strategies must work together to maximize the possibility for children to re-connect with nature as ecologically literate citizens.

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1 David W. Orr 1944-, *The Nature of Design : Ecology, Culture, and Human Intention* (Oxford ; New York: Oxford University Press, 2002).

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