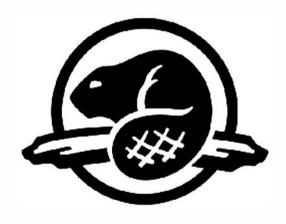
LAKE SUPERIOR

PRE-DESIGNREPORT JANUARY 21, 2019



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Parks Canada Parcs Canada PERKINS+WILL



originstudios

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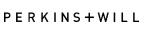


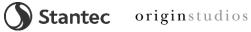


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00 Executive Summary

PURPOSE:

This report outlines the results of a Pre-Design Concept Study for a New Administration Building and Discovery Centre for the Lake Superior National Marine Conservation Area (LSNMCA). The deliverables have been provided as per the requirements outlined in the Terms of Reference – Project Brief Supplemental to the Standing Offer 5P301-16-0003, in conjunction with specifically referenced sections of the Standing Offer for Contemporary Architecture – National Parks and Historic Sites in the Province of Ontario (No. 5P301-16-0003-001). See Appendix 08.00.

This report documents the preliminary; Programmatic Requirements, Architectural Design Concepts, Exhibit Design Strategy, Passive House Design Strategy and Class 'D' Costing for the new administrative and visitor experience hub of the Lake Superior National Marine Conservation Area (LSNMCA).

ARCHITECTURE:

As per the Terms of Reference, two distinct architectural design options have been prepared; each one is a programmatically and technically viable design solution. The selected option will serve as a starting point for further development for construction in the coming phases of this project. Functionally, the designs contain; a discovery centre, office space for the field unit staff, laboratory space, law enforcement offices, vehicle storage and public bathrooms. Both options can achieve Passive House Certification and are detailed to a concept level of development.

OPTION 1: Paddle Option- The design draws inspiration from the history of logging on the Nipigon River the book "Paddle to the Sea" by Holling C. Holling.

OPTION 2: Geological Formation Option- The form draws inspiration from the geological formations surrounding the site and throughout the LSNMCA.

After review by PCA and the Field Unit, Option 1 was determined to be the preferred design.

EXHIBIT/INTERPRETIVE DESIGN:

Within each of the two architectural design options, two distinct exhibit design proposals have been prepared. The exhibit design is comprised of both interior and exterior spaces. All of the exhibit design options take into consideration the architectural intent of their respective design option. The architectural and exhibit design options complement and enhance one another in the overarching concept of *discovery* of the LSNMCA.

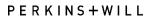
After review of the expectations and budget, Parks Canada Agency (PCA) will further investigate these options in future stages of the project.

OPTION 1A: The inspiration behind design Option 1A is the vast and rugged nature of the land and waterscape around the LSNMCA. This option comes at a lower cost than option 1b.

OPTION 1B: The inspiration behind design Option 1B is the organic, undulating nature of water bringing visitors to explore the waters of the LSNMCA further. This is the higher cost option for architectural design option 1.

OPTION 2A: The inspiration behind design Option 2A is a "Gateway to Adventure". The exterior exhibits offer winding pathways with arches that guide the visitor through an interior and exterior Discovery Path that highlights interpretive messaging. This option is lower cost than option 2B

OPTION 2B: The inspiration behind design Option 2B is the ribs of a canoe or boat that take the form of winding pathways with ceiling structures overhead that frame and highlight. The archways/ribs take the visitor through the exterior and interior framing key views of Nipigon River, Nipigon River Bridge and the surrounding LSNMCA. Option 2B is the higher cost option for exhibit design under architectural design Option 2.





SUSTAINABILITY/PASSIVE HOUSE:

Intrinsic to both architectural design options is the requirement for Passive House certification. The Passive House design was developed to a concept level, as outlined in the Terms of Reference.

Both architectural design solutions were optimized to use passive heating and cooling solutions. In order to accomplish the high level of energy efficiency the initial building components include:

OPTION 1:

Walls: - R 80 Roof: - R 100 Floor: - R 60

Mechanical System: 2 fan coil units with DX cooling (Discussed further in section 04)

Electrical System: Options include: Wind, PV and Solar Thermal

OPTION 2:

Walls: - 114 Roof: - 141 Floor: - 85

Mechanical System: - 2 fan coil units with DX cooling (Discussed further in section 04)

Electrical System: - Options include; Wind, PV and Solar Thermal

Based on the initial design, the new Administrative Building and Discovery Centre has the ability to achieve Passive House certification. The buildings both achieve the 15 kw/h/m² standard for passive house. In the coming phases of the project, mechanical, electrical and plumbing systems that achieve passive house standards will be selected and developed in coordination with a Passive House consultant.

COSTING:

The consultant team performed a Class 'D' costing on both design options. The Class 'D' costing document can be found in Appendix 08.04.

Based on the preliminary design the estimate is:

OPTION 1:

Building	Site Works	Exhibit Design	Detailed	Sub-Total
			Design	(+HST)
			Services (10%)	
\$6,759,630	\$756,000	\$851,648	\$836,728	\$9,204,005
-	-	\$2,150,277	\$966,591	\$10,632,498

OPTION 2:

Building*	Site Works	Exhibit Design	Detailed Design	
			Services (10%)	(+HST)
\$6,615,000	\$781,000	\$829,250	\$747,733	\$8,225,058
-	-	\$1,920,400.00	\$856,848	\$9,426,423

^{* \$33,630.00} retained for public artwork has been included in "building" cost.





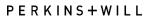
CONCLUSION:

Based on the requested program, site development requirements, and passive house mandate, achieving all the requested elements within a \$5.5m budget is impossible. The consultant team support Parks Canada's decision to increase the project budget and achieve the desired design option.

Perkins+Will performed a value engineering exercise to reduce footprint and optimize program areas thereby reducing cost. This study was presented to PCA. After this study, Parks Canada increased the project budget to \$10m. It is not possible to achieve all requested elements within the \$5.5M project budget.



Paddle: Flickr User Nikolaj J. Rasmussen





01 PRE-DESIGN (BS 2)

01.1 PROGRAM ANALYSIS 01.1.1 QUALITATIVE ANALYSIS

The Administration/Discovery Centre Building is intended to serve as the administrative and visitor experience hub for the Lake Superior National Marine Conservation Area (LSNMCA). This building will contain administrative support spaces for Parks Canada staff as well as interpretive and exhibit space for the general public visiting the LSNMCA. The functional program for the Lake Superior National Marine Conservation Area Building can be understood as three major program elements:

ADMINISTRATIVE PROGRAM:

Administrative program is an office typology intended to serve as the place of work for Parks Canada staff that oversee the LSNMCA. It will contain spaces for Administrative/Operational Staff, Park Wardens, Visitor Experience Staff, and Resource Conservation Staff. The parameters of the design will be based on the Government of Canada Workplace 2.0 Standards. Within the major administrative program are several minor supplementary programs, including a Laboratory, Law Enforcement, and Administrative Support spaces. This program is not open to the public and will only be occupied by Parks Canada Staff.

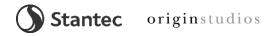
THE DISCOVERY CENTRE PROGRAM:

Discovery Centre program is intended to inform and enhance the experience of the public visiting the National Marine Conservation Area. This program will contain a curated selection of material and media to educate, entice, and encourage the public to explore the National Marine Conservation Area. This program is the departure point for the public to gather information and begin a personal journey of exploration and discovery within the LSNMCA.

SUPPORT SPACES:

Support space program consists primarily of a 100m² moderately conditioned (temperature maintained above 0 Degrees Celsius) utility/storage area. The Terms of Reference identify this space as completely detached from the rest of the building, however in consultation with field unit staff it has been decided that the optimal configuration for the utility/storage component is attached the main building, with access provided from the General Office Space.

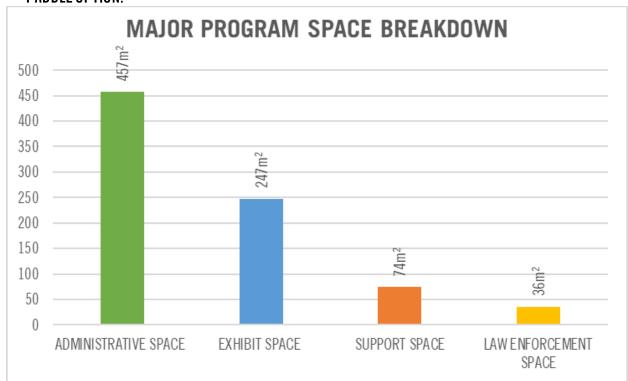


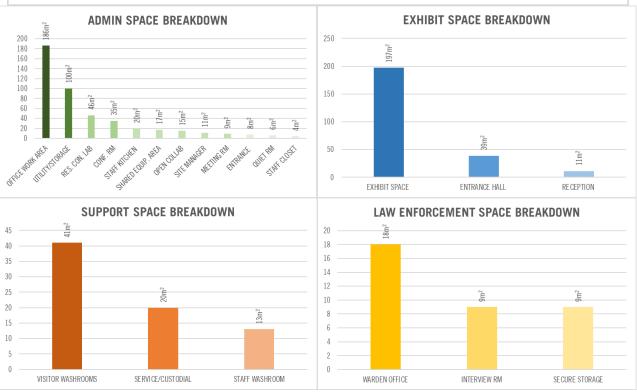


01.1.2 QUANTITATIVE ANALYSIS

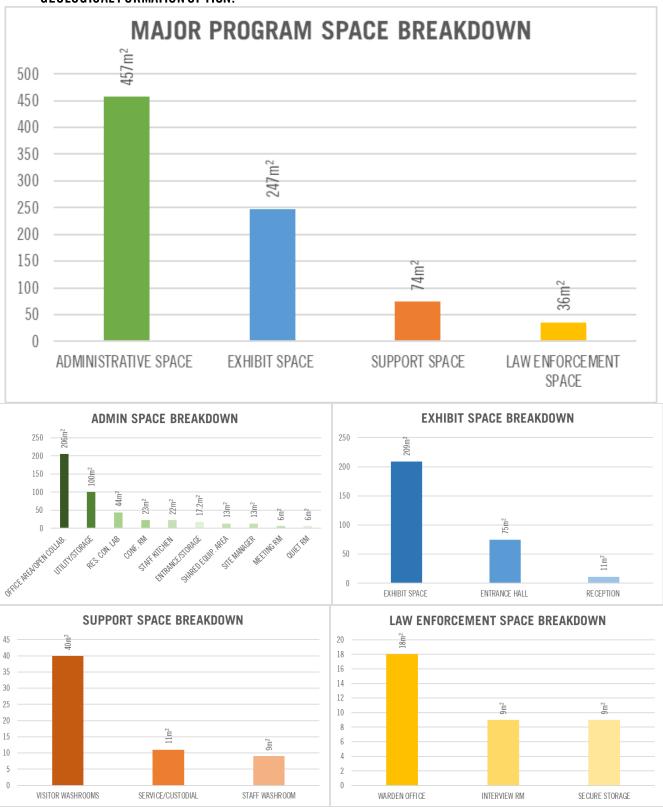
The following charts graphically represent the organization of the LSNMCA's various program spaces in actual area.

PADDLE OPTION:





GEOLOGICAL FORMATION OPTION:



^{*} Refer to section 2.1.2 for program area summary charts





01.2 SITE ANALYSIS

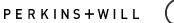
01.2.1 EXISTING SITE CONDITIONS

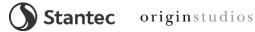
The site of the proposed LSNMCA Administration Building and Discovery Centre is located in Nipigon, Ontario, along the western shore of the Nipigon River. This site currently serves as a parking lot and seasonal outdoor storage facility for personal watercraft and is accessed via motor vehicle by three separate driveways from Brennan Drive along its eastern edge. The general area within the proposed site boundary is a clear, graveled surface, flanked on three sides by a mixture of coniferous and deciduous growth. A draft site survey has been included as an appended file refer to section 08.01.

Few features exist that would be of concern for the design or during construction. Several wood hydro posts adjacent to Brennan Drive are carrying overhead wires and will likely not affect the design of the proposed building, but may affect access to the site once construction has commenced. Clearwater Creek is an artificial fish spawning area constructed at the south of the site. A sediment control plan for use during construction will be imperative in mitigating the potential for adverse effects on Clearwater Creek.

01.2.2 EXISTING SITE PLANS

At the time of this Pre-Design Report, the existing site plan documents made available to the consultant team were those contained within the Nipigon Waterfront Development Masterplan (August, 2013) and a .DWG file identifying the general location of the proposed LSNMCA Administration Building and Discovery Centre. The site plan drawings in the Nipigon Waterfront Development Masterplan present the town of Nipigon at various unreferenced scales and highlight several key features, including the Vista Lookout, the Town Centre, The Lagoon, and the Waterfront along the Nipigon River.







Nipigon Marina: marinas.com

01.2.3 SUBSURFACE REPORTS

A geotechnical investigation forming part of the Extension of Municipal Services – Contract Specifications & Tender Documents (May 2016), prepared by WSP, was provided to the consultant team for review. The investigation consisted of eleven (11) boreholes to depths of approximately 5.0m-12.0m below the ground surface level. Of the eleven boreholes shown on the Borehole Location Plan, no borehole was located in the existing gravel parking lot of the proposed LSNMCA Administration Building and Discovery Centre. The closest borehole, BH 15-5, is generally located at the intersection of Brennan Drive and the southern driveway to the parking lot.

According to the WSP report, investigation results indicate a subsurface profile comprised primarily of sands and silts, and in certain locations slightly plastic, clayey silt. Additionally, the groundwater table was encountered at all borehole locations at varying depths. The geotechnical investigation makes several recommendations, including, but not limited to: frost penetration depth, site preparation and servicing construction, engineered fill/backfill, open cut excavations, groundwater control and pumping stations, soil corrosivity potential and cement type, and road reinstatement.

The subsurface report represents a cursory review of available data provided to the Consultant Team. It is advised this report be reviewed by a structural engineer, licensed in the province of Ontario, for the design of the foundation system for the LSNMCA Administration Building and Discovery Centre. Further, it should be noted that a complete geotechnical evaluation of the site will be required for development in the coming phases of the project.

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01.2.4 SURFACE REPORTS

Since Phase 1: Pre-design was initiated, PCA has retained the services of an Ontario Land Surveyor for the purposes of defining the legal boundary of the proposed site, documenting site features, and producing documentation to facilitate the transfer of the site to federal ownership. At the time of this report. final survey documents have not been provided to the Consultant Team for review.

01.2.5 MUNICIPAL INFRASTRUCTURE

Aside from the previously mentioned Extension of Municipal Services - Contract Specifications & Tender Documents (May 2016), prepared by WSP. documentation of existing municipal infrastructure has not been provided to the Consultant Team for review. It is recommended that an appropriate consultant locate all buried municipal infrastructure and utilities (both public and private) that will affect the project site.

01.2.6 HISTORICAL SITE FEATURES, NATIONAL HISTORIC SITE CULTURAL RESOURCES

The zoning by-law for the town of Nipigon has identified this site as CW, or commercial waterfront, which could suggest it is of no historical value. It is recommended that a full Historical Site Features Assessment is conducted to identify any site-specific elements that may be of value to the exhibit/interpretive programs of the LSNMCA Administration Building and Discovery Centre. Additionally, it is recommended that PCA and the consultant team consult with local Indigenous groups in an effort to further understand the history and cultural importance of the site.

01.2.7 ARCHAEOLOGICAL FEATURES

It is recommended that an Archaeological Features Assessment be conducted to identify any site-specific elements that may be of value to the exhibit/interpretive programs of the LSNMCA Administration Building and Discovery Centre. Additionally, it is recommended that project specifications of the Phase 2 construction documents include language instructing the contractor to halt construction activities in the event artifacts are discovered during excavation.

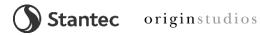
01.2.8 ENVIRONMENTAL FEATURES / SUSTAINABLE DESIGN STRATEGY

Preliminary review of the site topography reveals a downward slope to the two adjacent water bodies - the Nipigon River and Clearwater Creek. Given the proximity to both, stormwater management will be an important aspect of the environmental design of the site. On-site stormwater retention can be achieved in a number of ways, and with respect to this project, several opportunities exist. These include:

- 1. Pervious landscaping surfaces to promote groundwater absorption
- 2. On-site retention ponds or bioswales
- 3. Rainwater harvesting for use as building greywater







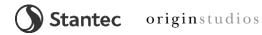
- 4. Exterior cistern systems for use in landscape irrigation or boat washing
- 5. Landscaping with native plant species

Related to the site management of stormwater, would be the management of water intended for use in the boat washing station. This site feature is a wildlife management initiative intended to prevent invasive species from entering or exiting the river and subsequent water systems. The process water for boat washing should be retained on site and possibly repurposed for landscape irrigation.







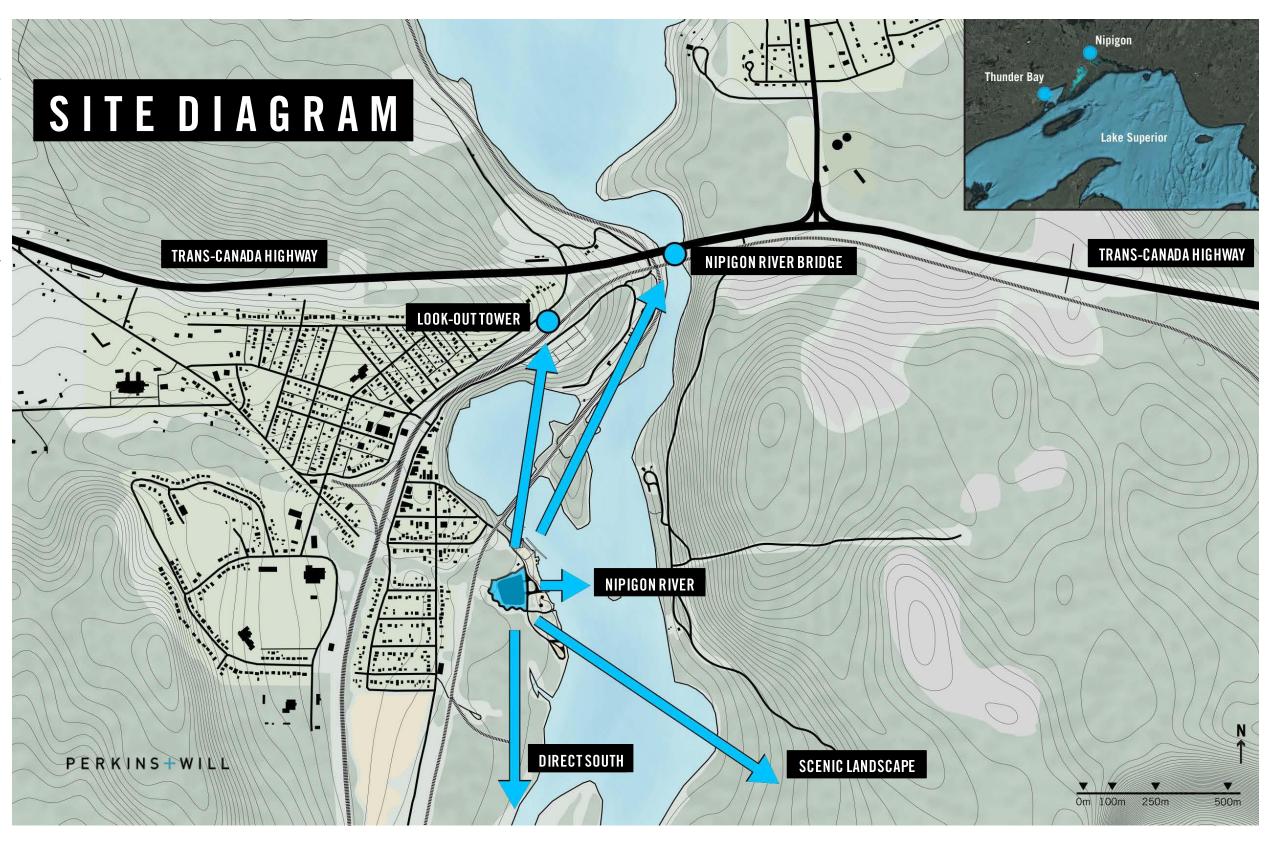


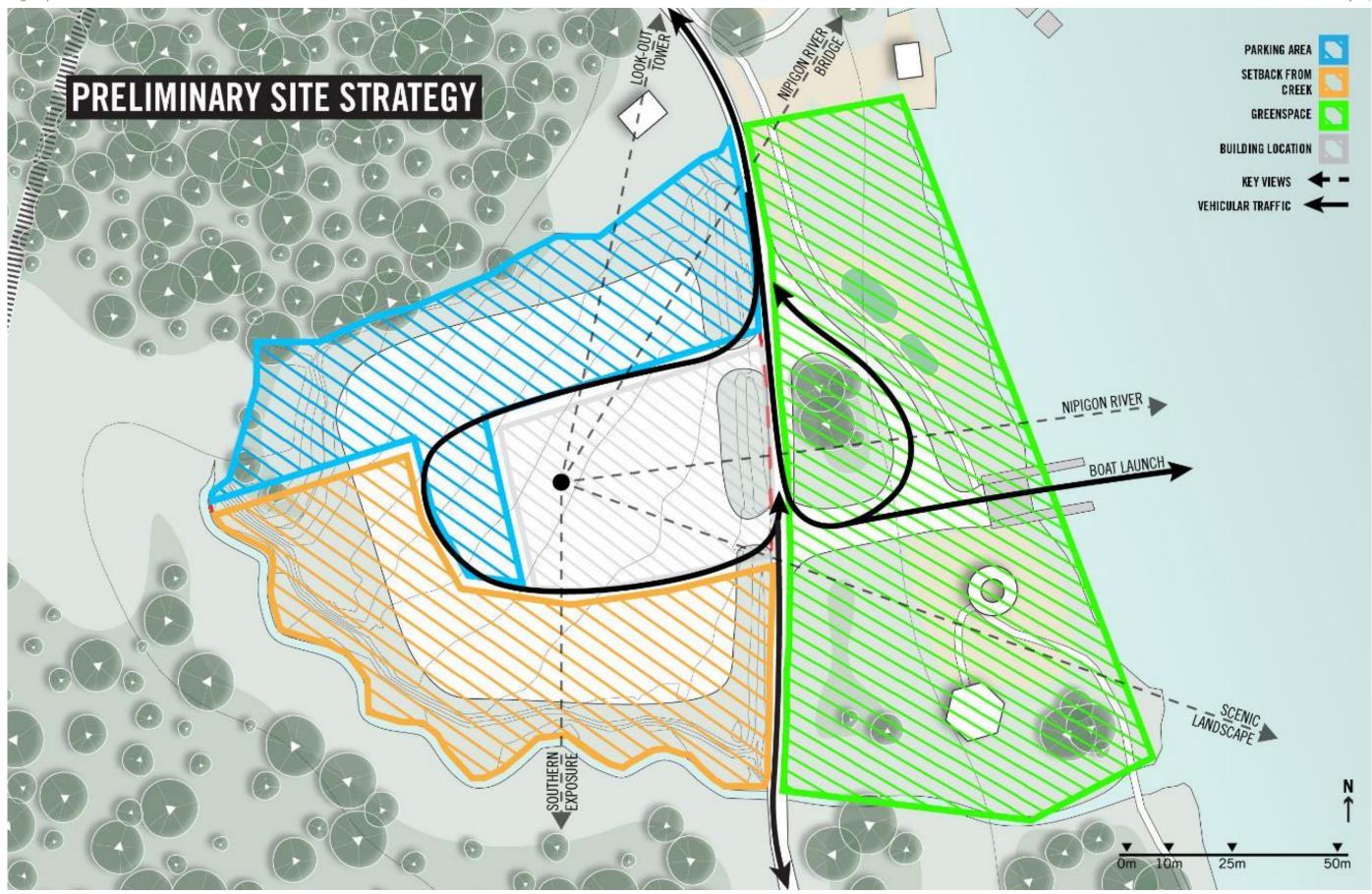
01.2.9 SITE DIAGRAMS

The positioning of the LSNMCA Discovery Center on the site was determined through a diagrammatic and iterative process which took into account existing site conditions determined through material provided to the consultant team.

The primary considerations for the site strategy include:

- Site visibility from the lookout and Nipigon River Bridge
- Scenic vistas of the Nipigon River Escarpment
- Southern Exposure for passive solar gain





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01.3 CODE/REGULATORY ANALYSIS

01.3.1 MUNICIPAL BY-LAW REVIEW

MUNICIPAL ZONES:

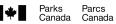
Permitted zoning for the LSNMCA Discovery Centre is highlighted in Yellow below:

R1 R2 RR SR C1 C2 C3 CH CW M1 M2 M3 M4 I RU OS EP HZ	Residential Type 1 Residential Type 2 Rural Residential Shoreline Residential Downtown Commercial General Commercial Local Commercial Highway Commercial Waterfront Commercial Light Industrial Heavy Industrial Extractive Industrial Waste Disposal Industrial Institutional Rural Open Space Environmental Protection Hazard	FIRST STREET R1 CW HZ FIRST STREET R1 CW HZ OS CW HZ CW-H1 PARK RD PARK RD
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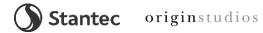
PERMITTED USES:

USE	C1	C2	С3	СН	CW
Accessory buildings					YES
Accessory uses to any of the permitted uses in the C1 Zone	X				
Accessory uses to any of the permitted uses in the C2 Zone		Х			
Airport/ Airstrip				X	X
Assembly hall or convention	Х				х
centre					Α
Bakery	X			X	
Building Supply and Lumber outlet	X	X		X	
Business and professional office including office building, bank, financial lending institution or clinic	X		х		
Car wash	Х	X	X	X	
Commercial Nursery and Greenhouse				X	

Commercial fishing			v	v	v
outfitting establishments			X	Х	X
Commercial school	Х				
Day care centre	Х	Х	Χ		
Existing Dwelling Unit	Х			Х	
Dwelling Unit on second floor	Х	X	X	Х	X
Dwelling which may be attached to	Х				Х
or detached from the principal					^
Florist shop or garden centre	X			Х	
Funeral Home	X				
Gift shop or craft industry	X				YES
Government offices	X				
Grocery store	Х				
Health club, billiard or bowling					
establishment or similar					
commercial recreational	X				
establishment, theater, cinema,					
arcade or other place of					
entertainment					
Historical sites, displays and	Х			Х	YES
exhibits					
Hotel	Х			Х	X
Kennel				Х	
Libraries	Х				
Marina					YES
Motel	X			X	X
Motor Vehicle Body Shop	Х			X	
Motor Vehicle Dealership				Х	
Motor Vehicle Fuel Bar				Х	
Motor Vehicle Supply Shop		χ			VEO
Museums	X				YES
Parking lot or structure	Х				YES
Personal service shop, including					
barber shop, beauty salon,	Х				Χ
dressmaking & tailoring, laundry					
and dry cleaning shop or similar					
Pharmacy or drug store	X				
Places of Worship	X				
Printing or Publishing Establishment	Х				
Recreation facilities including					
tennis courts, golf driving ranges,	,,				
swimming pools, parks,	Х				Х
playgrounds, miniature golf					
courses, pavilions, observation					
decks and areas and accessory					
Restaurant	Х			Х	X
Restaurant including banquet	Х			Х	Х
hall, tavern, and take-out					
Restaurant, Drive-in	,,			Х	
Restaurant, Take-out	X			Х	

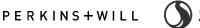






Retail store – not engaged in manufacturing unless does not exceed 50% of the gross floor area and the products are primarily for	х				
sale on the premises					
Retail store	Х				YES
Service or repair shop	Χ				
Shopping Centre		Х			
Storage area enclosed	Х				
within a building as an	^				
Storage area enclosed	Х				
within a building as an					
Tavern	X				Х
Tourist camp				Х	X
Tourist information establishment	X			X	YES
Tourist outfitters	X			X	X
Travel trailer and tent					Х
camping facilities					Λ
Veterinary clinic				Х	
Wholesale Establishment				X	
Residential Uses Permitted					
Dwelling Unit	X			Х	
Apartment Dwelling	X				X
Boarding House Dwelling or		Х	Х	Х	
Rooming House		_ ^	Λ	, A	
Row Dwelling Units	Χ				Х
Townhouse Dwelling Units	Χ				Х
Existing Dwellings	X	X	X	X	

Review of the CW zoning indicates the proposed site is well suited for the new LSNMCA Discovery Centre. The zoning permits: Accessory Buildings, Assembly Hall or Convention Centre, Business and Professional Office including Office Building, Bank, Financial Lending Institution or Clinic, Gift Shop or Craft Industry, Historical Sites, Displays and Exhibits, Marina, Museums, Parking Lot, Tourist Information Establishment. As such, PCA will not require additional effort to rezone the property for the proposed use.



SETBACK REQUIREMENTS:

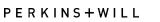
Zone	Services	Minimum Lot Area	Minimum Lot Frontage	Minimum Required Front Yard	Minimum Required Rear Yard	Minimum Required Interior Side Yard	Minimum Required Exterior Side Yard	Maximum Lot Coverage
CW	Sewage and Water	930 m²	20.0 m	12.0 m	7.5 m	6.0 m	12 m	45%
Proposed		Lot area	Lot Frontage	Front Yard	Rear Yard	Interior Side	Exterior Side yard	Coverage
Paddle Option	Sewage & Water	13633m²	157.31m	17.73m	56.66m	(N) 23.5m (S) 49.6m		7.8%
Geological Formation Option	Sewage & Water	13633m²	157.31m	14.03m	62.38m	(N) 24.2m (S) 47.4m		9.6%

Based on the prescribed CW zoning requirements, both the Paddle (Option 1) and Geological Formation (Option 2) design proposals are within the prescribed zoning requirements. As such, no planning variances are required based on the current site plan. (See: Section 3.1.1 and 3.2.1. Site Plans)

1.3.2 SPECIAL PROVISIONS

During subsequent phases, the following provisions should be considered.

Provision	Applicable	Note
Corner lots will have the	No	N/A
minimum lot frontage plus an additional 2.0 metres.		
Where a dwelling is permitted	No	
the Zone Standards for the R2	110	
Zone shall apply.		
Where a Commercial use	No	
abuts a R1 or R2 Zone,		
a planting strip in accordance with Section		
3.17 shall be required.		
The maximum height in all	Yes	Option 1: 7600mm
Zones shall be 11.0 metres		0.11.0.7600
Notable General Provisions		Option 2: 7600mm
3.1MINIMUM OPENING ELEVATION	Yes	Option 1: Building Elevation +/-186m GSC
No habitable building located		Option 2: Building Elevation +/- 186m GSC
adjacent to Lake Superior or		Option 2: Building Elevation +/- 186in 430
the Nipigon River shall have		All openings for both design options are
any building opening below		above 184.1m GSC
the following elevations:		
Lake Superior/Nipigon River		
184.1 meters GSC		



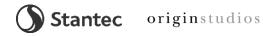
3.1.1* INGRESS AND EGRESS PROVISIONS

- Ingress and egress to and from the required parking spaces and areas shall be provided by means of unobstructed driveways or passageways of at least 3 metres in width but not more than 9 metres in perpendicular width.
- The maximum width of any joint ingress and egress driveway ramp measured ii) along the street line shall be 9 metres.
- The minimum distance between any two driveways on one lot or between a iii) driveway and an intersection of street lines measured along the street line intersected by such driveway shall be 7.5 metres.
- The minimum angle of intersection between a driveway and a street line shall iv) be 60 degrees.
- Every lot shall be limited to the following number of driveways, namely: v)
 - up to the first 15 metres of lot frontage, not more than one driveway; (a)
 - greater than 15 metres of lot frontage but not more than 30 metres of (b) frontage, not more than two driveways with a combined width not exceeding 30 percent of the lot frontage; and,
 - for each additional 30 metres of lot frontage, not more than one (c) additional driveway.
- Parking spaces shall have a minimum width of 3.0 metres and have a vi) minimum area of 18.5 square metres. The length of any parking space and the width of the adjacent aisle shall be in accordance with the following:

Angle of Parking Space	Minimum Length of	Minimum width of aisle
Perpendicular with	parking space	
60 degrees to 90 degrees	6.2 metres	6.9 metres
45 degrees to 59 degrees	6.2 metres	5.2 metres
30 degrees to 44 degrees	6.2 metres	3.7 metres
0 degrees to 29 degrees	6.2 metres	3.0 metres

3.1.2* WATERCOURSES

Unless otherwise permitted by this By-law, no building or a leaching bed for a sewage system shall be located within 30 metres of the normal or controlled high water mark of any watercourse or lake. Unless otherwise approved under the Building Code Act.



^{*} Reference to Nipigon Bylaw available to view at the following link: https://nipigon.net/wp-content/uploads/2017/06/Proposed-Twn-of-Nipigon-Zoning-Bylaw-2017.pdf

01.3.3 PRELIMINARY BUILDING CODE DATA MATRIX ANALYSIS SUMMARY

A preliminary Building Code Data Matrix has been assembled for both Options 1 and 2. Both options fall under part 3 of the Ontario Building Code and have major occupancy classifications of 'A2' (Assembly) for the Discovery center and 'D' (Office) for the administrative program areas. Based on size and occupancy, the building classification for both options can be found at OBC 3.2.2.27. Both buildings have an area of approximately 975m² and are 7600mm from grade level to top of roof. According to the above parameters, the entire building is required to have a sprinkler system and single stage fire alarm system. Combustible construction is permitted for a building with these conditions.

Current information indicates, the municipal water service supply is adequate for the requirements of the proposed buildings. Universal washrooms, are proposed to reduce the fixture count compared to traditional washrooms. This optimizes space and reduces capital costs for the project.

At this level of development, there are no anticipated building code issues with either design option. It is recommended that a code consultant be retained to verify these findings. Preliminary Building Code Data Matrix for both options has been included in the Appendix 08.02.

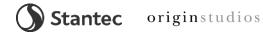
01.4 DESIGN OPTIONS ANALYSIS 01.4.1 OBJECTIVE

The objective of this pre-design concept and functional program study is to provide Parks Canada with two distinct, viable architectural design options. The criteria outlined in the Terms of Reference are:

- 1. Meet the day-to-day needs of the Parks Canada field unit and provide engaging exhibit and interpretive spaces to inform the public about the Lake Superior National Marine Conservation Area.
- 2. Programmatic spaces represented in each design option are based on a preliminary needs analysis document provided by Parks Canada and confirmed and/or altered through a vetting process that involved client consultation and user group interviews.
- 3. Passive House or viable alternative
- 4. Reduce Maintenance

Two design options have been confirmed and approved by PCA through a collaborative and iterative design process. Each option accommodates the needs of the field unit as documented in user group interviews, and client consultation and comments as documented in the meeting minutes.



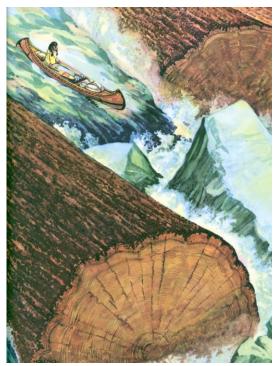


01.4.2 ARCHITECTURAL DESIGN CONCEPT DESCRIPTIONS

01 - PADDLE:

Design Option 01, referred to as the Paddle, is inspired by the story Paddle-to-the-Sea by Holling C. Holling. In the story, a small boy places a wooden carving of a First Nations Person in a canoe into Lake Superior. The carving then travels through Canada's waterways reaching the gulf of St. Lawrence. The building takes the form of two intersecting logs on the shore of the lake which allude to the carving and the historical significance of logging in the region.

The building's construction is primarily wood and fulfills the PCA mandate for a 'Wood First' strategy. The formal organization of the building aims to capture key views from the surrounding environment such as of the Trans Canada Bridge, Nipigon River, and the escarpment. The exterior of the building is clad in both natural Holling, Holling C. Paddle to The Sea. Baker & and charred wood. These natural materials façade.



Taylor, CATS, 2009

reinforce the initial design interpretation, while creating a warm and welcoming

The large, orthogonal, wood-clad façades offer an opportunity to engage the local community while also providing the necessary thermal protection in order to meet the Passive House requirements. The project will engage local artists through the commissioning of a large mural on the open wall space. The intention of the art installation would be to engage the local community and reflect the cultural significance of their relationship waters of the LSNMCA.

The placement of the building on the site is optimized to capture solar energy by maximizing the southern exposure in the administrative wing. The northern wing of the building contains the Discovery Centre and has a strategically placed singular aperture, which provides the maximum wall surface area for exhibit display while also ensuring the adequate thermal protection for the north wing. The singular, floor to ceiling window on the north wall provides natural light into the space while simultaneously framing the view to the Nipigon River Bridge.



02- GEOLOGICAL FORMATION:

Design Option 2, referred to as the Geological Formation, takes its inspiration from the varied and unique geological formations found throughout the Lake Superior region. The architecture tells an allegorical tale of discovery; the same way a miner might break open a stone to find a precious mineral within, so might a visitor discover the beauty of the LSNMCA and all it has to offer. Ouimet Canyon: Flikr User daveatguelph



The administrative program, located on the southern wing, maximizes glazing as part of the passive solar heating strategy. The Discovery Centre is integrated into the lobby to promote visitor circulation throughout the site. The reception desk is easily accessible so that visitors can be welcomed and directed to features in the region.

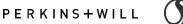
The lower volume of spaces provide a more intimate experience for the visitors in the Discovery centre. Glazing is limited in the northern wing to limit heat loss while also maximizing wall space for exhibit displays.

1.4.3 GUIDING PRINCIPLES (DESIGN PARAMETERS)

FUNCTIONAL REQUIREMENTS:

In order to work within the construction budget, strategies were implemented to create a compact building footprint and optimize space. Space planning strategies were implemented to ensure related program areas were co-located, reducing circulatory space and improving efficiency. The Discovery Centre and outdoor interpretative spaces were developed to provide a holistic user experience. The themes for the interior aim to translate to the outdoor spaces and provide visitors opportunities to learn throughout their visit.

In addition to satisfying the functional requirements outlined by the Field Unit, both design options strived to fill the mandates outlined in the Vision Statement (Parks Canada) and Visitor Experience Strategy Report (BC Hughes) furnished by PCA.



PROGRAMMATIC REQUIREMENTS:

In order to meet the needs of the Field Unit at the LSNMCA, the Consultant Team was retained to create a new facility that could accommodate the following requirements:

- 1. Discovery Centre: Interior & Exterior Exhibit Space
- 2. Office Space: Workplace 2.0 Standard, Meeting Rooms, Kitchen
- 3. Law Enforcement Facilities: Interview Room, Office Space, Exhibit Storage
- 3. Vehicle Circulation & Parking

A comprehensive list of program & areas can be found in Program Summary section 2.1.2

BUDGET:

The Terms of Reference for the project indicated the estimated construction budget for the project was \$5.5M (Jan/2018) and included both the building and site development.

Upon review of the preliminary options, PCA has increased their construction budget to \$10M (Nov/2018)

SUSTAINABILITY:

Explicit programmatic requirements and Passive House requirements that were established early, formed the basis for all design decisions and are common to both design options. These include:

- Maximizing southern exposure to optimize solar gains
- Minimizing north-facing openings to reduce heat loss during winter months
- Orienting the building to best capture views to the scenic landscape
- Orienting the building to best capture views to landscape elements of civic importance
- Selecting preliminary construction systems that will facilitate the higherthan-average thermal requirements for the building, but also be constructible for local trades.





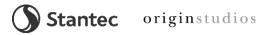
DESIGN ATTRIBUTES

The following chart compares the two architectural design options, highlighting the design attributes achieved by each

design attributes achieved			
		OPTIONS	
	OP.1	OP.2	
ATTRIBUTE			COMMENTS
ARCHITECTURAL SITE DESIGN			
ODTIMIZED ODIENTATION			
OPTIMIZED ORIENTATION	Ø	<u> </u>	
PROMINENT RIVER VISIBILITY	<u> </u>	<u> </u>	
PROMINENT STREET VISIBILITY			
COMPLIANT MUNICIPAL SETBACK	<u> </u>	<u> </u>	
ADEQUATE PARKING			
BUS / R.V. PARKING	<u> </u>	<u> </u>	
BOAT WASHING STATION			
OUTDOOR STORAGE COMPOUND	Ø	<u> </u>	
RECREATION/PICNIC AREA CLEARWATER CREEK TRAIL	<u> </u>	<u> </u>	
	<u> </u>	<u> </u>	
UTILITY BUILDING ACCESS BOAT LAUNCH ACCESS	<u> </u>	<u> </u>	
OPTIMIZED VEHICLE CIRCULATION	<u> </u>	<u> </u>	
OUTDOOR INTERPRETIVE SPACE			
VIEW TO NIPIGON RIVER BRIDGE			Option 1:Discovery Centre is oriented to frame a view of the Trans-Canada Highway Bridge
VIEW TO EASTERN HILLS	V	V	mgmay shage
VIEW TO NIPIGON RIVER	V	$\overline{\mathbf{V}}$	
BUILDING DESIGN			
SPACE FOR PUBLIC ART	V		Option 1:Facade of the Discovery Centre designed to incorporate art/visitor
			experience display
WOOD CLADDING			Option 1: Wood cladding aligns with "Wood First" material selections
CEMENTITIOUS CLADDING		☑	Option 2: Cement board siding provide robust finish & reinforces geological
			formations metaphor through its materiality.
FLEXIBLE ENTRANCE HALL	☑		
STREET ENTRANCE	Ø	Ø	
PARKING ENTRANCE	☑	☑	
STAFF ENTRANCE	<u> </u>	☑	
CLERESTORY EXHIBIT GLAZING		V	Option 2: Clerestory provides indirect light to exhibit space which is beneficial
	<u> </u>		for artifacts which are affected by UV light.
OPEN COLLAB. AREA	☑	☑	
EXPANDABLE STAFF KITCHEN	<u> </u>	<u> </u>	
RES. CON. LAB WINDOWS	☑		Option 1: Res Con Lab has a visual connection to the exterior, furnishing
STORAGE MEZZANINE OPTION	$\overline{\mathbf{V}}$		natural day light and opportunities for visitors to view activity.
5.5000 MELLANINE OF HON] _		Option 1: Space within the roof truss provide an opportunity for additional, 'non heated' storage space.
STAFF WASHROOM / SHOWER	V	Ø	
CONFERENCE ROOM EXTERIOR	V		
VIEW	00	0.5	
SUB TOTAL	29	25	







PASSIVE HOUSE			
OPTIMIZED SOUTHERN EXPOSURE	$\overline{\checkmark}$	V	
ADEQUATE BUILDING ENVELOPE		V	
OPERABLE WINDOWS	Ø	V	
SOUTHERN SOLAR SHADING		V	
MINIMIZED NORTHERN OPENINGS	Ø	V	
SUB-TOTAL	5	5	

Summary:

Through this Attribute Comparison, both design options satisfy the mandatory functional and sustainability requirements outlined for the project. Upon a quantitative review, Option 1 furnishes additional attributes that make it marginally superior to Option 2. This data, in collaboration with the costing analysis, will serve as the objective rationale for the selection of the preferred design option.



Nipigon Marina and River: marinas.com

01.5 BUDGET/SCHEDULE/RISK ANALYSIS

This section has been included as an enclosed document and can be found in Appendix 08.

Lake Superior RISK and OPPORTUNITY Register

	oje et:	tata encodes	1		Project Phase	t		Risk Type	Rink Level (* ace tab)		
P	o je ce:	Lake Superior		Design		D	Sch	3shedule	High Risk		Status	500
aciliator:		Douglas MoNedi		Construction		C	Cos	Cost	Medium Risk	P2	Open	0
Stage:		Desgn		Operation]	0	Rep	Reputation	Loo Risk	P3	Dissec	C
)ate:		4-3 ₃ -18		Problemen		Р	H&S	Health & Dufely		107		18.5
Na.	Risk or Opp	Description: General	Project Phase	Туре	Probability	Impact	Risk Level	Proposed Solution	Action Taken (I different to proposed solution)	Owner	Residual Risk	Stefus
4	Rink	Discovery of unfavourable ground conditions	c	Con	Low	High		Perform adequate bore hole or thal pits, if building footprint changes carry out further samples to align with building.		Client		Open

Na.	Risk or Opp	Description: General	Project Phase	Туре	Probability	Impact	Risk Level	Proposed Solution	Action Taken (if different to proposed solution) Owner	r	Residual Risk	Status
1	Risk	Discovery of unfavourable ground conditions	С	Cos	Low	High	P2	Perform adequate bore hole or thal pits. If building footprint changes carry out further samples to align with building.		Client		Open
2	Risk	Uncompetitive pricing due to lack of industry interest in bidding on construction contract:	p	Cos	Low	High	P2	Early communication to merket to gain interest. Possibility to go out to merket with an 'Expression of Interest' to gain insight of interest. Review procurement route options to make sure assessment considers market acceptance/preference.		Client		Open
3	Risk	Cost of complying with Dity Inspectors interpretation of the O.B.C. should it differ from design team's	D	Cos	High	Low	PS	Construction budget and contract to induce adequate allowances for this common cocurrence GC to request unit rates for common alterations to comply with Life Safety concerns of inspector.		Client		Open
4	Risk	Unacceptable onsite Health and safety	c	HāS	Low	High	P2	H&S past performance to be included in the procurement process. Review contractor's H&S plans in detail to make sure they are comprehensive.		Client		Open
5	Risk.	Schedule impacticue to delay in contractor appointment as a result of poor documentation	P	Sdh	Low	Medium	PO	Design team to allocate sufficient time for thorough review and coordination. Limit the number of addendums.	Dec	esiçn Team		Open
б	Rink	Higher than expected changes to contract due to quarity of design documents.	C	Con	Low	High	P2	Appoint competent design team. Design team to adequately resource and provide robust QA/QC across all design disciplines. Design team to hold regular design coordination meetings.	De	ssign Team		Open
7	Pisk	Acceptance of elternative products to those specified may require unforeseen design changes which could result in additional consulting feet.	Þ	Cos	Medium	Medium	P2	Design team to carefully review impact of alternatives. Review to be carried out across all disciplines not just one in question.	Des	esign Team		Open
ā	Risk	Continuity of project team	С	Rep	Low	Low	23	Appoint competent design team. Have a succession plan in place for team members.		Client		Open
9	Risk	Long delivery times causing delays	С	Sdh	Low	High	P2	Review of potential long lead time items. Lock for alternatives to reduce risk. Fre order understanding risks in doing so.	Des	sign Team		Ópen
10	Fisk	Discovery of protected wildlife (enime's or trees etc.)	С	Cos	Low	High	Pž	Carry out thorough assessment or wildlife in a timely manner.	Д.	Client		Open
11	Rissi	Lack of construction expertise in the local market for passive buildings.	в	Cos	High	нул	6	Consider including passive house/material specific construction subject matter experts as part of the consultants construction supervision team required on site for this project. Design teem to look at prefabrication options. Look at training options to train contractors and subcontractors.		Cient		Open
12	Pisk	Lack of understanding of pessive and the importance of the quality of work and integrity of envelope antightness.	С	Cos	Hgn	High	- 191	Design team to look at prefabrication options. Look at training options to train contractors and subcontractors. Increased site presence. Early pressure testing. Look a simple assembly options over complicated ones.		esign Team		Open
13	Risk	Passible requirement to work around summer tourism season peak months (June-Aug) for the Township, Possible delays or stop work days/ame.	c	Sdh	Low	Medium	P3	Plen shead during design for construction schedule and put considerations into cost estimate. Early discussion with township to manage expectations. Build any restrictions into the construction contract.		Client		Open
14	Risk	Land transfer delays could delay construction start time.	С	Sah	Low	High	P2	A land transfer schedule should match the design/tender schedule for completion (land must be transferred before tender process). Construction expected to start in 2021.		Client		Open
15	Risk	Access to the site is restrictive and this can impect equipment needed on site, as well as overhead electrical restrictions.	0	HäS	Low	Medium	PS	Constructability constraints must be induced during design, and removal of these constraints may need to be incorporated into construction stage. RFP to request a logistic and traffic management plan.	Det	isign Team		Open



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Lake Superior RISK and OPPORTUNITY Register

Project:	Lake Superior	Project Phase			Risk Type	Risk Level (* see tab)			
Project	Lake auperior	Design	D	Sch	Schodule	High Risk	P1	Status	
Facilitator:	Douges McNeill	Construction	C	Cos	Cost	Medum Risk	P2	Open	0
Stage:	Dealgr	Operation	0	Rep	Repulation.	Low Risk	P3	Clised	C
Date:	4-Jul-18	Proprenent	р	HAS	Health & Saley				

No.	Risk or Opp	Description: General	Project Phase	Туре	Probability	Impact	Risk Level	Proposed Solution	Action Taken (It different to proposed solution)	Owner	Residual Rish	Status
16	Risk	Budget may not be adequate to fulfill all extenor and interior goals.	D	Cos	Low	High	P2	Focus on interior exhibits as a priority as exterior exhibits are easier to phase in at a later date. Design team to focus on envelope, windows, and door solution as these will be considerable cost driver to building.		Design Team		Open
17	Dieter	Trying to sign architectural and exhibit design processes can lead to significant aportive work. The process is too long for the exhibit process, especially when the construction process is considered. This can lead to additional project management, and meeting costs.	0	Cos	Low	Low	PS	Exhibit design is ideally 1 full phase behind the architects. Concept design generally does not begin until the exhibit floor plan is frozen. Exhibit process should lead with content development which architectural CD is produced. Mactings with exhibit design team should be held at specific times and should not be held on a biweekly or morthly basis. Changes during construction could impact the exhibit design. Agree the exhibit narrative early.		Client		Open
18		Exhibit lighting can only be done once the exhibit floorplan is frozen and this is often too late to be integrated with the architectural lighting.	o	Cos	Love	Low	RS	Exhibit lighting designers should provide a preliminary lighting plan with proposed equipment and loads. Architectural budget should provide for power runs, junction boxes (with allowance for some variance), and emergency lighting. Exhibit budget should be adequate to provide all exhibit track, fixtures, lamps and aiming and focusing allowance. Due to slob on grade solution, conduit runs should be planned early. Look at putting in a conduit grid in floor to allow flexibility.		Design Team		Open
19	Risk	Too great a focus on digital interactives can lead to significant issues during operation if an IT specialist is not present on site, even if remote access is granted to a third party IT developer.	O	Rep	Medium	Medium	P2	Only develop digital interactives that your site team can support. Keep in mind that both hardware and software issues can occur. Design team to review non digital interactive content. Use of standard equipment and software.		Design Team		Open
20	Risk	UNDERQUALIFIED GENERAL CONTRACTOR AND SUBTRACES	¢	Sch	Medium	Medium	P2	Look at procurement methodology. Lump sum does not promote quality sub trades. Look at using Construction Management to be more selective on sub trades:		Client		Open
21	füsk.	PASSIVE HOUSE CERTIFICATION FAIL	c	Rep	Low	High	P2	Appoint a competent design team and contractor. Perform pressure testing as early as possible. Increased crisite presence from design team and contractor. Prequent field reports and reviews by team. Early identification of issues. Stick with design as much as possible and be careful about accepting alternatives due to possible knock on effects.		Design Team		Open
22	Pisk	PROJECT ASPIRATIONS VS BUDGET ALIGNMENT	c	Rep	Low	Medium	P3	Carry out early and frequent cost estimates to understand cost of design. Limited communication of concepts to stakeholders until costing established.		Client		Open
23	Risk	SHOP FABRICATION FRRCRS	c	Sdh	Leny	Medium	19	Team to visit shop during fabrication to witness production and QA/QC process. Look at complexities with integration of prefab and built onsite elements. Watch out for tolerances of materials. Applies to exhibit as well. Due diligence on shop drawings sign off.		Design Team		Open
24	Risk	INTERNATIONAL SHIPPING DELAYS	c	Sah	Medium	High	*	Assess requirement for international supply chain. Look for Canadian solutions where possible, Look at spares for international items in case of damaged goods, Secure fabrication time early to create contingency in schedule.		Design Team		Open
25		Exhibit use of energy may create higher power and heat loads than can be accommodated by building (to get pessive certification).	c	Rop	Low	High	Pž	Add power and heat load limits to design within. Regular conversations with the exhibit designers to make sure they are designing within heat and power targets. Look at certification process and allowances for this type of building. Understand "rules" and also whether there may be any changes to the "rules that could impact you before certification ins complete.		Design Toam		Open

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Risk and Opportunity At Design (ROAD) Reviews

Probability / Likelihood of Risk						
Level	Probability / Likelihood					
High - Likely	Happens on Most Projects					
Medium - Moderate	Could happen occasionally					
Low - Unlikely	Could happen at sometime					

Impact	Potential Risk
High (High level of harm)	Above \$150,000 or delay of over 15 workdays
Medium (medium level of harm)	\$50,001 to \$150,000 or delay of up to 15 workdays
Low (Low level of harm)	\$0 to \$50,000 or delay of up to 5 workdays

Risk Evaluation Matrix

	Probabil	ity / Likelihood	
Impact	High	Medium	Low
High	P1	P1	P2
Medium	P2	P2	P3
Low	P3	P3	P3

Key							
P1	1st Rank Actions						
P2	2 nd Rank Actions						
P3	3 rd Rank Actions						
No Injury	Acceptable Risk						

RISK ANALYSIS SUMMARY:

The Risk Analysis Workshop took place on June 28, 2018. It was conducted by Turner and Townsend with participation by Parks Canada and the Consultant team. The table outlines the potential risks which may impact the schedule, cost or design of the project. In order to be effective, the Risk Analysis should be monitored and updated as new risks become present. Items should be addressed at the appropriate time during design and construction.

It is recommended that Parks Canada plan and address the items assigned the "Client". In advance of the next phase of design and construction Parks Canada should address:

Item 10: Wildlife

Item 14: Land Transfer

Item 22: Project Aspirations vs. Budget Alignment

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01.6 **SUMMARY OF EXISTING DOCUMENTATION**

ITEM	NAME	DESCRIPTION	RECEIVED
	CapeSpearLighthouseREVO_noPoints.rsh	n/a (file is corrupt)	2017-12-19
	ReshaperViewer2017_MR1_Main_x64.exe	n/a (file is corrupt)	2017-12-19
	NIPIGON SPECIFICATION - EXTENSION OF MUNICIPAL SERVICES.pdf	Extension of Municipal Services – Contract Specifications and Tender Documents	2017-12-19
	151-10080_Addendum-01- withAttachments_20160603.pdf	Addendum to the above	2017-12-19
	ADDENDUM #2 (with attachments) Twp. of Nipigon Extension of Municipal Services.pdf	Addendum to the above	2017-12-19
	Vision mission and socio economic.docx	Vision, mission, and socio-economic context and considerations for the development of this multi-use building and surrounding site	2017-12-19
	VISION~1.pdf	Vision, mission, and socio-economic context and considerations for the development of this multi-use building and surrounding site	2017-12-19
	LSNMCA Visitor Experience Strategy.vdraft.pdf	Visitor experience strategy report	2017-12-19
	LSNMCA Visitor Experience Strategy.vdraft3.1.pdf	Visitor experience strategy report (revised)	2017-12-19
	Needs Analysis - Updated Space Allocation requirements.xlsx	Summary of required spaces and associated net program areas	2017-12-19
	Parks Canada_CPTED_Final_Formatted (DEC23).doc	Summary of Parks Canada CPTED initiatives and requirements	2017-12-19
	lsnmca_imp_2016_e.pdf	Lake Superior Marine Conservation Area Interim Management Plan	2017-12-19
	WP_2.0_Fit-up_Standards.pdf	Workplace 2.0 Office Standards	2017-12-19
	NipigonMap.pdf	Town of Nipigon Map	2017-12-19
	NipWaterfrontDevelopmentMasterPlan.pdf	Nipigon Waterfront Development Master Plan (2013)	2017-12-19
	IMG_1868.JPG	Site Photograph	2017-12-19
	IMG_1869.JPG	Site Photograph	2017-12-19
	IMG_1870.JPG	Site Photograph	2017-12-19
	IMG_1872.JPG	Site Photograph	2017-12-19
	IMG_1873.JPG	Site Photograph	2017-12-19
	IMG_1874.JPG	Site Photograph	2017-12-19
-	IMG_1875.JPG	Site Photograph	2017-12-19
	IMG_1876.JPG	Site Photograph	2017-12-19
	IMG 1877.JPG	Site Photograph	2017-12-19
	IMG_1878.JPG	Site Photograph	2017-12-19
	IMG_1879.JPG	Site Photograph	2017-12-19
	IMG 1880.JPG	Site Photograph	2017-12-19
	IMG_1881.JPG	Site Photograph	2017-12-19
	IMG_1882.JPG	Site Photograph	2017-12-19
	IMG_1883.JPG	Site Photograph	2017-12-19
	IMG_1884.MOV	Site Video Clip	2017-12-19
	IMG_1885.JPG	Site Photograph	2017-12-19
	IMG_1886.JPG	Site Photograph	2017-12-19
		Terra Nova National Park Concept Design	
	Concept design.pdf Terra Nova Creative Workshop_FINAL.pdf	Terra Nova Visioning Workshop Document (2017)	2018-01-16 2018-01-16
	Nipigon site.dwg	Site plan drawing of project site	2018-01-24
	workplace_2_0_manual.pdf	Workplace 2.0 Manual	2018-02-27
	reduced-7107_pc_washroomspavillions-	Parks Canada Pavilions and Washroom	2018-03-22
	en.pdf	Facilities – Components and Prototypes	2010-03-22
	RN662 map intake pipe.pdf	Existing survey scan document	2018-05-09
	Nipigon_plan 55R2192 map.pdf	Existing survey scan document	2018-05-09
	Nipigon_Plan 55R7470.pdf	Existing survey scan document	2018-05-09
	RN662 map.pdf	Existing survey scan document	2018-05-09

02 FUNCTIONAL PROGRAM (AS 2)

02.1 PROGRAM SUMMARY

The functional program was developed and refined through interviews with the LSNMCA Field Unit Staff. Section 02.1.1 (Program Summary) outlines the program and associated areas for both design options. A detailed outline of requirements for each room can be found in the Room Data Sheets accompanying this report Appendix 08.03.

Major Space Breakdown, Exhibit Space Breakdown, and administrative space breakdown can be found please refer to charts in Section 01.1.2 (Quantitative Analysis).

02.1.1 PARAMETERS

2.1.1.1 GENERAL PURPOSE OFFICE

The program and was developed and refined through consultation with the Field Unit and PCA Project Manager. The individual workstations and offices meet the requirements of The *Government of Canada Workplace 2.0 Fit-up Standards* (Government of Canada, n.d.)

Spatially, both design options provide an open, collaborative and naturally lit workspace for the staff. The open work area is populated with individual workstations, which provide privacy while maintaining connection between the staff. A large boardroom is available for meetings and secondary work area. The kitchen serves as a social hub for the Field Unit staff to share meals and collaborate.

2.1.1.2 LAW ENFORCEMENT

The program and space requirements outlined by PCA requested office space for two staff as well as an interview room and a secure storage room. The location of the Law Enforcement functions were strategically placed adjacent to the service garage in order to provide a separate entrance, away from the main office and the general public. This function was necessitated to ensure safety for staff and privacy for the individuals involved.

2.1.1.3 RESOURCE CONSERVATION LAB

The lab space is intended to provide space for two staff to perform research on biological specimens. The functional & systems requirements are outlined in the room data sheets located in Appendix 8.3

The labs are located in close proximity to the storage garage. This provides efficiency for staff to move specimens from vehicles to the labs without disrupting the general office while also minimizing dirt and debris which may be trekked in from the field. In both options, the labs are furnished with large windows, visible to the public spaces. This provides visitors with the opportunity to view the laboratory activities and learn about the important research that the field unit conducts.

2.1.1.4 PARKING & SITE CIRCULATION

Brennan Road accommodates vehicular access to the site. The existing boat launches at the northeast and southeast extents of the site are to remain. Parking for 57 vehicles, including 4 Accessible spaces and 53 standard spaces supports both staff and visitor vehicles. A large vehicle parking area on the north side of the site accommodates tour buses, RVs, and vehicles with trailers.

The intent of the site vehicular circulation is to move cars to the west portion of the site. By tucking it behind the building, it ensures that clear views are maintained from the building to the water and escarpment.

A boat washing station has been located on the southern portion of the site. The boat washing station has been set back more than 30m from Clearwater creek and Nipigon River to minimize contaminants in those bodies of water. A pervious paving system is recommended to aid in the retention of boat wash and rainwater runoff.

2.1.1.5 UTILITY BUILDING

This large space serves as a storage garage for a boat, ATVs, snowmobiles and other small vehicles & equipment. The garage is located on the west portion of the building, away from the public and is easily accessible from the parking lot. The space is partially conditioned and is not intended to be included in the Passive House boundary. This service area is easily accessible to the Resource Conservation staff and serves as the primary entrance for the Law Enforcement staff.

2.1.1.6 DISCOVERY CENTRE

In both options, the Discovery Centre has been located on the northern portion of the site and separated from the administration wing by a public atrium/corridor. The Atrium space serves as a transition between the interior and exterior exhibits.

The Discovery Centre features a large interior volume that provides flexibility for changing exhibits. The space can accommodate large artifacts or be subdivided into several small spaces. In several options, a central community use or space for a travelling exhibit has also been provided. Refer to Section 05 – Preliminary Exhibit content, and Section 06 – Preliminary Exhibit Design Concepts for more information.

The space features strategically placed glazing which provides several functional advantages:

- 1. UV light is limited and historical artifacts are protected from potentially damaging sun light.
- 2. Digital Exhibits, such as videos and interactive displays have more impact.
- 3. Solid walls reduce heat loss on the northern façade of the building, reducing energy demand and supporting sustainability
- 4. Maximizing solid wall space provides more area for exhibit displays and reduces fit up costs for temporary walls

5. Key views and vistas are 'framed' through the careful placement of windows



2.1.1.7 VALUE ENGINEERING

The architectural consultant team conducted a value engineering exercise in advance of the budget increase. These design variations demonstrate a significant reduction of program area. The area reductions reduce both the construction and operating costs. It is recommended the construction cost estimates be consistently updated as the project advances through successive design phases. A reduced area floor plan for both the Paddle and Geological Formation design options is included in Appendix 08.06.

To reduce capital costs expenditures, there are several strategies Parks Canada should consider as the project develops.

The findings are as follows:

- PHASE THE DESIGN: PCA could consider creating the Discovery centre as a 'shell space'. This would defer the fit up costs for the exhibit to a later time when more funds are available. Simultaneously it would enable the Field Unit to have a functional administrative building to continue their work and research
- **REDUCE STAFF/WORKSTATIONS:** Many of the field unit staff spend the majority of their day outside of the office. It is recommended that only full time administrative staff be provided with fixed seating/assigned desks. All other staff could be assigned to a 'hotel' station when they are in the office. With the transition to mobile computers and digital archiving the need for a permanent seating is not necessary. PCA should also consider whether fixed seating is necessary for seasonal staff. These staff members will only be working for a portion of the year. As such their workstation will be vacant the remaining time. Eliminating workstation for seasonal staff & co-op students would reduce the capital costs for construction and furniture.
- UTILITY BUILDING REDUCTION: The enclosed garage space for the vehicles could be removed from the building program. Savings could be achieved by storing these vehicles in the parking lot. For additional security, fencing could be provided in a sectioned off area of the site.

2.1.2 PROGRAM SUMMARY CHARTS

ODTION 1 DANNIE.

Major Program Spaces			
General Purpose Office			
01a - Site Manager	11.30	m²	
01b - Assets Function	4.50	m ²	3 Workstations
01c - Finance	4.50	m²	3 Workstations
01d - Overflow FTE	9.00	m ²	6 Workstations
01e - Flex Overflow	6.00	m ²	4 Workstations
01f - Overflow Workstations	9.00	m ²	6 Workstation
01g - Reception	0.00	m²	(Area included in discovery centre)
01h - Graphics Station	1.50	m ²	1 Workstation
02a - Res Con Officer	4.50	m²	3 Workstations
02b - Geomatics Officer	4.50	m ²	3 Workstations
02c - Res Con FTE	4.50	m ²	3 Workstations
02d 0 Res Con Flexible FTE	6.00	m ²	4 Workstations
02e - Quiet Room	5.90	m ²	
03a - Visitor Experience FTE	27.00	m ²	
O3b - Visitor Experience Flex O3c - V.E. Free Address	12.00 4.50	m ²	
03d - Meeting Room	9.00	m ²	
OSU - Meeting Room	9.00	1115	+
04a - Shared Equip RM	17.00	m ²	
04b - Lrg. Conf. RM	35.00	m ²	
04c - Kitchen	20.00	m ²	
04d - Collab. Work Space	14.70	m ²	
04e - Closet Space	3.80	m ²	
04f - TelComm.	10.50	m ²	
04g - Central Equip. RM	9.10	m ²	
04i - User Washrooms	12.70	m ²	
05a - Res Con Lab	46.00	m²	
08a - Warden Office	18.20		
08d - LE Secure Storage Room	8.60		
08f - LE Interview Room	9.30		
SUBTOTAL	328.60	m ²	
20% GROSS UP	394.32	m ²	
Discovery Centre			
06 - Discovery Centre	197.00	m²	
05b - Public Washroom	41.00	m ²	
01g - Reception	10.60	m²	
SUBTOTAL	252.20	m²	
20% GROSS UP	302.64	m ²	
Utility Building			
07 - Utility Building	100.80	m²	
SUBTOTAL	100.80	m²	
:	1		
TOTAL			

OPTION 2 - GEOLOGICAL FORMATION:

Program Summary			
Major Program Spaces			
GENERAL PURPOSE OFFICE			
01a - Site Manager	11.90	m²	
01b - Assets Function	4.50	m²	
01c - Finance	4.50	m ²	
01d - Overflow FTE	9.00	m ²	
01e - Flex Overflow	6.00	m ²	
1f - Overflow Workstations	9.00	m ²	
01g - Reception	0.00	m ²	(Area included in discovery
01h - Graphics Station	1.50	m ²	
02a - Res Con Officer	4.50	m ²	
02b - Geomatics Officer	4.50	m ²	
02c - Res Con FTE	4.50	m ²	
02d 0 Res Con Flexible FTE	6.00	m ²	
02e - Quiet Room	6.00	m²	
03a - Visitor Experience FTE	27.00	m²	
03b - Visitor Experience Flex	12.00	m ²	
03c - V.E. Free Address	4.50	m ²	
03d - Meeting Room	6.00	m²	
04a - Shared Equip RM	17.00	m²	
04b - Lrg. Conf. RM	24.30	m²	
04c - Kitchen	22.10	m ²	
04d - Collab. Work Space	14.40	m ²	
04e - Closet Space	3.80	m ²	
04f - TelComm.	10.00	m ²	
04g - Central Equip. RM	0.00	m ²	
04i - User Washrooms	7.90	m ²	
05a - Res Con Lab	44.00	m²	
08a - Warden Office	12.80		
08d - LE Equipment Room	9.90		
08f - LE Interview Room	10.00		
SUBTOTAL	297.60	m²	
20% GROSS UP	357.12	m²	
DISCOVERY CENTRE			
06 - Discovery Centre	203.50	m²	
05b - Public Washroom	39.90	m ²	
01g - Reception	11.30	m²	
SUBTOTAL	254.70	m²	
20% GROSS UP	305.64	m ²	
UTILITY BUILDING			
07 - Utility Building	100.00	m²	
SUBTOTAL	100.00	m²	
TOTAL			
TOTAL PROGRAM AREA	762.76	m²	

02.2 USER/STAKEHOLDER INTERVIEWS

PROGRAMMING:

The initial program and design brief was reviewed and verified through meeting between the Field Unit and Perkins+Will Architects on January 18, 2018 in Nipigon, Ontario. Decisions were documented and summarized in the approved room data sheets attached in Appendix 08.03.

SUSTAINABILITY:

A sustainability workshop was conducted on February 8, 2018 between the PCA Field Unit and the Consultant Team. The workshop identified the sustainability goals and outlined the preliminary strategies to implement. A full record of the details can be found in the meeting minutes attached in Appendix 08.07.

COMMUNITY CONSULTATION:

Upon completion of the concept design, Perkins+Will was asked by Parks Canada to present the two design options at an open house event. The event took place on June 22, 2018 at Nipigon Community Centre. The format of the event involved a digital presentation as well as display boards and physical models for attendees.

Community members were encouraged to ask questions and provide written comments which were collected and archived by PCA. The Community Consultation took place after the final design was submitted, therefore, community feedback was not incorporated into the Design Options presented in this report. The feedback collected should be used to inform any revisions to the selected design in future phases of the project.

Community feedback and comments have been attached; see Appendix 08.08.

Parcs

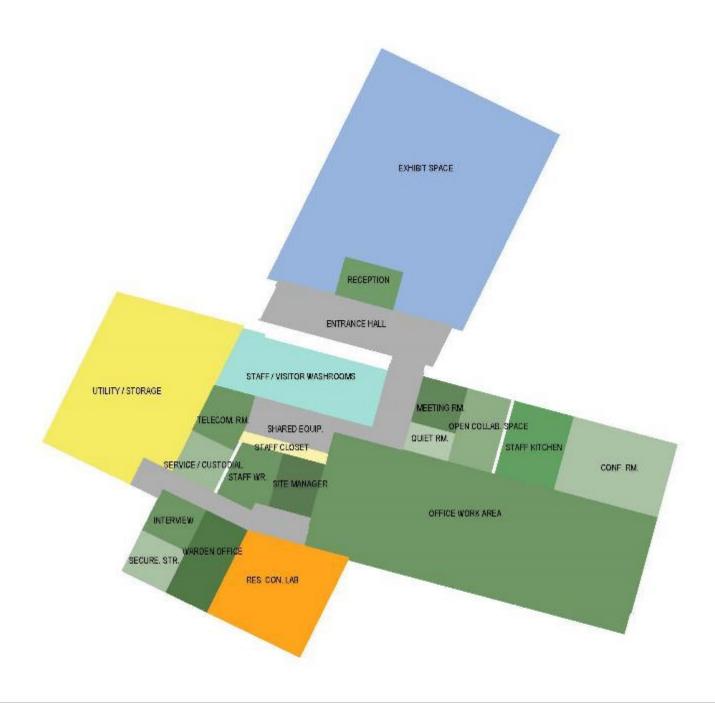




02.3 ZONING/BUBBLE DIAGRAM

Zoning diagrams illustrate the space planning and program adjacencies for each of the design options.

Exhibit Space
Office/Admin/Support Spaces
Utility/Storage
Res. Con. Lab
Washrooms
Circulation





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OPTION 1



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Exhibit Space
Office/Admin/Support Spaces
Utility/Storage
Res. Con. Lab
Washrooms
Circulation



OPTION 2



PERKINS+WILL Phase 1 - Programming/Concept



02.4 ROOM DATA SHEETS

Room data sheets provide a summary of the program requirements of the spaces of the LSNMCA Administration Building and Discovery Center. The data was created in collaboration with PCA and the Consultant team; through user group feedback. The room data sheets for both options have been provided in Appendix 08.03.





02.5 EXTERIOR SPACE PROGRAMMING

Arrival at the site, whether by bus, car, bicycle or foot, the visitor's first experience of the LSNMCA Discovery Centre. Setting the stage is of kev inspiring importance, visitors to explore the exhibits and the site itself. The options for the exterior exhibits seek to maximize the use of exterior spaces for interpretation exterior exhibits, bringing



Exterior Discovery: Origin Studios

the Discovery Centre outside as much as possible by designing spaces that can work with the programming and thematic uses of the exhibits. By emulating the design language of each customized option outside as well as inside, the consultants have sought a seamless transition between the language of interior and exterior exhibits with content and messaging mixed in with playful moments. Origin studios has prepared four exterior design options. Refer to Section 06 – Preliminary Exhibit Design Concepts for more information.

The strategy for site circulation is to have vehicles to park at the rear of the building to ensure that prominent views to the lakefront and surrounding landscape are preserved. The building is positioned in the middle of the current site in order to provide clearance to the adjacent landscape (forest to the north, Clearwater Creek to the west & south)

The exterior space on the project site comprises of Surface Parking, Landscape/Interpretive space, and vehicular access routes. The main access via Brennan Drive has been preserved to enable access to both parking as well as the existing boat launch at the south of the peninsula. Exterior parking accommodates 53 standard vehicular spaces, 4 accessible spaces and 100 linear meters of RV/Trailer parking. The existing boat launches have been retained. Across from the boat launch at the southern edge of the site, a new boat washing station will serve multiple vehicles/vessels at a time with 50 linear meters of space. It is recommended that a pervious paving system and permeable vegetation be used to retain storm water runoff for the main parking area. Runoff from the boat washing station will need different treatment to avoid the spread of contaminants. It is recommended that PCA retain the appropriate consultants for the coming stages of the project to continue the development of site strategies, landscaping, and exterior exhibit space.

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EXTERIOR EXHIBIT CONCEPTS:

A brief description of each Exterior Exhibit design option is outlined below. For full interior and exterior exhibit design concepts, refer to: Section 06 - Preliminary Exhibit Design Concepts

OPTION 1A:

The inspiration behind design Option 1A is the vast and rugged nature of the landscape and waterscape of the LSNMCA. The exterior exhibit offerings employs the same rugged look and feel as the interior exhibits of the Visitor Centre, while creating engaging and interesting spaces for programming and interpretive opportunities. Working in conjunction with the architecture team, the metaphor of the paddle / log compliments the rugged nature of the land and waterscape in a way that highlights and emphasizes the metaphor for the building.

OPTION 1B:

The inspiration behind design Option 1B is the organic, undulating nature of water. The flowing, organic pathways lead the visitor through the site with central "hubs" offering gathering areas for interpretive messaging and physical interactives. Of key interest for playful moments is the "Become A Lighthouse Keeper" activity with a model lighthouse encouraging play and a key draw to the exterior sites as you enter.

OPTION 2A:

The inspiration behind design Option 2A is a "Gateway to Adventure". The exterior exhibits offer the same winding pathways and as the interior exhibits of the Discovery Centre, with archways taking the visitor through a Discovery Path that highlights additional interpretive messaging. Natural playground features are employed throughout to encourage children to play and engage with the exterior site.

OPTION 2B:

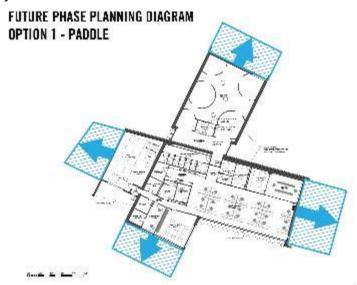
The inspiration behind design Option 2B draws from the ribs of a canoe or boat that take the form of winding pathways with ceiling structures overhead that frame and highlight. The exterior exhibits offer the same winding pathways as the interior exhibits of the Discovery Centre, with the archways/ ribs taking the visitor through the exterior site framing key views, for example towards Nipigon River. Natural playground features are employed throughout to encourage children to play and engage with the exterior site. Of key interest for playful moments is the Canoe/ Boat play area with displays of model boat types encouraging an interest in the Lake and within a historical context.



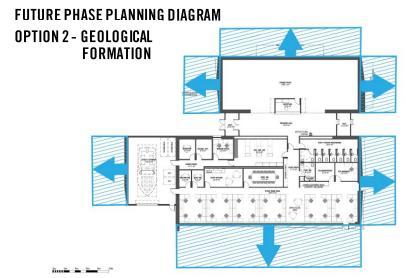
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02.6 FUTURE PHASE PROGRAMMING/Expansion

Both design options have the ability to expand to accommodate larger office & discovery center space. At this point in time there are no future phases planned for this project. The diagrams below illustrate possible options for the future expansion of each architectural design option for the LSNMCA Administrative Building and Discovery Center.



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RECOMMENDATIONS:

If PCA anticipates growth and development within 5 years of construction, it is recommended that the plumbing, mechanical and electrical systems be sized to accommodate the expected growth. This information should be documented and provided to the consultant team at Phase 2: Schematic Design/Design Development Stage/Construction



02.7 ADMINISTRATIVE SPACE REPORT/RECOMMENDATIONS

The administrative space allocations have been designed to accommodate the anticipated maximum staffing:

- 1x Site Manager
- 1x Assets Function
- 1x Finance
- 2x Overflow FTE
- 2x Overflow Workstations
- 2x Flex Overflow FTE
- 1x Graphics
- 1x Resource Conservation Officer
- 1x Geomatics Officer
- 1x Res Con FTE
- 2x Res Con Flex FTE
- 6x Visitor Experience FTE
- 4x Visitor Experience Flex FTE
- 3x Visitor Experience Free Address FTE

Additional shared administrative spaces:

- Board Room (accommodates 14 individuals)
- Law Enforcement (2 staff, 1 interview room, 1 evidence storage)
- Kitchen (accommodates maximum 20 persons)
- Meeting Room (accommodates small meetings 3-4 persons)
- Quiet room (small meeting room accommodates 2-3 persons)
- Open Collaborative Space (meeting room accommodates 6-8 persons)
- Resource Conservation Lab (large lab space)

The office space requirements have been planned using workplace 2.0 design standards (https://www.tpsgc-pwgsc.gc.ca/biens-property/amng-ftp/index-eng.html).

RECOMMENDATIONS:

In order to achieve space efficiencies it is recommended that permanent desks should be limited to full time, year round employees who spend the majority of their day in the office environment. Staff members who do not meet the criteria should be accommodated through the use of temporary/hotel stations. Shared works stations would lower capital costs by reducing square footage and furniture/equipment costs.

02.8 SUPPORT SPACE REPORT/RECOMMENDATIONS

The support spaces for the facility include:

- Indoor vehicle storage (large boat, 2 snowmobiles, 2 ATV)
- Janitorial Space
- Universal washroom facilities
- Universal Staff Washroom & Shower
- Telecommunication/Mechanical/Electrical room

Universal bathrooms are intended to serve both the staff and public. The universal design of the facilities optimizes space and provides a more welcoming environment for all visitors.

Staff are accommodated with an additional universal washroom with a shower, located in the administrative wing. This accessible washroom enables PCA to accommodate all staff members.

RECOMMENDATIONS:

Indoor Vehicle storage could be considered a secondary priority. Securing vehicles could be accommodated through a fenced in compound in the parking area. Removal of the enclosed vehicle garage would provide capital cost savings.

During the next phase of Design, efforts should be made to consider any additional support spaces required. This may include spaces for PV battery storage, heat exchangers and other equipment to be used as part of the sustainability efforts.

02.9 SECURITY REPORT/RECOMMENDATIONS

Crime Prevention Through Environmental Design (**CPTED**) concepts have been incorporated in each architectural design option. Both options take a proactive approach to crime prevention through Natural Surveillance, Access Control, Territorial Reinforcement, Target Hardening, and Law Enforcement.

NATURAL SURVEILLANCE:

The location of the building in the centre of the site ensures the building and all its corners are easily visible. The landscaping surrounding the building has been kept low to promote visibility.

NATURAL ACCESS CONTROL:

Access to the building is limited to either a secure entrance through the garage or the main entrance in the centre of the building. Both access points can be locked to prevent unwanted entry. Access to the Discovery Centre and Administrative wing are both accessed from the central corridor. The administrative wing is separated from the public area through lockable entries, thereby limiting access to potentially sensitive information and equipment.

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TERRITORIAL REINFORCEMENT:

A reception desk has been located in the Discovery Centre, with a direct line of sight to the main entrance. This ensures staff can assist visitors and deter unwanted activity.

TARGET HARDENING:

The garage accommodates valuable items, such as boats, ATVs and snowmobiles, which are only accessible to PCA staff. This protection limits the opportunity for vandalism and theft. The building has been designed with robust materials to thwart potential attacks. Further refinement of hardware and security equipment should be developed in the next phase of design.

LAW ENFORCEMENT:

The location of the Law Enforcement program areas have been strategically placed to separate them from the public and administrative areas of the facility. This placement reduces or eliminates interaction between visitors/staff and incarcerated individual(s).

RECOMMENDATIONS:

The passive nature of CPTED features requires only regular maintenance of the building and surrounding landscapes to ensure their longevity and effectiveness.

No high priority security concerns were furnished by PCA during initial programming meetings. If criminal activity is deemed a pervasive problem, a security consultant should be procured to provide additional recommendations during the Design Development phase. Security measures may include CCTV monitoring, electronic alarm and surveillance, protective reinforcement on glazing and full time security patrol.

02.10 COMMUNICATIONS/DATA REPORT/RECOMMENDATIONS

Communications and Data requirements were defined through user group meetings and include:

- Telephone
- Internet

The Information and Technology room is centrally located in both building designs. This affords efficient distribution of services throughout the building as well as improves security by eliminating direct access threats from the exterior.

The Nipigon area is serviced by several Internet Providers. These companies currently offer landline and cellular telephone service as well as internet service ranging from DSL to Fibre. As of 2018 the available band width is between 12-25mbs download and approximately 1mbs upload.



Preliminary Communications/Data requirements have been outlined in the individual room data sheets. See Appendix 08.03.

RECOMMENDATIONS:

It is recommended that a communications/data requirements be re-evaluated and confirmed internally by PCA in advance of Phase 2: Schematic Design/Design Development Stage/Construction. Due to the nature of the work being done on site, PCA should confirm if the remote nature of the site requires satellite network capabilities. Additionally, if high security measures are needed for communications, dark fibre installation may be considered

02.11 RESOURCE CONSERVATION LABORATORY

The details and requirements of this space have been documented in the Room Data Sheets provided in Appendix 08.03. Currently, this space is intended to serve two workers. It provides laboratory, research and storage spaces for conservation activities.

RECOMMENDATIONS:

While a preliminary space allocation has been provided, further detail is required to refine the space to meet the technical needs of the Resource Conservation Team. Equipment lists, storage requirements, mechanical, electrical and plumbing needs must be further captured in the Design Development Phase of the project.



Resource Conservation Lab: Walkthrough Video, Appendix 08.10



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03 CONCEPT DESIGN (BS 2, AS 2)

03.1 OPTION 1 - PADDLE

INSPIRATION

Design Option O1, referred to as the *Paddle*, is inspired by the story *Paddle-to-the-Sea* by author/illustrator Holling C. Holling, whereby a small boy places a wood carving of First Nations Person in a canoe into Lake Superior which then travels through Canada's waterways reaching the gulf of St. Lawrence. This narrative evokes imagery and ideas of the regional relationship between water and wood. The architectural form alludes to a log jam at the end of its float downstream to the lake. The architecture invites visitors to paddle out into the Lake Superior National Marine Conservation Area much like the wooden sculpture from *'Paddle by the sea'*.

MASSING

The architectural massing of Design Option 01 playfully merges two primary architectural program masses to create an intersecting form with shared circulation space at the center. This point of convergence also serves as the primary access point for LSNMCA staff and visitors. The volume aligned to the East-West axis contains most of the administrative program while the volume on the North-South axis houses mainly the exhibit/interpretive program.

PRELIMINARY CONSTRUCTION CONSIDERATIONS

Foundation:

- Cast-in-place concrete slab-on-grade with thickened perimeter edges
- Piles extending down to adequate subsurface bearing conditions

Superstructure / Exterior Wall Assembly:

- Glue-laminated mass timber framing elements (columns, beams, etc.)
- CLT shear wall panels
- Dimensional lumber infill framing at perimeter

Roof Assembly:

- Prefabricated, Pre-engineered wood trusses

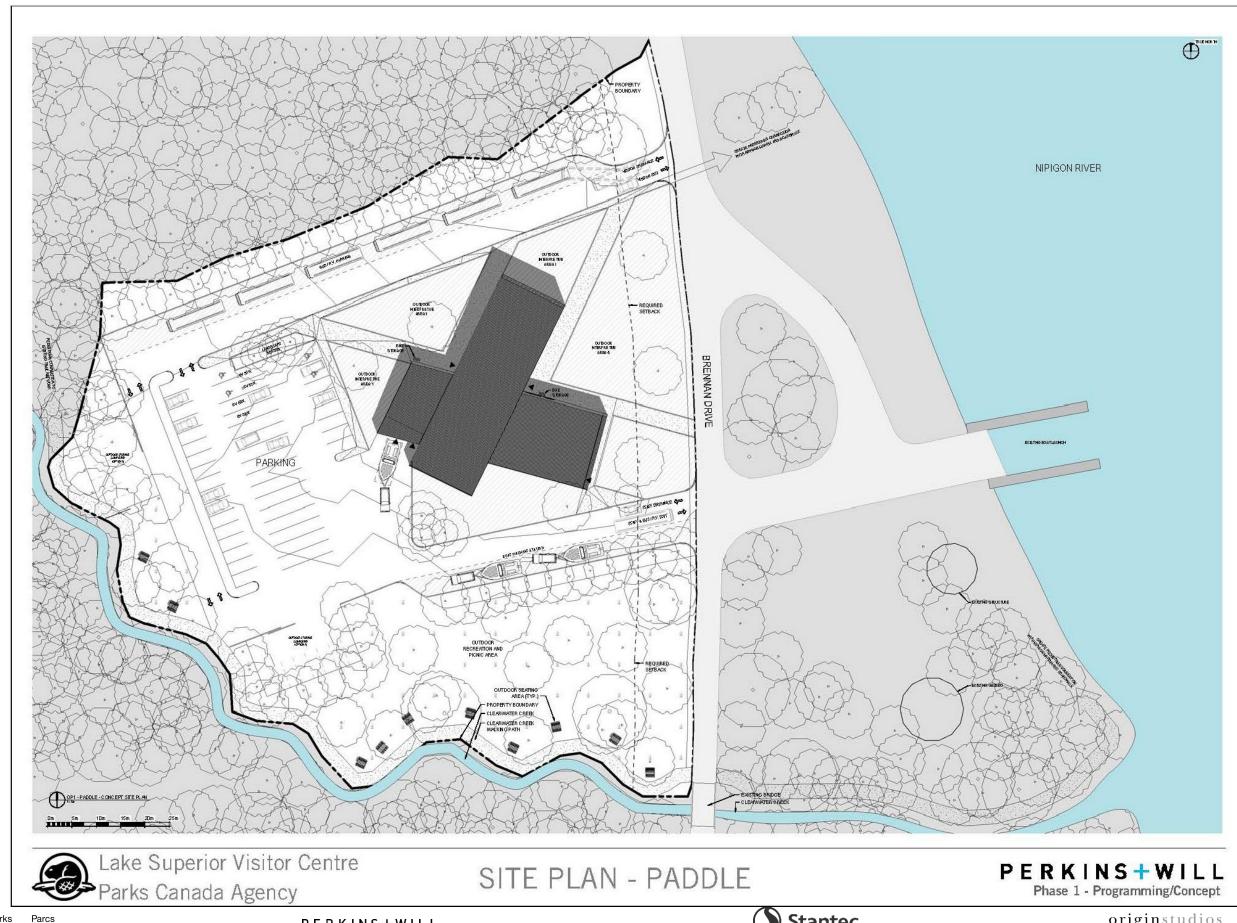
Exterior Doors / Windows:

- High performance, Passive House Certified, windows and doors
 - o (refer to section 4, *Sustainable Strategies*, for specific performance requirements and manufacturer recommendations



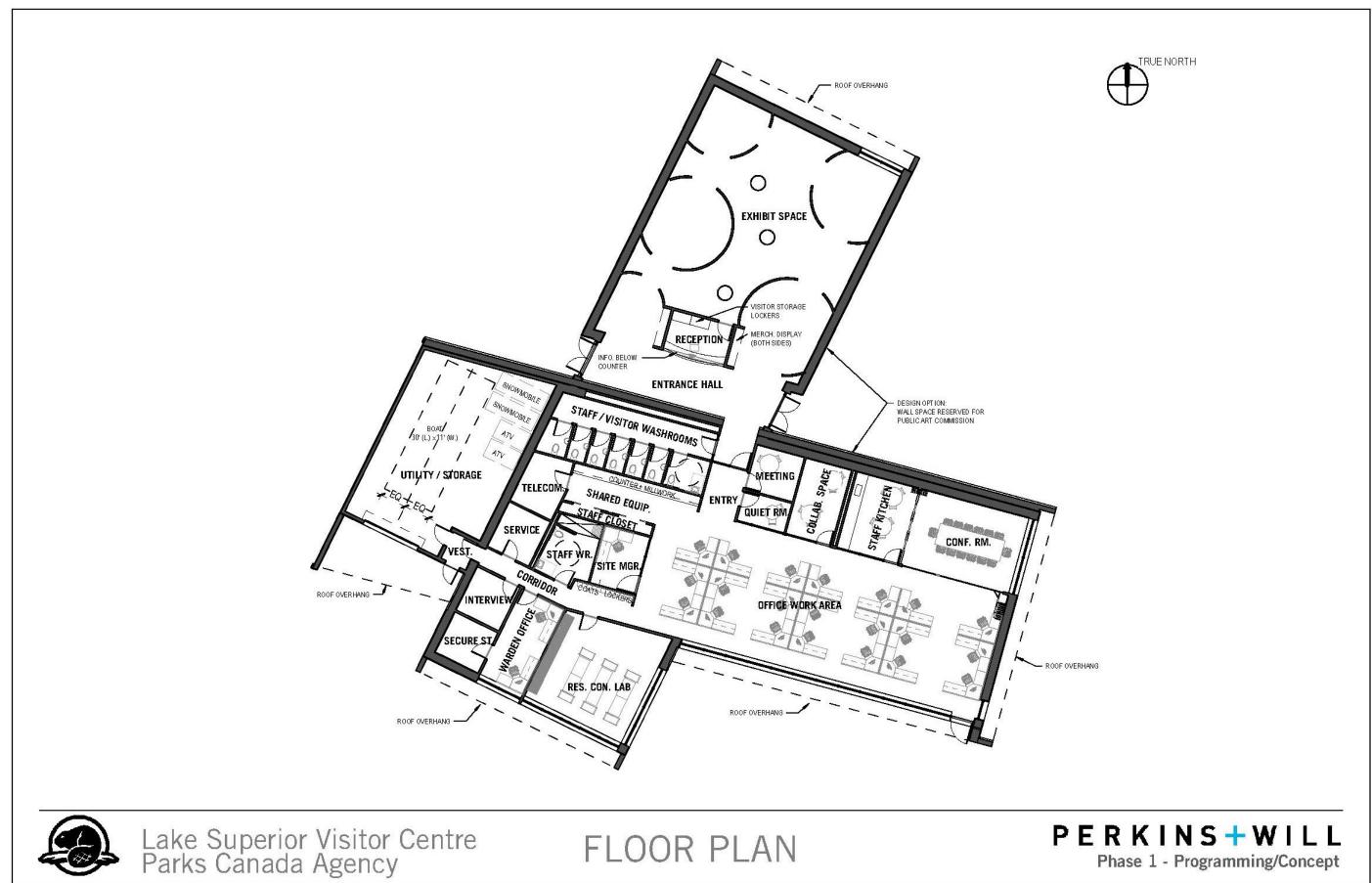
^{*}For scaled architectural pre-design drawings please refer to Appendix 08.08

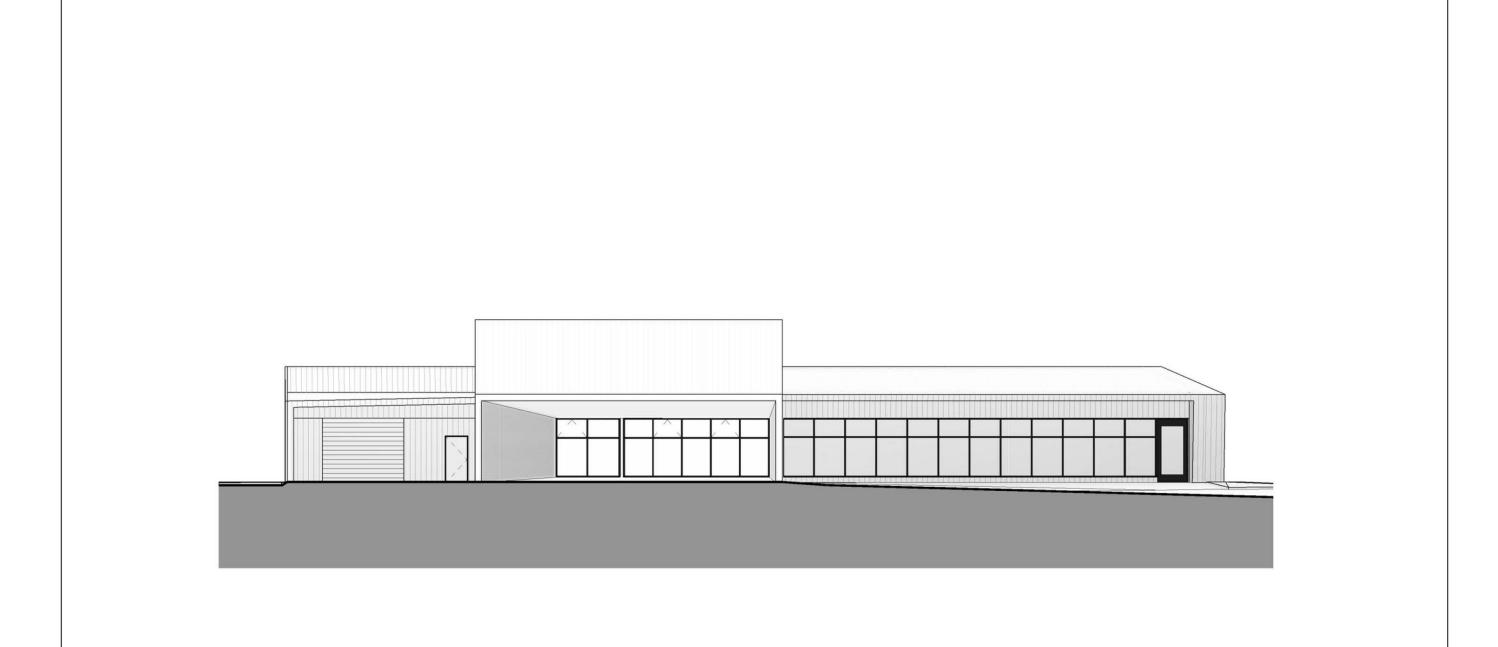
03.1.1 SITE PLAN



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03.1.2 BUILDING PLANS





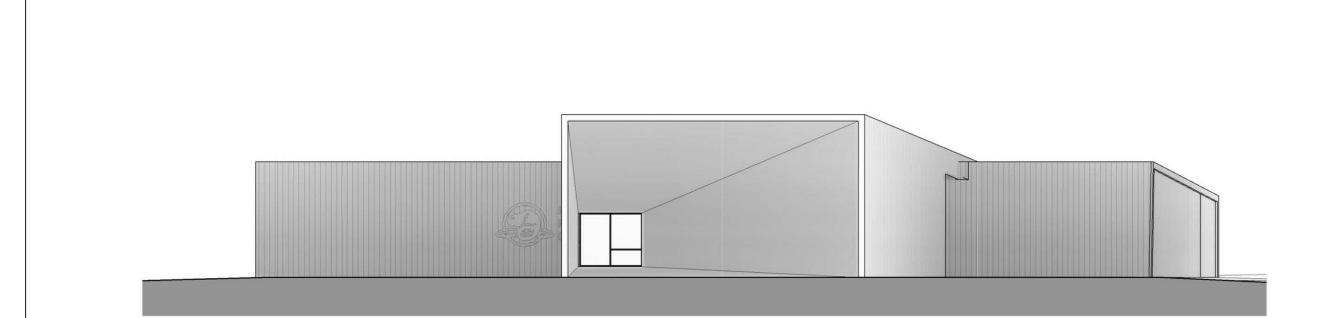


SOUTH ELEVATION







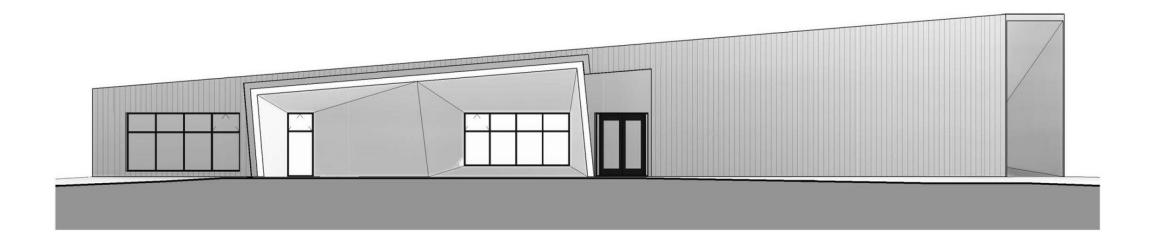




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NORTH ELEVATION







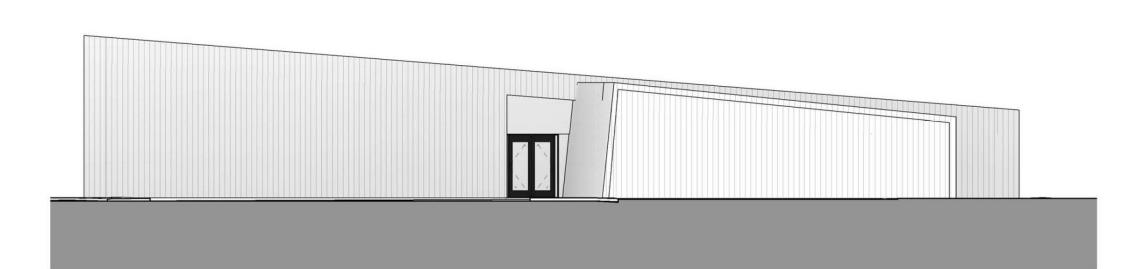
Lake Superior Visitor Centre Parks Canada Agency

EAST ELEVATION











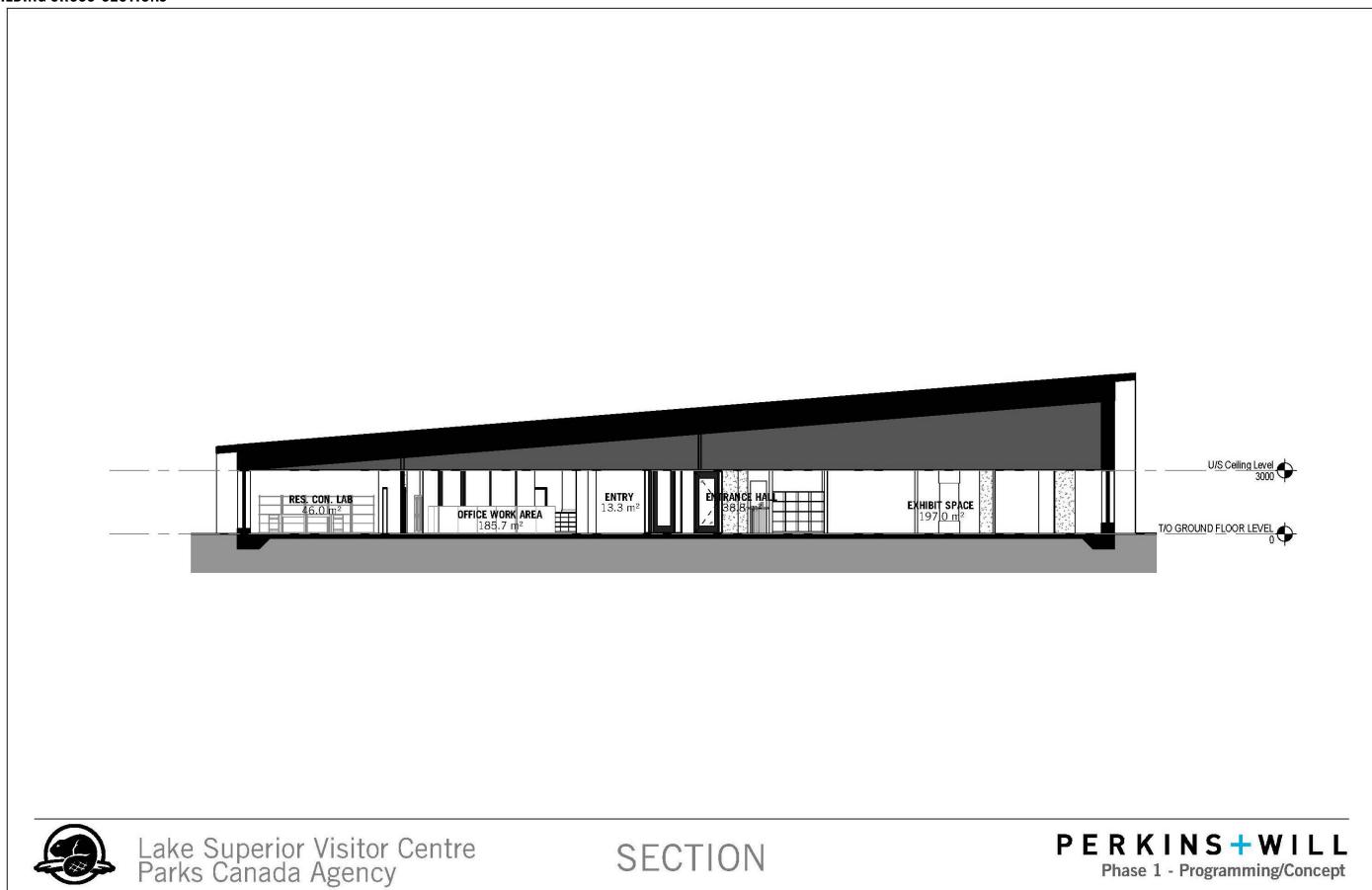
WEST ELEVATION







03.1.4 BUILDING CROSS-SECTIONS







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03.1.6 INTERIOR PERSPECTIVE VIEWS

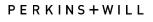
A digital interior walkthrough video has been provided as an attached file. Refer to Appendix 08.10 for walk through/ fly through video animations and interior perspective views.



Paddle Office Space: Walkthrough Video, Appendix 08.10

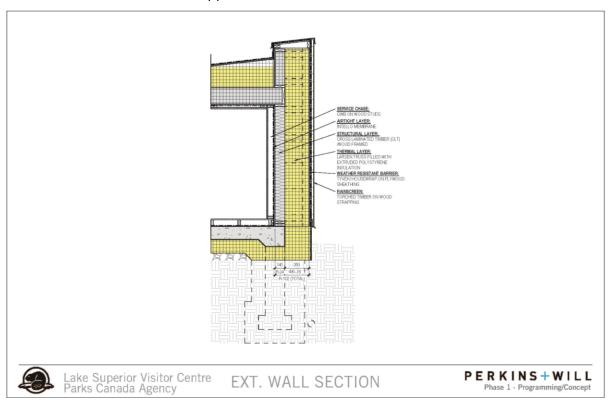


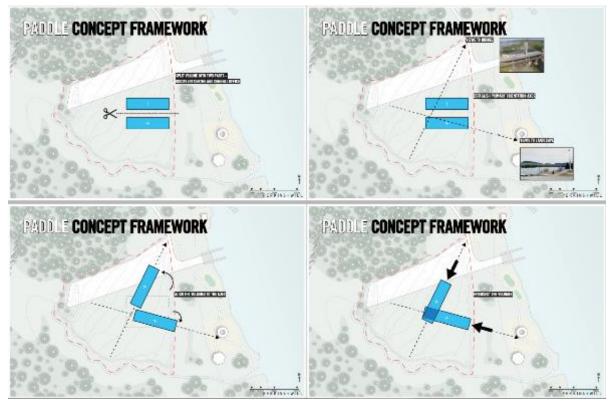
Paddle Kitchen and Conference Room: Walkthrough Video, Appendix 08.10



03.1.7 PRELIMINARY DIAGRAMS/DETAILS

Concept framework diagrams and architectural assembly sketches are provided as an attached file. Refer to Appendix 08.10 for these Items.











OPTION 2 - GEOLOGICAL FORMATION 03.*2*

INSPIRATION:

Design Option 2, referred to as the Geological Formation, takes its inspiration from the varied and unique geological formations found throughout the Lake Superior region. The architecture tells an allegorical tale of discovery; the same way a miner might break open a stone to find a precious mineral within, so might a visitor discover the beauty of the LSNMCA and all it has to offer.

MASSING:

The architectural massing of Design Option 02 is a direct response to the programmatic requirements of the building, articulated as two primary volumes separated by a public corridor, the atrium serves as the primary point of access for LSNMCA staff and visitors. The southern volume houses administrative program areas while the exhibit/interpretive program is contained in the northern volume.

PRELIMINARY CONSTRUCTION CONSIDERATIONS:

Foundation:

- Cast-in-place concrete slab-on-grade with thickened perimeter edges
- Piles extending down to adequate subsurface bearing conditions

Superstructure / Exterior Wall Assembly:

- Glue-laminated mass timber framing elements (columns, beams, etc.)
- CLT shear wall panels
- Dimensional lumber infill framing at perimeter
 - o Prefabricated Larson truss mounted vertically at perimeter to create facetted façade configurations

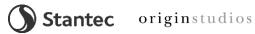
Roof Assembly:

Prefabricated, Pre-engineered wood truss

Exterior Doors / Windows:

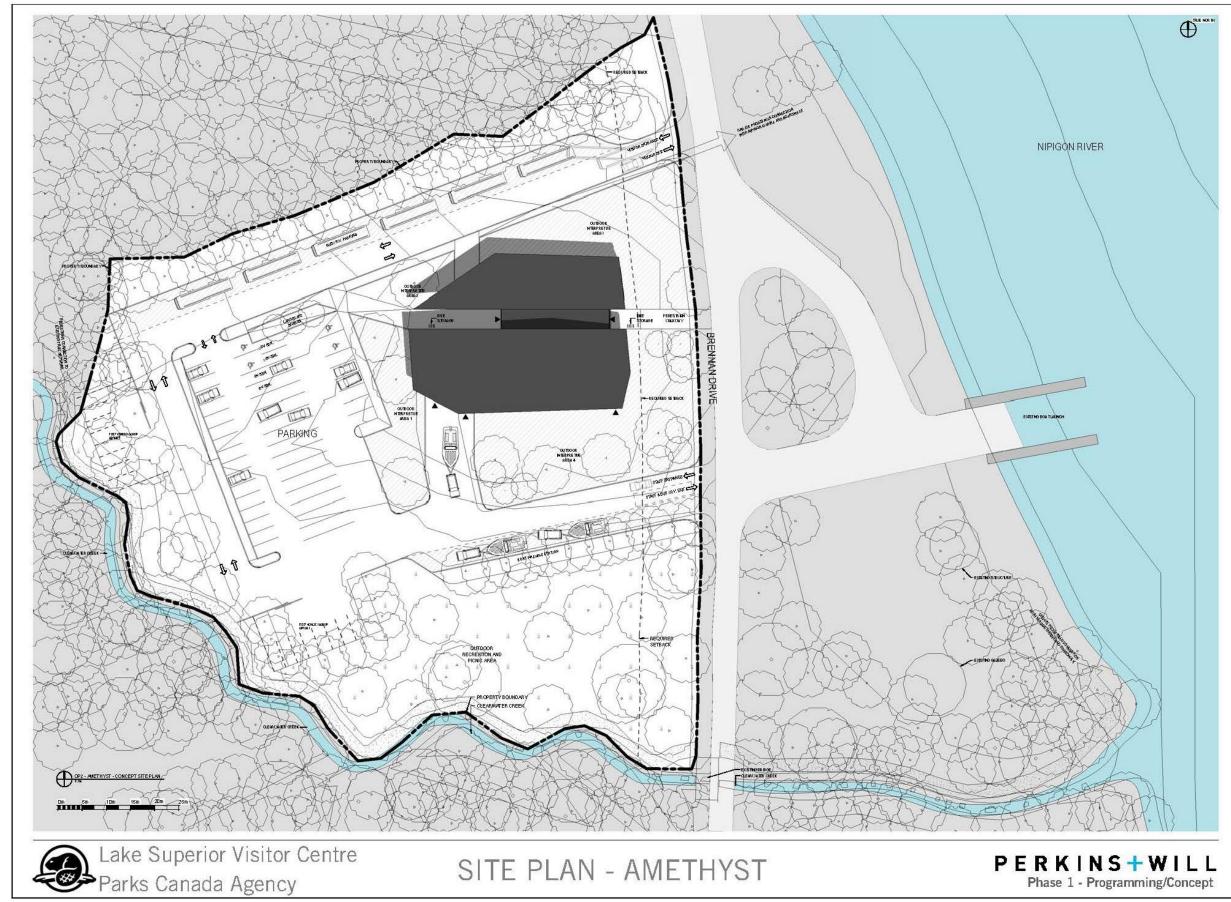
- High performance, Passive House Certified, windows and doors
 - o (refer to section 4, Sustainable Strategies, for specific performance requirements and manufacturer recommendations





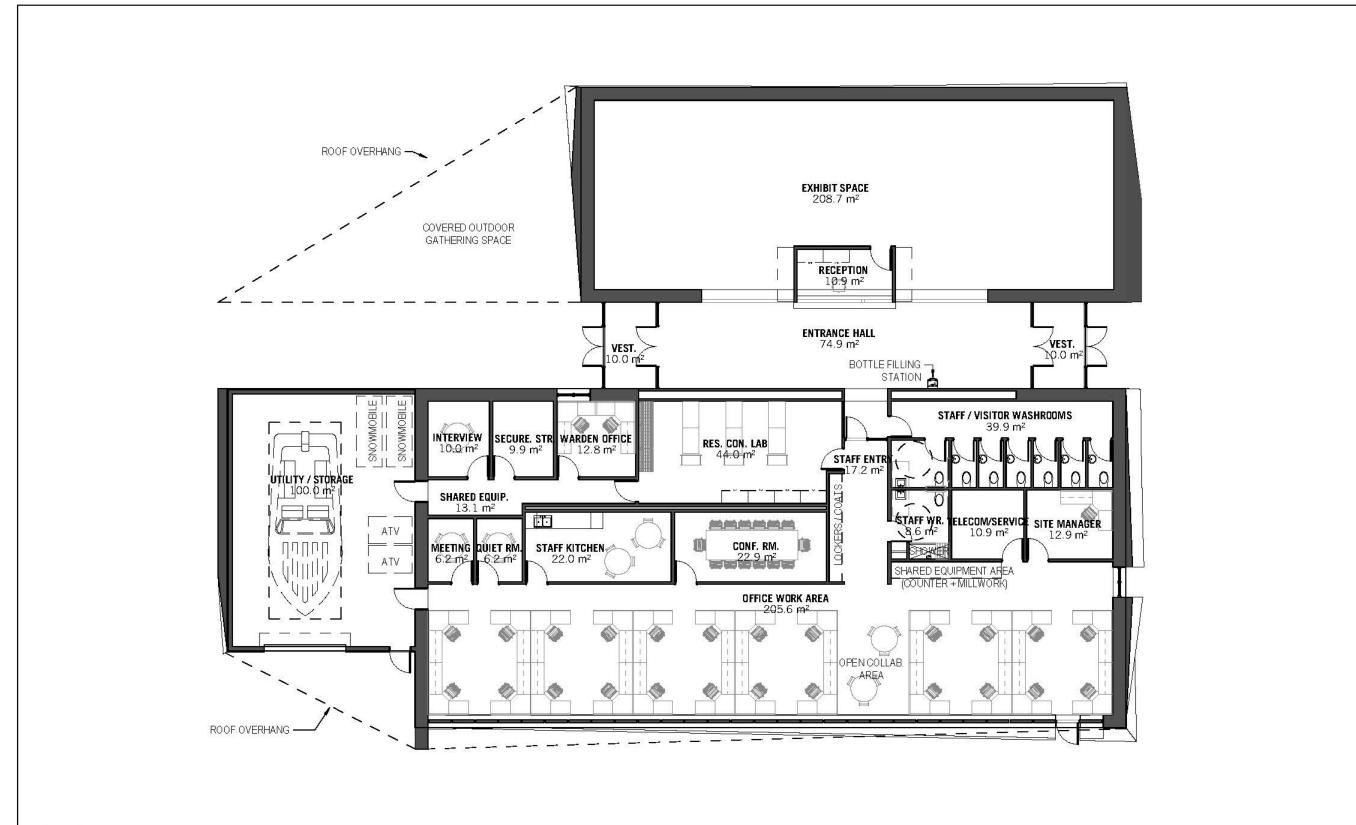
^{*}For scaled plan, section and elevation drawings please refer to appendix 08.2

03.2.1 SITE PLAN



originstudios

03.2.2 BUILDING PLANS



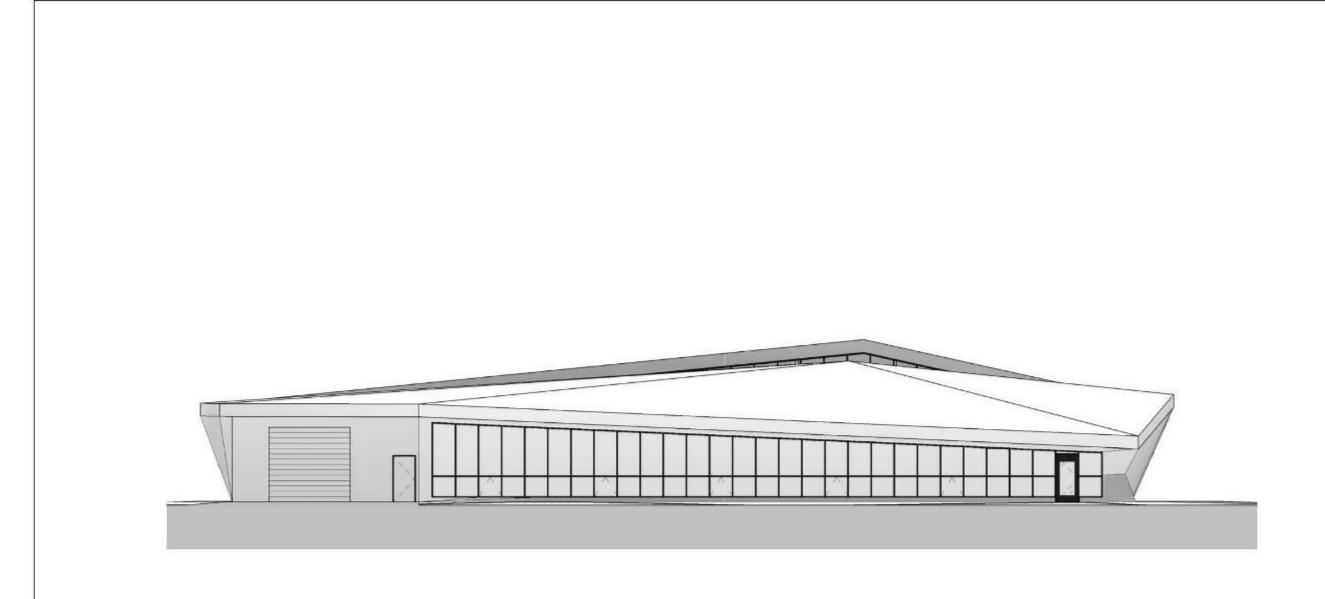


FLOOR PLAN











Lake Superior Visitor Centre Parks Canada Agency

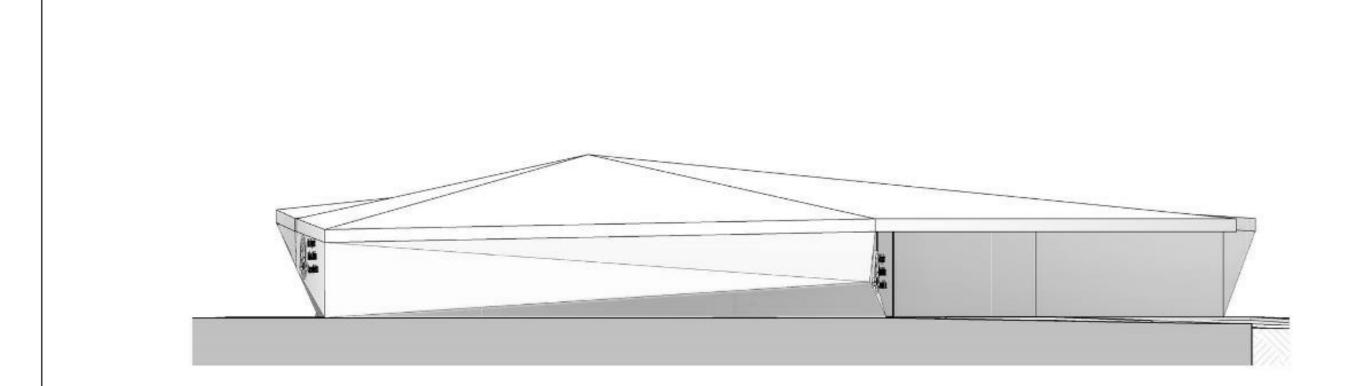
PERKINS+WILL

SOUTH ELEVATION











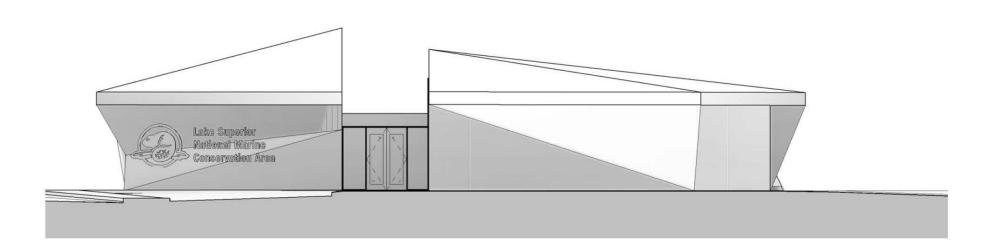
PERKINS+WILL

NORTH ELEVATION











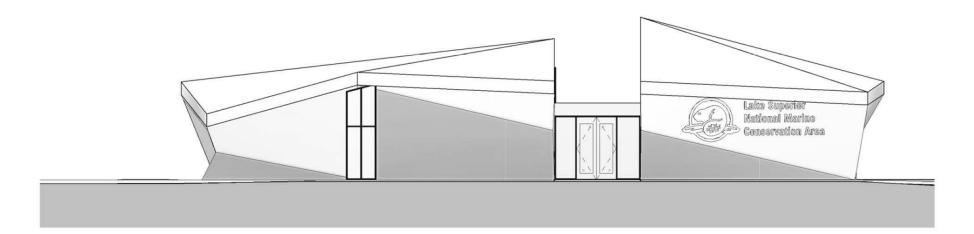
Lake Superior Visitor Centre Parks Canada Agency

WEST ELEVATION











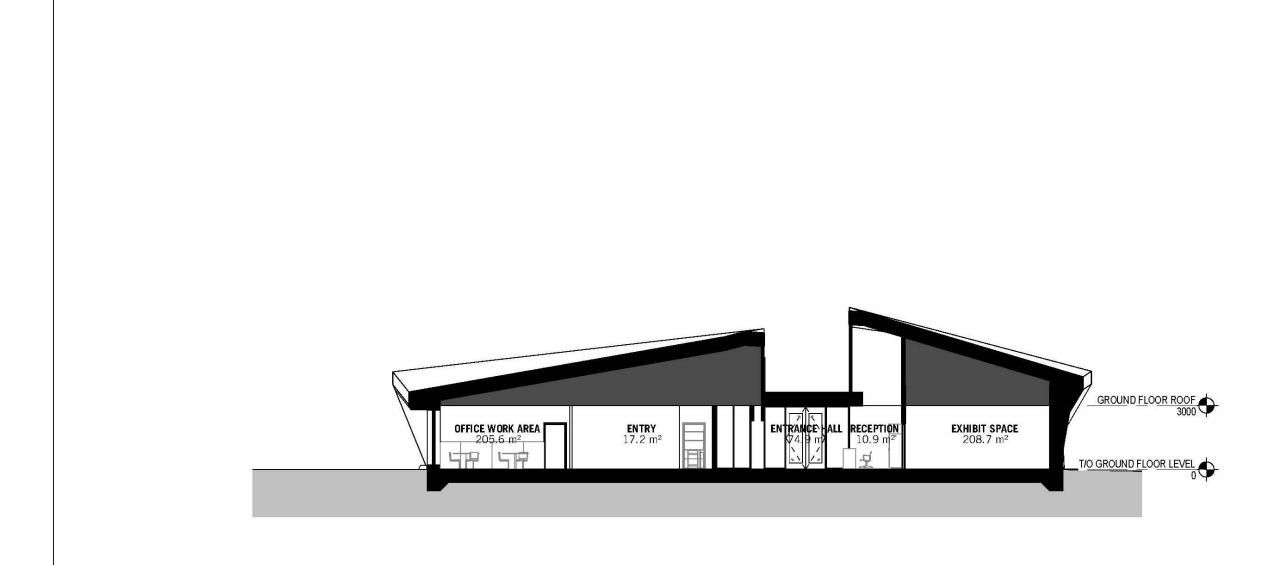
EAST ELEVATION

PERKINS+WILL





03.2.4 BUILDING CROSS-SECTIONS





SECTION









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03.2.6 INTERIOR PERSPECTIVE VIEWS

A digital interior walkthrough video has been provided as an attached file. Refer to Appendix 08.10 for walk through/ fly through video animations and interior perspective views.



Geological Formation - Office Space: Walkthrough Video

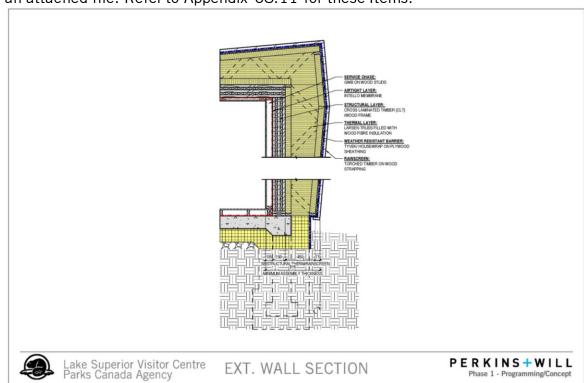


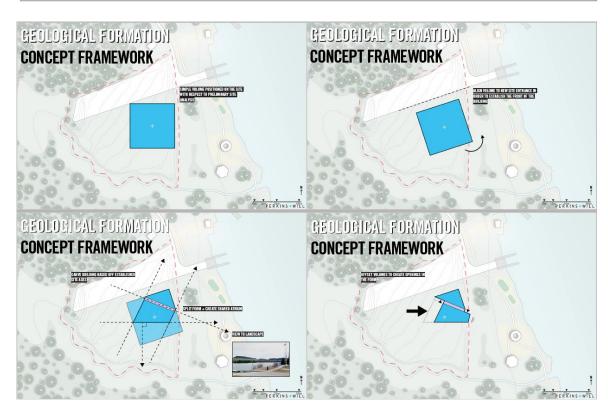
Geological Formation - Open Collab Space: Walkthrough Video



03.2.7 PRELIMINARY DIAGRAMS/DETAILS

Concept framework diagrams and architectural assembly sketches are provided as an attached file. Refer to Appendix 08.11 for these Items.











03.3 PROJECT/CONSULTANT REQUIREMENTS FOR PHASE II

The LSNMCA will be the first project by Parks Canada to achieve passive house certification. It is imperative that the design team for Phase 2 of this project is comprised of knowledgeable, technically proficient, and passionate consultants, committed to delivering design excellence. The following is a set of analysis/assessment recommendations for the site and project as well as a recommendation for the consultant team roster:

SITE ANALYSIS / ASSESSMENT + RECOMMENDATIONS:

Document	Notes
Legal & Topographic Land Survey	Procured in Pre-Design
Geotechnical / Soils Survey	Procure in advance of Schematic Design
Archaeological Site Survey	Procure in advance of Schematic Design
Ecological Impact Assessment	Procure in advance of Schematic Design

Consultant Team Roster*

Consultant	Project Phase	Notes		
Architectural (Prime) Consultant	ALL	LEED+PassiveHouse Certified		
Passive House Consultant	SD, DD, CD, CA	Passive House Certified		
Exhibit Design Consultant	SD, DD, CD, CA			
Landscape Consultant	SD, DD, CD, CA	LEED		
Civil Consultant	SD, DD, CD, CA	LEED		
Structural Consultant	SD, DD, CD, CA			
Mechanical Consultant	SD, DD, CD, CA	LEED+PassiveHouse		
		Certified		
Electrical Consultant	SD, DD, CD, CA	LEED+PassiveHouse		
		Certified		
Security Consultant	DD, CD, CA			
Commissioning Consultant	CA, PC			
Cost / Schedule / Risk	SD, DD, CD, CA			
Consultant				

^{*}All professional consultants to be licensed in the province of Ontario.



04 SUSTAINABLE STRATEGIES (AS 6)

04.1 ENERGY PERFORMANCE GOALS AND TARGET

Stantec has performed feasibility analyses to provide feedback and guidance to the design team on compliance with Passive House standard and net zero energy performance.

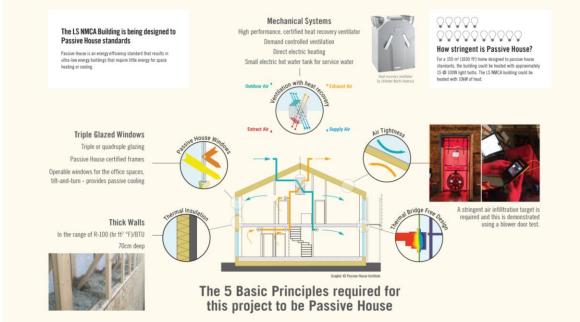
Passive House Planning Package (PHPP) models have been developed for each of the two design options, Paddle option and Geological Formation option. Based on the takeoffs from the architectural drawing and the design assumptions, PHPP calculates the total heating demand, total cooling demand, and primary energy renewables demand, while giving indication of compliance with Passive House certification. Stantec has done the evaluation of both design options and coordinated with the architect to achieve Passive House compliance.

In addition to Passive House, further investigation has been done to evaluate if the building is able to archive net zero energy performance. Various alternative heating plant options, renewable energy options and net metering have been assessed for the project.

04.2 ENERGY CHARACTERISTICS AND PARAMETERS

PERKINS+WILL

This section summarizes the inputs into the PHPP models, which includes design assumptions, design concepts, building characteristics and parameters, and product information. Due to the differences between two options (e.g., floor area, surface area, window sizes and orientations, etc.), the paths to achieve compliance differ in response to each unique design option.





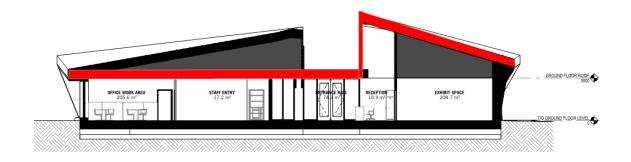
The major differences between the two options are summarized in the table below:

Description	Paddle Option	Geological Formation Option
Area of ground floor (m ²)	859.56	886.69
Perimeter length (m)	149.76	130.5
Outside wall area (m ²)	696.93	517.28
Total window area per orientation (m ²)	North: 6.8 South: 76.75 West: 0.00 East: 30.00	North: 0.0 South: 136.86 West: 12.04 East: 17.82
Roof area	861.66	977.00
A/V ratio (exterior insulation layer surface area/net air volume)	1.04	0.79
Exterior door area	14.82	11.35
Passive shading strategies	Roof overhang and lateral reveal	Roof overhang
Roof Insulation location	Above suspended ceiling for office and exhibit space	Above suspended ceiling for office and below roof structure for exhibit space

PADDLE OPTION ROOF INSULATION LOCATION:



GEOLOGICAL FORMATION OPTION ROOF INSULATION LOCATION:



04.2.1 OPTION 1

The table below summarizes the inputs of a Passive House compliant PHPP model for Paddle Option

model for Paddle Option. Categories	Recommended inputs for Passive House			
0210801100	Compliance			
Occupancy	From May to October:			
Cocupancy	21 office staff, 5 exhibition space staff and 4			
	bus loads (each bus load brings in 30			
	visitors, staying for 1 hour)			
	From November to April:			
	15 office staff, 4 exhibition space staff and 1			
	bus load			
Occupancy schedule	Office: 9am - 5 pm			
	Exhibition Space: 9am – 5 pm			
Absenteeism	The absenteeism is calculated based on the			
	actual occupancy (x) hours divided by the			
	peak occupancy (x) hours. The following			
	numbers are the weighted annual			
	absenteeism for each space type.			
	Office: 14% of time absent			
	Exhibition Space: 31% of time absent			
Setpoints	Winter: 20 °C			
	Summer: 22 °C			
	RH: 30% -60%			
Climate data set	Nipigon			
Exterior wall	0.070 W/(m ² K) (R 80 BTU/h/ft ² °F)			
Main Roof	0.057 W/(m²K) (R 100 BTU/h/ ft²°F)			
Floor	0.094 W/(m ² K) (R 60 BTU/h/ ft ² °F)			
Area of ground floor slab/basement	859.56 m ²			
Perimeter length	149.76 m			
Slab on grade	173.70 III			
Perimeter insulation	1.50 m			
width/depth	0.49 m			
Perimeter insulation thickness	0.035 W/(mK)			
Conductivity perimeter				
insulation				
Exterior Door U value	0.2 W/(m ² K)			
Glazing product	Guardian – ClimaGuard Premium2			
	(4:/16/4/16/:4 Ar 90%)			
g-Value	0.53			
U _g -Value	0.53 W/(m ² K)			





Categories	Recommended inputs for Passive House			
	Compliance			
Window frame	OPTIWIN GmbH - FUTURA - SWISSPACER			
	Ultimate			
South total	76.65 m ²			
East total	30.00 m ²			
West total	None			
North total	6.80 m ²			
Shading	Roof overhang and lateral shading for north			
	and south windows and east office windows			
Ventilation type	Balanced PH ventilation with heat recovery			
Average air change rate	0.17 1/h			
Net air volume	2316 m ²			
Design air flow rate (maximum)				
PHPP calculation	1020 m ³ /h			
ASHRAE 62.1 ventilation rate	2071 m ³ /h			
(for reference only)				
Ventilation Concept	Ventilation is provided by two HRV units			
i i	(model: Zehnder – ComfoAir550), one for			
	office area and one for visitor center. Air			
	transfer is allowed between the office and			
	visitor center.			
	Other HRV parameters:			
	HRV inside thermal envelope			
	Electricity frost protection			
	4 m long outdoor and exhaust air ducts			
	Effective Heat Recovery Efficiency 82.5%			
Summer Ventilation	HRV with automatic bypass, controlled by			
	temperature difference			
	Operable windows			
Cooling method	On/Off recirculation cooling with			
	dehumidification			
	Max. cooling capacity (sensible + latent):			
	20.0 kW			
	Volume flow rate at nominal power: 1177.7			
	m ³ /h			
	Seasonal energy efficiency ratio: 3.0			
	Minimum supply air temperature: 17°C			
Heating method	PHPP has been analyzed with all electric			
	resistant heat.			
	Alternative heating options are discussed in			
	section 04.5.			
DHW demand	2.1 litre/person/d			



Categories	Recommended inputs for Passive House
	Compliance
Equipment	Electric resistance
	1 DHW storage tank (200 litre)
	inside thermal envelope
	heat loss rate: 3.0 W/K
Lighting control	Everywhere except exhibit space: Manual with
	motion detector
	Exhibit space: Manual without motion
	detector
LPD	Offices: 6 W/m ²
	Main reception: 10 W/m ²
	Exhibit: 8 W/m ²
Equipment	PC
	Monitor
	Copier
	Printer
Kitchen equipment	None
Renewables	Options include:
	Wind
	PV
	Solar thermal









04.2.2 OPTION 2

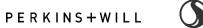
The table below summarizes the inputs of a Passive House compliant PHPP model for Geological Formation Option.

model for Geological Formation O	
Categories	Recommended inputs for Passive House
	Compliance
Occupancy	From May to October:
	21 office staff, 5 exhibition space staff
	and 4 bus loads (each bus load brings in
	30 visitors, staying for 1 hour)
	From November to April:
	15 office staff, 4 exhibition space staff
	and 1 bus load
Occupancy schedule	Office: 9 am – 5 pm
	Exhibition Space: 9 am - 5 pm
Absenteeism	The absenteeism is calculated based on
	the actual occupancy (x) hours divided by
	the peak occupancy (x) hours. The
	following numbers are the weighted annual
	absenteeism for each space type.
	Office 140/ ef time about
	Office: 14% of time absent
Cathainta	Exhibition Space: 31% of time absent Winter: 20 °C
Setpoints	Summer: 20 °C
	RH: 30% - 60%
Climate data set	
Exterior wall	Nipigon 0.05 W/(m ² K) (R 114 BTU/h/ft ² °F)
Main Roof	0.04 W/(m²K) (R 141 BTU/h/ ft²°F)
Floor	0.067 W/(m²K) (R 85 BTU/h/ ft²°F)
Area of ground floor	886.69 m ²
slab/basement	880.03 -
Perimeter length	130.5 m
Slab on grade	130.3 111
Perimeter insulation	1.50 m
width/depth	0.49 m
Perimeter insulation thickness	0.035 W/(mK)
Conductivity perimeter	
insulation	
Exterior Door U value	0.2 W/m ² K
Glazing product	Guardian – ClimaGuard Premium2
<u> </u>	(4:/16/4/16/:4 Ar 90%)
g-Value	0.53
U _g -Value	0.53 W/(m ² K)



Categories	Recommended inputs for Passive House			
We I c	Compliance			
Window frame	OPTIWIN GmbH - FUTURA -			
	SWISSPACER Ultimate			
South total	70.43 m ²			
East total	13.03 m ²			
West total	8.28 m ²			
North total	None			
Shading	Roof overhang on south window			
Ventilation type	Balanced PH ventilation with heat recovery			
Average air change rate	0.18 1/h			
Net air volume	3012 m ³			
Design air flow rate (maximum) PHPP calculation:	1020 m ³ /h			
ASHRAE 62.1 ventilation rate	2071 m³/h			
(for reference only)	2071 111 711			
Ventilation Concept	Ventilation is provided by two HRV units (model: Zehnder – ComfoAir550), one for office area and one for visitor center. Air transfer is allowed between the office and visitor center.			
	Other HRV parameters: HRV inside thermal envelope Electricity frost protection 4 m long outdoor and exhaust air ducts Effective Heat Recovery Efficiency 82.4%			
Summer Ventilation	HRV with automatic bypass, controlled by temperature difference Operable windows			
Cooling method	On/Off recirculation cooling with dehumidification Max. cooling capacity (sensible + latent): 25.0 kW Volume flow rate at nominal power: 1500 m³/h Seasonal energy efficiency ratio: 3.0 Minimum supply air temperature: 17°C			
Heating method	PHPP has been analyzed with all electric resistant heat. Alternative heating options are discussed in section 04.5.			
DHW demand	2.1 litre/person/d			
Equipment	Electric resistance			





Categories	Recommended inputs for Passive House			
	Compliance			
	1 DHW storage tank (200 litre)			
	inside thermal envelope			
	heat loss rate: 3.0 W/K			
Lighting control	Everywhere except exhibit space: Manual			
	with motion detector			
	Exhibit space: Manual without motion			
	detector			
LPD	Offices: 6 W/m ²			
	Main reception: 10 W/m ²			
	Exhibit: 8 W/m ²			
Equipment	PC			
	Monitor			
	Copier			
	Printer			
Kitchen equipment	None			
Renewables	Options include:			
	Wind			
	PV			
	Solar thermal			
	Discussion on renewable energy is in			
	section 04.5.			



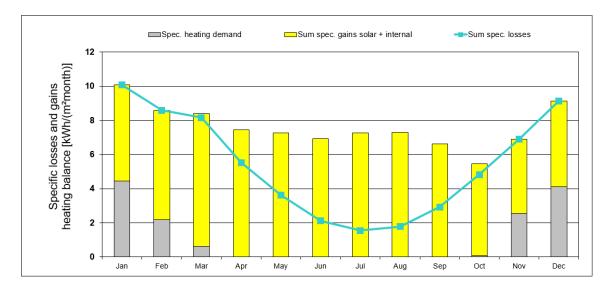




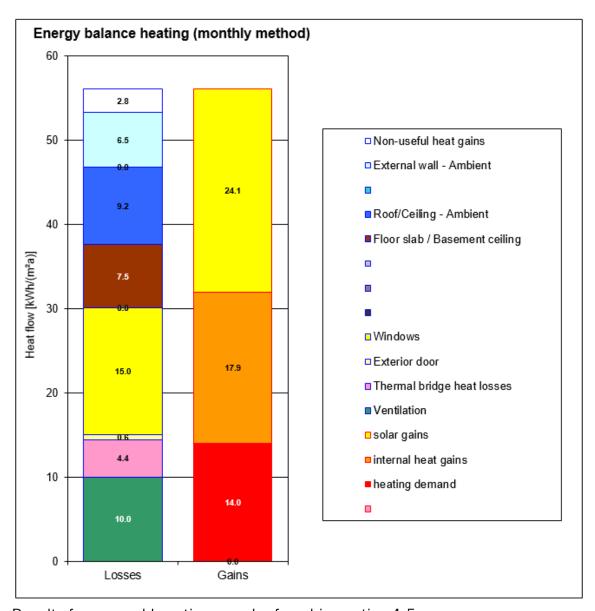
04.3 PHPP RESULTS 04.3.1 OPTION 1

Results follow from the Passive House calculations based on a direct electric heating system. It indicates that with the current building envelope assembly, all requirements of Passive House can be met except the primary energy renewable (PER). Stantec has further analyzed the potential of using alternative heating plant options and renewable energy to achieve PER compliance.

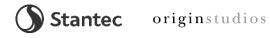
	Treated floor area m²	745.6		Criteria	Alternative criteria	Fullfilled? ²
Space heating	Heating demand kWh/(m²a)	14	≤	15	-	
	Heating load W/m²	11	≤	-	10	yes
Space cooling	Cooling & dehum. demand kWh/(m²a)	9	≤			
	Cooling load W/m²	13	≤	-	# # # # # # # # # # # # # # # # # # #	
F	Frequency of overheating (> 22 °C) %	-	≤	=		-
Frequency of ex	ccessively high humidity (> 12 g/kg) %	0	≤	10		yes
Airtightness	Pressurization test result n ₅₀ 1/h	0.6	≤	0.6		yes
Non-renewable Prima	ry Energy (PE) PE demand kWh/(m²a)	140	≤	-		-
	PER demand kWh/(m²a)	67	≤	60	67	
Primary Energy Renewable (PER)	Generation of renewable energy (in relation to pro- kWh/(m²a) jected building footprint area)	0	2	-	6	no
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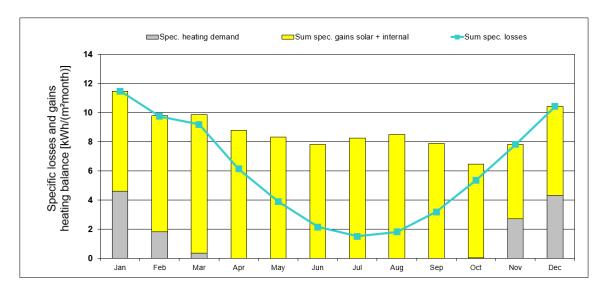
Results for renewable options can be found in section 4.5.



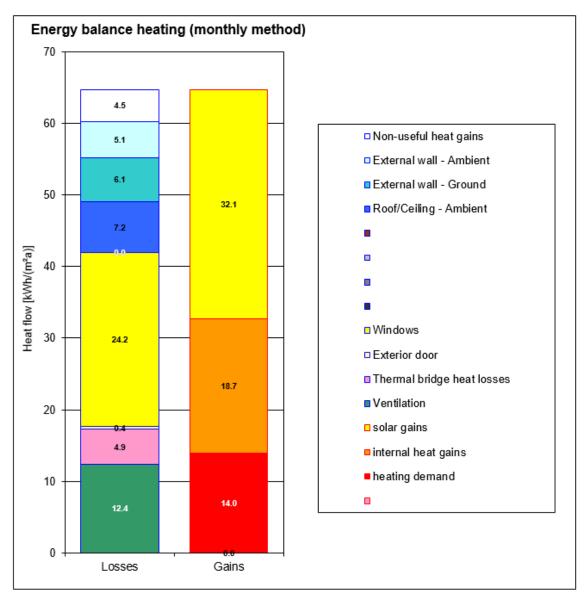
04.3.2 OPTION 2

Results follow from the Passive House calculations based on a direct electric heating system. It indicates that with the current building envelope assembly, all requirements of Passive House can be met except the primary energy renewable (PER). Stantec has further analyzed the potential of using renewable energy and alternative heat plant options to achieve PER compliance.

	Treated floor area m ²	715.0		Criteria	Alternative criteria	Fullfilled? ²
Space heating	Heating demand kWh/(m²a)	14	≤	15	-	Vec.
	Heating load W/m²	13	≤	-	10	yes
Space cooling	Cooling & dehum. demand kWh/(m²a)	13	≤			
	Cooling load W/m²	15	≤	-		
Fr	equency of overheating (> 22 °C) %	-	≤	-		-
Frequency of exc	essively high humidity (> 12 g/kg) %	0	≤	10		yes
Airtightness	Pressurization test result n ₅₀ 1/h	0.6	≤	0.6		yes
Non-renewable Prima	ry Energy (PE) PE demand kWh/(m²a)	154	≤	-		-
	PER demand kWh/(m²a)	73	≤	60	73	
Primary Energy Renewable (PER)	Generation of renewable energy (in relation to pro- kWh/(m²a) jected building footprint area)	0	≥	-	10	no







Results for renewable options can be found in section 4.5.



04.4 NET-ZERO READY — RENEWABLE ENERGY GENERATION NEEDS

Renewable energy is defined as energy from an energy resource that is replaced rapidly by a natural process. The energy resource can be sun, wind, air or biomass, etc. It can be used as a direct fuel, like biomass or can be retrieved and converted to heat or electricity, like solar PV, solar thermal, wind turbine or heat pump. Heat pump is counted as renewable energy as it uses low temperature environmental heat as an energy source.

This section discusses the feasibility of alternative heating plant options, the proposed HVAC (heating, ventilation and air conditioning) strategy, different renewable strategies and net metering.

04.4.1 ALTERNATIVE HEATING PLANTS

GROUND SOURCE HEAT PUMP:

A ground source heat pump could be used to provide both heating and cooling to the building. From discussion with a local installer (Alternate Basic Energy Systems http://www.abesgeo.com/) a horizontal geo-exchange field located under the parking area would be recommended as there are no suitable borehole drilling contractors in Northern Ontario.

The use of heat pump is beneficial for PER compliance because the final energy demand will be greatly reduced due to the high energy efficiency of the heat pump. The following graphs show the PHPP results of using ground source heat pump. The PER demands are greatly reduced compared to using direct electricity for heating. The Paddle Option now meets the PER requirement, but the Geological Formation Option's PER demand is still higher than the threshold. Further analysis has been done to evaluate the benefit of using solar PV.

PADDLE PHPP OUTPUTS:

	Treated floor area m²	745.6		Criteria	Alternative criteria	Fullfilled? ²
Space heating	Heating demand kWh/(m²a)	14	≤	15	-	Vec
	Heating load W/m²	11	≤	-	10	yes
Space cooling	Cooling & dehum. demand kWh/(m²a)	4	≤	15	15	Was
	Cooling load W/m ²	11	≤	-	11	yes
F	requency of overheating (> 25 °C) %	-	≤	-		-
Frequency of exc	cessively high humidity (> 12 g/kg) %	0	≤	10		yes
Airtightness	Pressurization test result n ₅₀ 1/h	0.6	≤	0.6		yes
Non-renewable Prima	ary Energy (PE) PE demand kWh/(m²a)	116	≤	-		-
	PER demand kWh/(m²a)	53	≤	60	60	
Primary Energy Renewable (PER)	Generation of renewable energy (in relation to pro- kWh/(m²a) jected building footprint area)	0	≥	-	-	yes
					² Empty field:	Data missing; '-': No requirem



GEOLOGICAL FORMATION PHPP OUTPUTS:

	Treated floor area m²	715.0		Criteria	Alternative criteria	Fullfilled? ²
Space heating	Heating demand kWh/(m²a)	14	≤	15	-	
	Heating load W/m²	13	≤	-	10	yes
Space cooling	Cooling & dehum. demand kWh/(m²a)	13	≤			
	Cooling load W/m ²	15	≤	-		
Frequency of overheating (> 22 °C) %		-	≤	-		-
Frequency of ex	cessively high humidity (> 12 g/kg) %	0	≤	10		yes
Airtightness	Pressurization test result n ₅₀ 1/h	0.6	≤	0.6		yes
Non-renewable Primary Energy (PE) PE demand kWh/(m²a)		135	≤	-		-
	PER demand kWh/(m²a)	61	≤	60	61	
Primary Energy Renewable (PER)	Generation of renewable energy (in relation to pro- kWh/(m²a) jected building footprint area)	0	≥	-	1	no

LAKE SOURCE HEAT PUMP:

The site is close to the Nipigon River and so a water source heat pump solution could also be considered. The viability of this solution would depend on factors including water temperatures in the winter and depth of the river. At this stage, it is not anticipated that this solution would have any appreciable benefits over a ground source heat pump and is likely to incur more risk and costs. Further analysis should be conducted in the next design phase.

WOOD PELLET BOILER:

A wood pellet boiler is a viable solution to provide heating to the facility. Log fueled and wood chip boilers are also available however, a pellet solution is recommended as it has the lowest operation and maintenance requirements. Through discussion with a local company (Biothermic Wood Energy Systems http://www.biothermic.ca/), white wood pellets from sustainable forestry sources are available for delivery in the area at a cost of approximately \$300/ton which is equivalent to approximately 7c/kWhr of delivered heat.

Using wood as biofuel might have an impact on the building's carbon emissions, depending on the wood supply source. The Zero Carbon Building Standard considers certain biofuels as zero emission biofuels. It is defined as follows. So far, there is no clear message whether the wood supplied is qualified as zero emission biofuel. Another factor to consider is that due to the low efficiency of biofuel, the option is not good for reducing the PER demand. As indicated in the PHPP outputs below, the PER demands for both design options are increased compared to using direct electricity for heating.



Biomass resources used onsite that are eligible to be treated as zero emission biofuels include:

- a) Solid biomass removed from fields and forests which are managed by following sound environmental management practices(e.g., the Canadian Standards Association (CSA), the Forest Stewardship Council (FSC) and the Sustainable Forestry Initiative (SFI)). Solid biomass can either be whole plants, parts of plants, or harvesting and industrial by-product residues arising from the harvesting and processing of agricultural crops or forestry products that would otherwise be land filled or incinerated.
- b) Dedicated energy crops with a rotation of less than 10 years; and Liquid fuels derived from biomass as defined in terms (a) and (b) above, including among other things ethanol, biodiesel, and methanol.

PADDLE PHPP OUTPUTS:

		7.15.0			Alternative	
	Treated floor area m²	745.6		Criteria	criteria	Fullfilled? ²
Space heating	Heating demand kWh/(m²a)	14	≤	15	-	l voc
	Heating load W/m²	11	≤	-	10	yes
Space cooling	Cooling & dehum. demand kWh/(m²a)	9	≤			
	Cooling load W/m²	13	≤	-		
Frequency of overheating (> 22 °C) %		-	≤	-		-
Frequency of ex	cessively high humidity (> 12 g/kg) %	0	≤	10		yes
Airtightness	Pressurization test result n ₅₀ 1/h	0.6	≤	0.6		yes
Non-renewable Prima	ry Energy (PE) PE demand kWh/(m²a)	109	≤	-		-
	PER demand kWh/(m²a)	70	≤	60	70	
Primary Energy Renewable (PER)	Generation of renewable energy (in relation to pro- kWh/(m²a) jected building footprint area)	0	≥	-	9	no

GEOLOGICAL FORMATION PHPP OUTPUTS:

	Treated floor area m²	715.0		Criteria	Alternative criteria	Fullfilled? ²
Space heating	Heating demand kWh/(m²a)	14	≤	15	-	voc
	Heating load W/m²	13	≤	-	10	yes
Space cooling	Cooling & dehum. demand kWh/(m²a)	13	≤			
	Cooling load W/m ²	15	≤	-		
Frequency of overheating (> 22 °C) %		-	≤	-		-
Frequency of excessively high humidity (> 12 g/kg) $\%$		0	≤	10		yes
Airtightness	Pressurization test result n ₅₀ 1/h	0.6	≤	0.6		yes
Non-renewable Primary Energy (PE) PE demand kWh/(m²a)		122	≤	-		-
	PER demand kWh/(m²a)	76	≤	60	75	
Primary Energy Renewable (PER)	Generation of renewable energy (in relation to pro- kWh/(m²a) jected building footprint area)	0	≥	-	12	no



04.4.2 RENEWABLE ENERGY GENERATION

Photovoltaic (PV) systems using solar energy to generate electric power are the most commonly used renewable energy system for zero energy or zero carbon designs. They are an option for the Lake Superior National Marine Conservation Area as well. To achieve a zero energy design, the area of PV solar collectors needs to be large enough to generate at least as much energy annually as the building uses annually. The largest area of PV for each of the options would be needed for the options using direct electric heating. An estimate for the PV area meeting this criterion is provided in table in the PV calculation section below. For zero energy certification through the International Living Future Institute, 5% more PV needs to be installed. For the estimate of the area of PV needed, it is assumed that the PV solar collectors have a nominal power of 250 Wp or above. According to PHPP, the nominal power is the rated power at standard test condition. In general, the nominal power and price for PV varies significantly. As the building has been designed to meet Passive House criteria, the PV array is as small as possible. The opportunity to reduce PV needs by increasing building efficiency has already been maximized.

Area of solar PV required for net zero building is calculated based on the assumption as follows

Deviation from north: 180Angle of inclination: 38

- Nominal Power of PV module: 250 Wp

Temperature of coefficient short-circuit current: 0.043
 Temperature of coefficient open-circuit current: -0.338

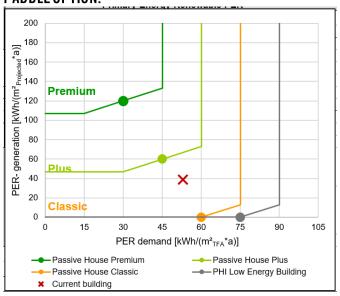
- PV module size: 1.61 m²

The calculation results are shown in the table below.

	Paddle Option	Geological Formation Option
Energy Demand	33.2 MWh/year	37.0 MWh/year
PV Generation	33.3 MWh/year	37.2 MWh/year
Number of Modules Needed	111	124
Total PV Area	178.6 m ²	199.5 m ²

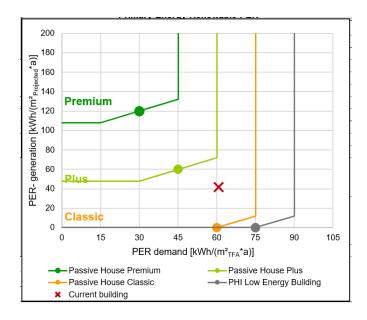


PRIMARY ENERGY RENEWABLE (PER GRAPH) PADDLE OPTION:



GEOLOGICAL FORMATION OPTION:

For Geological Formation Option, to achieve Passive House compliance, the number of PV modules needed is at least 2. See PER graph below.





NET ZERO READY SUMMARY:

Solar hot water collectors can be an efficient provider of renewable energy, however, for cold climates their efficiency (and cost efficiency as a result) drops significantly. Because of the low efficiency when heating is most needed, solar hot water collectors are not a good use for heating in the present case, independent of the type of solar hot water collector. As the discovery centre will not use significant amounts of service hot water, solar hot water collectors will not be able to make an overall significant contribution to the energy concept for the building. However, a small installation to heat service water in the summer could potentially be an attractive demonstration of using solar energy.

Wind energy systems can be a cost efficient way to produce electric power, however, only in the case of large wind turbine installations. There are fundamental fluid dynamics laws which determine that large turbines are much more effective than smaller ones, meaning that one turbine generates much more than double the energy than two at half the diameter. Also, the profile of wind in the atmosphere is such that the wind speeds decline rapidly approaching the ground surface (in the atmospheric boundary layer). This means again that a turbine reaching twice as high as another, generates much more than double the energy. As a result, cost effective wind turbine installations consist of large wind turbines of a size far exceeding what is feasible within a building design project. It is rather a utility scale power generation project. Large questions, such as the environmental impact and the acceptance in the community would need to be addressed, far exceeding the scope and budget of a discovery centre building design.

04.5 NET METERING

Net metering services is available in Nipigon area. Application needs be submitted to the utility provider, Hydro one. A capacity test will be done by Hydro One to assess if the local line and grid are strong enough to connect power to Ontario gird. If the capacity test passes, Hydro one will sign an agreement on the net metering service.

04.6 RECOMMENDATION OF HVAC STRATEGY

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EXHIBIT SPACE:

The exhibit space is expected to require control of both temperature and humidity. A dedicated heat recovery ventilator will be provided for the space with air volume control based on CO2 level. Temperature control will be provided by a fan coil unit with DX cooling (or cooling using the ground source heat pump if used) and hot water heating. A duct mounted humidifier will be provided if required.





OFFICE:

The office space will be ventilated using a heat recovery ventilator which exhausts air from the washrooms and supplies air to the office space. Heating will be provided using a hydronic heating system such as radiant floor. The heat recovery ventilator will be sized to meet minimum outdoor air requirements. Supplementary ventilation will be provided by natural ventilation using opening windows.

HEATING PLANT:

The recommended heating plant is ground source heat pump because of its high energy efficiency, which helps the project to achieve PER compliance. Although wood pellet boiler is a viable option, the use of wood as biofuel will increase the building's carbon emission unless zero emission biofuels are used and the PER demand will increase due to the low biofuel efficiency. In the long term, having a stable zero emission biofuel supplier could be challenging.

RENEWABLES:

Solar PV is the recommended renewable energy option. It is recommended to be used on the Geological Formation Option to help achieving Passive House compliance or to be used on either option to achieve net zero performance.

04.7LIFECYCLE COST ANALYSIS

A life cycle cost analysis can only be performed when cost information is available for both, the proposed designs as well as a baseline building to compare to. The question to be addressed through a life cycle cost analysis is whether energy cost savings from a more energy efficient design – through utility bill reduction – can offset the additional cost of making the building more energy efficient.

The energy demand of the Paddle option is 33.2 MWh/year and that of the Geological Formation Option is 37.1 MWh/year based on the PHPP calculations. The energy cost is calculated based on the demand of 37.0 MWh/year. The monthly energy cost is estimated to be \$605.58.





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-1	
Electricity	
Off-Peak @ 6.5 ¢/kWh	52.10
Mid-Peak @ 9.4 ¢/kWh	107.23
On-Peak @ 13.2 ¢/kWh	150.57
Delivery	253.76
Regulatory Charges	13.08
Total Electricity Charges	\$576.74
charges	
HST	74.98
	74.98 (- \$46.14)

Further costing analysis can be done in the next phase of the project as the equipment budgeting process develops further.

04.8 CONCLUSIONS AND RECOMMENDATIONS

At the current phase of the project, Stantec has coordinated with the architect to put together the Passive House compliance path for each of the design option. Recommendations have been implemented. At this phase, both designs can achieve Passive House compliance. In the next project phase, it is recommended to detail and refine the design in accordance with the Passive House compliance paths.



O5 PRELIMINARY EXHIBIT CONTENT (BS 5)

05.1 PRELIMINARY INTERPRETIVE PLAN

5.1.1 INTRODUCTION

This document is an adjunct to the interpretive matrices that are included in this deliverable. It will discuss the broad approaches applied to the matrices, which themselves will provide more detail about what is to be found in each zone.

Two separate interpretive plans are presented in this report – one for each of the two architectural designs under consideration. These interpretive plans, with modifications, can be used in either building design. Parts of one plan can be merged with aspects of the other to create something entirely new. The options proposed reflect the interests and needs of the LSNMCA Discovery Center. These preliminary concepts come with the understanding that there is still much creative work to be done to develop each zone. Once a selected option is confirmed the interpretative plan will move in parallel and develop throughout the coming stages of this exciting and important project.

This next iteration of the interpretive plan for the Discovery Centre of the Lake Superior National Marine Conservation Area merges some of our initial content and concepts with the feedback received from Parks Canada field staff. This version of the plan clearly describes the ways in which our approaches are direct reflections of Parks Canada's preferred themes and experiences.

The interpretive plan is a guide that will lead to the final exhibit spaces. The document is iterative, it is flexible and evolving, and there are times when it is adjusted to accommodate a new idea or an unexpected acquisition. Once an architectural plan is decided upon and the definitive zone plan is determined, the next step would be to work through each zone individually and in depth to reach a common understanding of what will be presented to visitors and to find creative ways in which to do it



5.5.2 CONTEXT

The creation of a new Discovery Centre for the Lake Superior National Marine Conservation Area (LSNMCA Discovery Center) presents an exceptional and rare opportunity to develop, from the ground up, spaces that are stimulating and educational, inspiring and engaging. The opportunity to create experiences that visitors will not only remember but will draw upon as motivations to get out-of-doors, to explore and experience the real thing.

The influence of the natural environment that surrounds the site of the Discovery Centre is substantial, in terms of both content and programming. This interpretive plan will suggest ways in which the out-of-doors can be brought in, and the experiences gathered inside can be used throughout.

The LSNMCA Discovery Center will become part of a rich national network of parks, marine conservation areas, and historic sites that extends from coast to coast to coast. The LSNMCA will, in fact, occupy pride of place as one of Canada's first designated national marine conservation areas, and as one of the largest protected areas of fresh water in the world. Strategic outcomes identified in the Parks Canada Report on Plans and Priorities, as well as in the Interim Management Plan (2016) and the Visitor Experience Strategy (2017), reflect a keen interest in visitor experience, specifically in creating an emotional bond between visitors and the land and water. This emotional bond will, it is hoped, lead not only to a desire to learn and experience more, but also to an understanding of the role that the geography of this land plays in our individual identities as much as in our identity as a nation, and to foster a desire, indeed a responsibility, to protect and preserve it.

Parks Canada's commitment extends into the realm of culture as well as nature. The Guiding Principles document cements the commitment to collaboration and cooperation with the First Peoples of this land, those upon whose original territories many of the national parks and heritage sites now stand. This commitment to partnership exists not only in negotiation and consultation, but also in a collaborative approach to the creation of content and the manner in which the stories are told. The possibilities are rich and diverse and the opportunities for sharing are immense.



Shoreline of the LSNMCA: Flikr User gsgeorge





5.1.3 VISITOR EXPERIENCE

The LSNMCA's Interim Management Plan supports our view of the importance of creating experiences that engage the visitor on a number of different levels. The stated intent is to facilitate "an interaction that awakens the senses, affects the emotions, stimulates the minds, and helps the visitor create a sense of attachment and connection to these places"*. The goal of the visitor experience is, quite simply, to make the lake and its environs irresistible – to create the conditions for visitors to be inspired and moved, to be curious about and motivated to see the place, to be immersed in it, and to care about its present and future. Through a combination of information moments, hands-on and digital interactives, story-telling, stunning visuals, and other mechanisms, the lake itself will be both the focus of the displays and the ultimate destination.

The compelling diversity of life, environments, and stories that surround the lake will be made manifest inside the Discovery Center, where visitors will acquire information, ideas, and curiosities that will lead them to want to create their own pathways to a personal experience of the lake itself.

Words that reflect the visitor experience include:

- Diverse
- Inspiring
- Fvocative
- Emotional
- Beautiful
- Unexpected
- Solitude
- Unique
- Natural



Looking over the LSNMCA: fieldandforest.co

^{*} Vision, mission and socio-economic context and considerations for the development of this multiuse building and surrounding site, Parks Canada. 08/31/2017. Accesssed 10/29/2018



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5.1.4 VISITOR LEARNING

A range of learning opportunities, geared to different ages, interests, cultural backgrounds, and learning styles, will present information and stories ranging from the deep geologic history of the lake through to conservation efforts in the present day. Emphasis will be placed on two seemingly divergent but closely linked branches – one that gives the visitor the opportunity to learn about and experience aspects of the lake that are not easily accessed, the other that provides content that will enrich their visits to those parts of the lake that are accessible. Accessibility with a different meaning will be a key feature of the displays, with content available for all abilities, including a range of audio and touchable features for those with visual impairments.

Words that reflect the visitor learning intentions are:

- Accessible
- Insightful
- Surprising
- Diverse
- Useful
- Inspiring



Waters of Lake Superior: FeildandForest.co





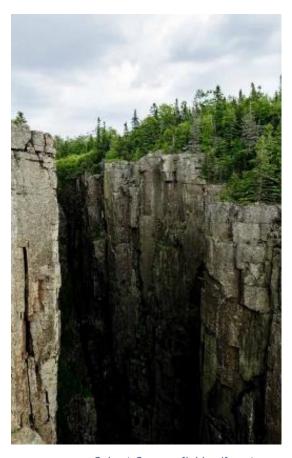
5.1.5 PROPOSED APPROACHES

FEATURES COMMON TO BOTH PLANS:

ENTRANCE CORRIDOR:

It is recommended that the Entrance Corridor be considered a display space, but one with minimal interpretation. The key messages in this section include:

- Basic messaging about Parks Canada, the founding of the LSNMCA and its purpose.
- Key facts about Lake Superior itself.
- Find Yourself, Lose Yourself a largely graphic treatment depicting the many activities and experiences possible in the LSNMCA, with methods for delivering brochures and other takeaway information for visitors who want simply to find out what they can see and do, rather than going through the exhibits.
- The entry will have minimal exhibits because it is likely to be a higher traffic area. With the absence of a group entrance, the entrance lobby should be a place where needed messaging and information can be obtained without causing too many bottlenecks.
- Key messaging about conservation and sustainability is delivered in the Entrance Corridor ensuring that all visitors to the Discovery Center have immediate access to important information about how to visit the area sustainably. There will be a population of visitors who come to the Discovery Center for information only, not to visit the exhibits, and they will need to receive important messages without completing the full tour.



Ouimet Canyon: fieldandforest.co





EXTERIOR SPACES:

Both architectural plans offer several spaces for outdoor activity. While the final list of concepts should be explored and confirmed in a workshop format. Options for extending messaging and stories into the outdoor sphere include:

- A children's play area consisting of a scaled-down basin of Lake Superior. Designed to reflect bathymetric or other forms of mapping, this play area would also feature the remarkable yet concealed geography of the lake, along with the locations of important shipwrecks, islands, lighthouses, and other distinctive characteristics of the lake. Interpretive panels would share the geologic and cultural histories and stories associated with these aspects of the lake, many of which are inaccessible to the average visitor.
- Younger children often learn best through imaginative play. "Become a Lighthouse Keeper," situated within a model lighthouse, would encourage children to learn about signaling, weather, and water conditions, and the life of a lighthouse keeper.
- The canoe has been an integral part of the cultural history of the lake and of Canada as a nation. A display of canoes that visitors can sit in ranging from smaller two-person models to the immense Montreal canoes used in the fur trade will provide an opportunity for imagining life in the earlier centuries, and will inspire some to get out on the water and learn to paddle. Interpretive panels will provide information about construction methods, materials, and uses.
- A discovery garden, focusing on native species, would provide a seasonal opportunity to use as an educational activity and resource for the DC, connecting interior exhibits with exterior samples.
- An outdoor performance/storytelling area with an all-season fire pit, would encourage visitors to stay out-of-doors, to sit and listen, to learn, to participate and, in winter, to stay warm next to a roaring fire.
- To these ideas, we would suggest that areas be identified for visitors who simply want to stop and have a picnic. Picnic tables can be branded with both LSNMCA messaging and with spectacular images of local scenery. No opportunity should be missed to reinforce the unique and dramatic land and waterscapes at close proximity to the Discovery Center, and the vital work of Parks Canada in preserving and interpreting these areas.

USE OF ART:

Art, deriving from both settler and Indigenous traditions, should be incorporated throughout the exhibits as design elements and as interpreted content. Art can





illustrate and illuminate any number of ideas and themes. It would not be restricted it to any particular area but rather would distribute it to all parts of the Discovery Center. Word art, or the use of graphically-designed text excerpts, is also an effective way of reinforcing messaging, particularly key ideas that can be received by visitors at a glance, rather than by reading a detailed text panel. Examples of candidates for word art within the context of the LSNMCA would include essence of place statements such as "Inland freshwater sea of many moods," Haunting loon calls," and "Thunderous crash of waves."



Norval Morrisseau, Loon Family



NOTE ON THE IRRESISTIBLE LAKE:

Positioned at the end of the exhibition experience, but also visible from the reception areas in all the plans under consideration, we are suggesting a small area devoted to the beauty of the "irresistible lake." This largely uninterpreted space devoted to depicting the magnificent beauty of Lake Superior and its environs would act as both a summative moment that brings the various strands of the other exhibit zones together, and as further inspiration to go out into nature and experience the lake first-hand.

Visuals are often more effective than words in creating inspiration, evoking feeling, and motivating a need to care. The most convincing way to show visitors the extraordinary power and beauty of the lake is through large and powerful imagery. In impact, it is second only to the experience of the real thing – the lake itself.

Not every visitor responds to and engages with text and interactives in the same way or to the same depth. For these visitors, providing large, colorful, beautiful images of the Lake area may be the most impactful aspect of their time in the Discovery Center and will give them a sense of place, a sense of what exists for them to explore

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The Irristible Lake: Flikr User jsorbie

beyond the walls of the exhibit. Indeed, even for those visitors who have engaged deeply with the other exhibit offerings, this space, which could incorporate seating, would provide the opportunity for them to sit and reflect on the monumental, evocative, and beautiful natural area. Sometimes the most effective way of connecting a visitor to the content is to provide them with an opportunity for reflection and contemplation, and to give them the space to gather their thoughts at the end of the experience. It is, in our experience, often a very appreciated, and a very powerful, space.

While this summative zone in each exhibit plan is referred to as "largely uninterpreted," this does not mean that there cannot be thoughtfully positioned messaging and opportunities for sharing stories. Indeed, if the purpose of the space is to inspire while also providing a sense of respite and comfort, this is an excellent environment for contemporary story-telling modules, first-person stories, and visitor-to-visitor sharing. This content could be more easily updated and changed without impacting the look and feel of the Discovery Center.



5.1.6 PROPOSED APPROACHES

INDIVIDUAL PLANS:

This section is an adjunct to the interpretive matrices that are also included in the current deliverable. The matrices provide:

- A clear re-configuring of the 10 Visitor Experience themes expressed by the LSNMCA team into the overarching thematic zones.
- An explanation of how the LSNMCA Visitor Experience themes relate to our zone designations.
- A description of key messages and experiences.
- Suggestions for high- and low-level interactives and content delivery mechanisms.

Also, as noted earlier, the final selection of treatments for the content of the Discovery Center will be determined by a developmental process of discovery and collaboration. It is through such a process that the exceptional results for which the staff of Parks Canada are striving will be achieved.

PADDLE OPTION:

A pathway in the forest or along the shore. Meandering, rising and falling, twisting and turning through the woods or along the shoreline. Surrounded by trees, opening into brush, grasslands, and the water. Magnificent views into the infinite. Pine needles underfoot, dried leaves, moss, small flowers, mud, and rocks. Dappled sunlight here, brighter patches of sun there, shade thrown by trees. Leaves fall gently from trees, bird sing, insects buzz. Moments of active discovery and wonder, others of simple joy and peace.

The notion here is a pathway, framed along an essentially chronological narrative thread, which re-creates the small discoveries gathered during a wander in the woods or along the shoreline, punctuated with larger moments of wonder. Rather than traditional and well-defined zones with messaging that is often encyclopedic, we would opt for an experience that guides rather than instructs, shares rather than teaches, and leaves numerous opportunities for visitors to observe, discover, and feel the extraordinary diversity and beauty of the area.



GEOLOGICAL FORMATION OPTION:

A beautiful jewel stone, found in abundance in the Lake Superior region. Exquisite, multi-faceted crystals, saturated with colour and imbued with meaning. Variable in hue and tone, texture, and size. Sometimes smooth to the touch, often angular and sharp, to be handled with care. Concealed within rock, its remarkable beauty revealed. Valued for millennia as a rare gem, now available to many.

Contrasting with the more linear and chronological approach featured in Option 1, this option is structured around key themes, which guide visitors in a non-linear exploration of the lake and its many facets. Although the sub-themes remain the same, this contrast to the method in which the information is distributed highlights the differences between the two interpretive strategies and helps to guide the next phases of the project, providing two unique approaches to content delivery.

Emphasis will not be placed on providing an encyclopedic description of the lake – its physical manifestation and its many histories. It will provide enough substance to guide, share, and inform, but to leave the creation of meaning to the individual experiencing the space.

Both options will place an emphasis on engaging the mind, but more importantly, the heart. The intent and goal to inspire emotion and passion, to reach visitors where they live. The concepts encourage responsibility, help visitors connect the dots, and envision a sustainable and healthy future for the lake.

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05.2 PRELIMINARY CONTENT MATRIX 05.2.1 OPTION 1: PADDLE

INITIAL GUIDELINES/COMMENTS:

- Consideration needs to be given to Parks Canada's content approach preference for the exhibition. Should the exhibition be encyclopedic, in which visitors will be presented with a broad amount of information to explore, or would Parks Canada prefer to focus more on experiential learning and fewer individual stories? Multi-modal experiential learning would allow visitors to assimilate content in a variety of ways.
- We need to distinguish between what is a theme, or a key message, and what is a piece of information to include in the content. For example, in section 6 Outdoor Adventure not every subtheme on the list needs to be described on its own.
- Theme and sub-theme titles are working titles only at present more poetic versions will be developed. 3.
- Items in red are suggested content additions by the Origin Studios team 4.



BASIC THEMATIC ORGANIZATION:

1. Entrance Corridor	 » 1 – NMCA Information » 6 – Outdoor Adventure » 7 – Conservation and Protection
3. Land, Water, and Ecosystems [working title]	 » 9 – Geology » 3 – Lake Effects » 5 – Terrestrial and Marine Ecology » 8 – Invasive Species
4. Human Activity [working title]	» 2 – Indigenous History and Culture» 4 – Maritime and Industrial History
5. The Irresistible Lake	
Art	» 10 – Distributed throughout the zones as thematic content and as context graphics.

VISITOR EXPERIENCE MATRIX:

OS VISITOR EXPERIENCE THEME LINK TO NMCA VISITOR EXPERIENCE THEMES

KEY MESSAGES + EXPERIENCES THEMES

POSSIBLE
COMMUNICATION
STRATEGIES
- HIGH OPTIONS

POSSIBLE
COMMUNICATION
STRATEGIES
- LOW OPTIONS

1.0 ENTRANCE CORRIDOR

1.1 Welcome to the LSNMCA and to the Discovery Centre

- **1A** PC Mandate
- 1C What is an NMCA?
- **1D** Cultural Resource Management
- **1E** PC System of Protected Systems
- **6A** Paddling
- **6B** Fishing
- **6C** Camping
- **6D** Boating/Camping
- **6E** Hiking
- **6F** Charters
- **6G** Art
- **6H** Islands, Lighthouses, Navigation
- 61 Saunas
- **6J** Lose Yourself, Find Yourself

- 1. Inspirational statement about PC mandate, blending in key ideas about cultural resource management.
- 2. Large graphic identifying PC system of NCMAs, and national parks, as well, if desired.
- 3. Explanation of what an NMCA is and does with specific reference to the LSNMCA.
- 4. Lose Yourself, Find Yourself
 a wall of stunning, largescale images of waterscapes,
 landscapes, and the outdoor
 activities outlined in theme
 6 with mechanism(s) for
 providing related information
 [pamphlets, schedules, etc.], if
 desired.
- **5.** Messaging about sustainable, eco-friendly visiting practices.
- Basic Lake Superior facts and figures.

Interactive touch screen with:

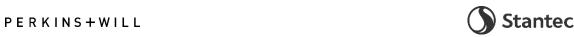
- 1. Searchable activity information,
- 2. Link to Parks Canada corporate site,
- **3.** Link to Parks Canada Reservation site.
- **4.** Link to the LSNMCA site.
- **5.** Messaging about sustainable, eco-friendly visiting practices.

Capacity to download information directly to personal devices.

Graphic approach with pamphlet holders.

Notes:

- 1. Recommend excluding the NMCA Act from the content grid it will not be of interest to many visitors and space is at a premium.
- 2. Ready access to information about features, activities, and services available in the area for visitors who choose not to tour the exhibit is important, and the Entrance Corridor will be the key area for the delivery of this service in the DC.



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OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
1.2 Join us in preserving the diverse eco-systems of the LSNMCA.	 7A - Many Groups Involved 7B - Cultural Resources 7C - Sustainable Practices 7D - No Trace/Reduce Footprint 8F - Boat Wash Station 	 Here are ways to visit the park with minimal interference to eco-systems. Large-scale infographics (with takeaway sheets) guiding visitors in how to visit the NMCA sustainably. 	Large-scale infographics positioned prominently in the Entrance Corridor with same content available as takeaway sheets for visitors.	Large-scale infographics positioned prominently in the Entrance Corridor with same content available as takeaway sheets for visitors.

Notes:

- 1. Recommend positioning key messages here about sustainable practices for those visitors who choose not to go into the exhibit. This is critical conservation information and needs to be available immediately and presented prominently Entrance Corridor.
- 2. 7A + 7B may be able to be rolled into a general introductory statement rather than occupying real estate as a sub-theme on its own.
- 7E is it appropriate to have the Seven Generation/Seven Grandfather teachings here? It is already identified in your theme 2.
- 4. 7G + 7H would be more effective in land, water, and ecosystems, although reference to plastics can certainly be part of the general theme statement in this zone.

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OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
2.0 LAND, WATER, A 2.1 An Ancient Terrain Sub-zones: 2.1.1 Early geologic formations 2.1.2 Impacts of glaciers 2.1.3 Minerals and geologic features	2.1.1 Early geologic formations: 9A - Mid-continental rift 9C - Columnar Basalts 9D - Superior Shoal 2.1.2 Impacts of glaciers: 9B - Glaciation / Deglaciation / Interglacial 9D - Deepest point 9I - Isostatic Rebound 5A - Island Archipelago 5B - Arctic Alpine 2.1.3 Minerals and geologic features: 9E - Shatter Cone 9F - Agates 9H - Silver, Copper 9G - Variety of Features	 Lake Superior is the result of both ancient and more recent geological and climatic events. The area is rich in distinctive rock formations and minerals. 	Digital interactive tracing the creation of the Pre-Cambrian mid-continental rift, the evolution of the geography and geology of the continent(s) over time, leading up to the most recent glacial period during which the Great Lakes were formed. Touchable mineral specimens. Replication of the Lake Superior basin model from the outdoor space, either as a touchable physical model or as a digital experience.	Graphic representations of the evolution of the Lake, along with touchable mineral specimens. Physical interactives demonstrating the mechanisms by which different geological features are created. For example, a simple weighting and unweighting of land by ice sheets to demonstrate isostatic rebound. A gear driven model to demonstrate mid-continental rift.
2.2 The Life of the Lake	3A - Weather: Waves, Wind, Storms 3B - A/C Effect 3C - Seiche 3D - Ice Formation 3E - Currents 3F - Water Shed 3G - 191-Year Water Cycle 2M - Place Names	 The lake experiences many kinds of weather – some of it extreme – in all seasons. Explore how the lake "works" – its life cycle. Discover the origin of place names and the original Indigenous namings. 	A large-scale video montage of dramatic storms, ice accumulations, waves. Digital interactive describing the water cycle specific to the lake, highlighting the 191-year residence period and the particular impact of pollution. People capsules – first person oral histories with an Indigenous representative sharing stories about the naming of places along the lake and in the region. A closed tank for a physical demonstration wherein visitors control wind speed to create scale waves.	Still image montage of weather effects. Infographic describing the lake's water cycle. Large map panel with flipbook containing place-naming stories. Large scale graphic to demonstrate the height of Lake Superior waves.





OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
2.3 Marine LifeSub-zones:2.3.1 Life in the Water2.3.2 Invasive Species2.3.3 Prevention	2.3.1 Life in the water: 5C - Fish Ecology 5D - Oligotrophic Lake 5E - Spawning Beds 5F - Species: Lake + Brook Trout Crustaceans? 2.3.2 Invasive species: 8A - Prevention (How Introduction Happens) 8B - Species List 8C - Potential Intruders 8D - New Species, Existing, Managed 8G - Salmon, Smelt (Non-Native vs. Invasive) 2.3.3 Prevention: 8E - DFO Consultation 8F - Boat Wash Station	 The lake is alive with many species of fish and other marine life. Understand how invasive species are introduced to and migrate throughout the Great Lakes and related river systems. Learn about how to prevent the spread of invasive species. 	Aquarium with wide variety of fish, plant, and potentially crustacean life. Digital labels describing the various species and providing detailed information about each. Narrated animation exploring the introduction and spread of invasive species. Digital game in which visitors guess if a species is native, introduced, or invasive. Augmented reality interactive identifying and quizzing marine life based on AR overlay on graphic panels.	Photographic or artistic renderings of various fish, plant, and crustacean species with text labels. Graphic panel with text explaining native vs. introduced vs. invasive species. Spinning cylinder game to identify various aquatic species.
2.4 Life on the LandSub-zones:2.4.1 Animals2.4.2 Plants2.4.3 Insects	Life on the land: 5G – Caribou, Moose, Wolves 5H – Colonial Water Birds, Migratory Birds Plants Insects Reptiles Amphibians	1. The region is home to a diversity of species, all of whom depend on the lake for their survival.	Digital bird (and other species) identification interactive with silhouettes, calls, and descriptions of behaviour and habitats of each species. Virtual herbarium identifying the various plants, where they are found, what uses they may have or have had for humans and other species. Mystery textures identification game – for example, furs, skins, mosses, exoskeletons	Graphic panels with species identifications and information. Flipbook identifying various plant species common to the area. Mystery textures identification game – for example, furs, skins, mosses, exoskeletons.





OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
2.5 Climate Change + Pollutants	 5I – Climate Change 7G – Microplastics/Nurdles 7H – Pollution/Atmospheric Deposition 	 Climate change is having a significant impact on our planet, our continent, and our lake. Certain types of pollutants have a greater impact than others. 	Climate interactive – consider partnering with the Canadian Climate Atlas and providing it for visitors to explore. Digital interactive – a lenticular map that shows the change in conditions over time – temperatures, water levels, ice cover, rainfall, and predicts possible future outcomes and impacts.	Graphic treatment describing statistics and risks of climate change.
3.0 HUMAN ACTIVIT	Y			
3.1 Introduction Area	 2A – Cyclical nature – sustainable, harmony with seasons/nature 2B – Seven Generations 	1. Human history and culture are inextricably linked to the natural world.		
3.2 The First Inhabitants	2C - Paleo Early continental trade 2D - Canoe 2F - Tools 2G - Adaptation 2H - Harvesting 2I - Pictographs 2J - Ceremony / Teachings 2L - Language	 Humans have lived near the lake for millennia. The First Peoples of the region participated in a continent-wide trading system, long before the arrival of Europeans. First Peoples adapted to the often harsh conditions of the region. Pictographs are tangible evidence of the earliest inhabitants of the region, and connect us to them in a real way. 	Digital map showing settlements and cultural groups, trade and travel routes, with contemporary overlay to show present day location of highways and cities. People capsules – first person oral histories with an Indigenous representative sharing stories about early life in the region, ceremonies, teachings. Multi-lingual key-phrase dictionary with audio capacity. Cultural objects.	Maps incorporated into graphic panels. Printed book with illustrated stories, phrases in several languages. Cultural specimens





OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
3.3 Explorers and Settlers	Exploration 4B - Fish / Fur - camps, trap lines, HBC/other 4A - Isolation, conditions 2E - Métis and Voyageurs 2F - Tools 2G - Adaptations 4C - Boat Adaptations	 With the assistance of First Peoples, Europeans explored the region and learned to adapt to and survive in very difficult conditions. Europeans and First Peoples shared skills and technologies. 	Virtual game – would you survive in the bush? People capsules – first person oral histories of a voyageur, a Métis person, and women sharing stories. Cultural objects. Digital interactive – explore the effects of changes in boat design in a simulator, e.g. what differences do keel depth make?	Graphic treatments for story-telling. Cultural objects. Scale boats to demonstrate adaptations to conditions on Lake Superior.
3.4 Industry	 4D – Lighthouse / shipwreck 4E – Logging: watershed, tributaries, industry 4F – Rail 4G – Mining silver, copper, gold 4H – Tech: evolving needs, Schreiber, shipping, jackfish, lighthouses 4I – Hydro Dam 4J – Watershed – unlock huge area of richness 	1. Lake Superior and region has been and continues to be the site of many lucrative industries and interesting stories.	People capsules – first person oral histories – nostalgic remembrances, visioning for the future. Digital album of shipwrecks and related stories, songs, and video clips. Telling Stories with Things – visitors learn about key industries in the region by exploring the story of a single related object (digital version).	Audio stations. Graphic panels describing shipwrecks. Telling Stories with Things — visitors learn about key industries in the region by exploring the story of a single related object (panel version).
4.0 THE IRRESIS	2K - Peoples' Relationship to Lake, Lake Shape People 2N - Stories / Gitchegaming	 Experience the grandeur and beauty of the lake and its environs. Feel it inspire you. Lose yourself, find yourself 	After an informative and active exploration of the previous zones, it is suggested that this be a largely uninterpreted area that is essentially visual, emotive, and experiential in nature. Majestic large-scale still and moving images, soundscapes, and mild wind effects bring the outdoors into the interior spaces of the DC, and encourage visitors to get outside and experience the real thing. Visitor-to-visitor zone provides an opportunity for people to share the location of their favourite spot, the best place for fishing, or their happiest moment. People capsules share final wishes, stories, and hopes for the future.	After an informative and active exploration of the previous zones, it is suggested that this be a largely un-interpreted area that is essentially visual, emotive, and experiential in nature. Majestic large-scale still images bring the outdoors into the interior spaces of the DC, and encourage visitors to get outside and experience the real thing. Visitor-to-visitor zone provides an opportunity for people to share the location of their favourite spot, the best place for fishing, or their happiest moment.



05.2.2 OPTION 2: GEOLOGICAL FORMATION

INITIAL GUIDELINES/COMMENTS:

- Consideration needs to be given to Parks Canada's content approach preference for the exhibition. Should the exhibition be encyclopedic, in which visitors will be presented with a broad amount of information to explore, or would Parks Canada prefer to focus more on experiential learning and fewer individual stories? Multi-modal experiential learning would allow visitors to assimilate content in a variety of ways.
- We need to distinguish between what is a theme, or a key message, and what is a piece of information to include in the content. For example, in section 6 Outdoor Adventure not every subtheme on the list needs to be described on its own.
- Theme and sub-theme titles are working titles only at present more poetic versions will be developed. 3.
- Items in red are suggested content additions by the Origin Studios team 4.



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BASIC THEMATIC ORGANIZATION:

1. Entrance Corridor	 » 1 – NMCA Information » 6 – Outdoor Adventure » 7 – Conservation and Protection
2. From the Ice Age to Today – Our Lake Through Time	 » 9 – Geology » 5 – Terrestrial and Marine Ecology » 4 – Maritime and Industrial History
3. A Lake of Many Stories	 » 2 – Indigenous History and Culture » 4 – Maritime and Industrial History
4. Wind, Water, and Wilderness	 » 3 – Lake Effects » 5 – Terrestrial and Marine Ecology » 8 – Invasive Species » 7 – Conservation and Protection » 2 – Indigenous History and Culture
5. The Irresistible Lake	
Art	» 10 – Distributed throughout the zones as thematic content and as context graphics.

VISITOR EXPERIENCE MATRIX:

OS VISITOR **EXPERIENCE** THEME

LINK TO NMCA VISITOR EXPERIENCE THEMES

KEY MESSAGES + EXPERIENCES THEMES

POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS

POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS

1.0 ENTRANCE CORRIDOR

1.1 Welcome to the LSNMCA and to the Discovery Centre

- **1A** PC Mandate
- **1C** What is an NMCA?
- **1D** Cultural Resource Management
- **1E** PC System of Protected Systems
- **6A** Paddling
- **6B** Fishing
- **6C** Camping
- **6D** Boating/Camping
- **6E** Hiking
- **6F** Charters
- **6G** Art
- **6H** Islands, Lighthouses, Navigation
- 61 Saunas
- **6J** Lose Yourself, Find Yourself

- 1. Inspirational statement about PC mandate, blending in key ideas about cultural resource management.
- 2. Large graphic identifying PC system of NCMAs, and national parks, as well, if desired.
- 3. Explanation of what an NMCA is and does with specific reference to the LSNMCA.
- 4. Lose Yourself, Find Yourself - a wall of stunning, largescale images of waterscapes, landscapes, and the outdoor activities outlined in theme 6 with mechanism(s) for providing related information (pamphlets, schedules, etc.), if desired.
- Messaging about sustainable, eco-friendly visiting practices.
- **6.** Basic Lake Superior facts and figures.

Interactive touch screen with:

- 1. Searchable activity information,
- 2. Link to Parks Canada corporate site,
- 3. Link to Parks Canada Reservation site.
- 4. Link to the LSNMCA site.
- **5.** Messaging about sustainable. eco-friendly visiting practices.

Capacity to download information directly to personal devices.

Graphic approach with pamphlet holders.

Notes:

- 1. Recommend excluding the NMCA Act from the content grid it will not be of interest to many visitors and space is at a premium.
- 2. Ready access to information about features, activities, and services available in the area for visitors who choose not to tour the exhibit is important, and the Entrance Corridor will be the key area for the delivery of this service in the DC.



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OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
1.2 Join us in preserving the diverse eco-systems of the LSNMCA.	 7A – Many Groups Involved 7B – Cultural Resources 7C – Sustainable Practices 7D – No Trace/Reduce	 Here are ways to visit the park with minimal interference to eco-systems. Large-scale infographics (with takeaway sheets) guiding visitors in how to visit the NMCA sustainably. 	Large-scale infographics positioned prominently in the Entrance Corridor with same content available as takeaway sheets for visitors.	Large-scale infographics positioned prominently in the Entrance Corridor with same content available as takeaway sheets for visitors.

Notes:

- 1. Recommend positioning key messages here about sustainable practices for those visitors who choose not to go into the exhibit. This is critical conservation information and needs to be available immediately and presented prominently in the Entrance Corridor.
- 2. 7A + 7B may be able to be rolled into a general introductory statement rather than occupying real estate as a sub-theme on its own.
- 3. 7E is it appropriate to have the Seven Generation/Seven Grandfather teachings here? It is already identified in your theme 2.
- 4. 7G + 7H would be more effective in land, water, and ecosystems, although reference to plastics can certainly be part of the general theme statement in this zone.

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OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
2.0 FROM THE ICE A	GE TO TODAY – OUR LAKE	THROUGH TIME		
 2.1 An Ancient Terrain Sub-zones: 2.1.1 Early geologic formations 2.1.2 Impacts of glaciers 2.1.3 Minerals and geologic features 	2.1.1 Early geologic formations: 9A - Mid-continental rift 9C - Columnar Basalts 9D - Superior Shoal 2.1.2 Impacts of glaciers: 9B - Glaciation / Deglaciation / Interglacial 9D - Deepest point 9I - Isostatic Rebound 5A - Island Archipelago 5B - Arctic Alpine 2.1.3 Minerals and geologic features: 9E - Shatter Cone 9F - Agates 9H - Silver, Copper 9G - Variety of Features	 Lake Superior is the result of both ancient and more recent geological and climatic events. The area is rich in distinctive rock formations and minerals. 	Digital interactive tracing the creation of the Pre-Cambrian mid-continental rift, the evolution of the geography and geology of the continent(s) over time, leading up to the most recent glacial period during which the Great Lakes were formed. Touchable mineral specimens. Replication of the Lake Superior basin model from the outdoor space, either as a touchable physical model or as a digital experience.	Graphic representations of the evolution of the Lake, along with touchable mineral specimens. Physical interactives demonstrating the mechanisms by which different geological features are created. For example, a simple weighting and unweighting of land by ice sheets to demonstrate isostatic rebound. A gear driven model to demonstrate mid-continental rift.
2.2 Introduction Area (Human History)	 2A – Cyclical nature – sustainable, harmony with seasons/nature 2B – Seven Generations 	1. Human history and culture are inextricably linked to the natural world.		

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OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
3.0 A LAKE OF MAN'	Y STORIES			
3.1 The First Inhabitants	2C - Paleo Early continental trade 2D - Canoe 2F - Tools 2G - Adaptation 2H - Harvesting 2I - Pictographs 2J - Ceremony / Teachings 2L - Language	 Humans have lived near to the lake for millennia. The First Peoples of the region participated in a continent-wide trading system, long before the arrival of Europeans. First Peoples adapted to the often harsh conditions of the region. Pictographs are tangible evidence of the earliest inhabitants of the region, and connect us to them in a real way. 	Digital map showing settlements and cultural groups, trade and travel routes, with contemporary overlay to show present day location of highways and cities. People capsules – first person oral histories with an Indigenous representative sharing stories about early life in the region, ceremonies, teachings. Multi-lingual key-phrase dictionary with audio capacity. Cultural objects.	Maps incorporated into graphic panels. Printed book with illustrated stories, phrases in several languages. Cultural specimens
3.2 Explorers and Settlers	Exploration 4B - Fish / Fur - camps, trap lines, HBC/other 4A - Isolation, conditions 2E - Métis and Voyageurs 2F - Tools 2G - Adaptations 4C - Boat Adaptations	 With the assistance of First Peoples, Europeans explored the region and learned to adapt to and survive in very difficult conditions. Europeans and First Peoples shared skills and technologies. 	Virtual game – would you survive in the bush? People capsules – first person oral histories of a voyageur, a Métis person, and women sharing stories. Cultural objects. Digital interactive – explore the effects of changes in boat design in a simulator, e.g. what differences do keel depth make?	Graphic treatments for story-telling. Cultural objects. Scale boats to demonstrate adaptations to conditions on Lake Superior.
3.3 Industry	 4D - Lighthouse / shipwreck 4E - Logging: watershed, tributaries, industry 4F - Rail 4G - Mining silver, copper, gold 4H - Tech: evolving needs, Schreiber, shipping, jackfish, lighthouses 4I - Hydro Dam 4J - Watershed - unlock huge area of richness 	1. Lake Superior and region has been and continues to be the site of many lucrative industries and interesting stories.	People capsules – first person oral histories – nostalgic remembrances, visioning for the future. Digital album of shipwrecks and related stories, songs, and video clips. Telling Stories with Things – visitors learn about key industries in the region by exploring the story of a single related object (digital version).	Audio stations. Graphic panels describing shipwrecks. Telling Stories with Things – visitors learn about key industries in the region by exploring the story of a single related object (panel version).

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OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
4.0 WIND, WATER, A	ND WILDERNESS			
4.1 Introduction 4.2 The Life of the Lake	3A – Weather: Waves, Wind, Storms 3B – A/C Effect 3C – Seiche 3D – Ice Formation 3E – Currents 3F – Water Shed 3G – 191-Year Water Cycle 2M – Place Names	 The lake experiences many kinds of weather – some of it extreme – in all seasons. Explore how the lake "works" – its life cycle. Discover the origin of place names and the original Indigenous namings. 	A large-scale video montage of dramatic storms, ice accumulations, waves. Digital interactive describing the water cycle specific to the lake, highlighting the 191-year residence period and the particular impact of pollution. People capsules – first person oral histories with an Indigenous representative sharing stories about the naming of places along the lake and in the region. A closed tank for a physical demonstration wherein visitors control wind speed to create scale waves.	Still image montage of weather effects. Infographic describing the lake's water cycle. Large map panel with flipbook containing place-naming stories. Large scale graphic to demonstrate the height of Lake Superior waves.
4.3 Marine LifeSub-zones:4.3.1 Life in the Water4.3.2 Invasive Species4.3.3 Prevention	4.3.1 Life in the water: 5C - Fish Ecology 5D - Oligotrophic Lake 5E - Spawning Beds 5F - Species: Lake + Brook Trout Crustaceans? 4.3.2 Invasive species: 8A - Prevention (How Introduction Happens) 8B - Species List 8C - Potential Intruders 8D - New Species, Existing, Managed 8G - Salmon, Smelt (Non- Native vs. Invasive) 4.3.3 Prevention: 8E - DFO Consultation 8F - Boat Wash Station	 The lake is alive with many species of fish and other marine life. Understand how invasive species are introduced to and migrate throughout the Great Lakes and related river systems. Learn about how to prevent the spread of invasive species. 	Aquarium with wide variety of fish, plant, and potentially crustacean life. Digital labels describing the various species and providing detailed information about each. Narrated animation exploring the introduction and spread of invasive species. Digital game in which visitors guess if a species is native, introduced, or invasive. Augmented reality interactive identifying and quizzing marine life based on AR overlay on graphic panels.	Photographic or artistic renderings of various fish, plant, and crustacean species with text labels. Graphic panel with text explaining native vs. introduced vs. invasive species. Spinning cylinder game to identify various aquatic species.



OS VISITOR EXPERIENCE THEME	LINK TO NMCA VISITOR EXPERIENCE THEMES	KEY MESSAGES + EXPERIENCES THEMES	POSSIBLE COMMUNICATION STRATEGIES - HIGH OPTIONS	POSSIBLE COMMUNICATION STRATEGIES - LOW OPTIONS
4.4 Life on the LandSub-zones:4.4.1 Animals4.4.2 Plants4.4.3 Insects	Life on the land: 5G - Caribou, Moose, Wolves 5H - Colonial Water Birds, Migratory Birds Plants Insects Reptiles Amphibians	1. The region is home to a diversity of species, all of whom depend on the lake for their survival.	Digital bird (and other species) identification interactive with silhouettes, calls, and descriptions of behaviour and habitats of each species. Virtual herbarium identifying the various plants, where they are found, what uses they may have or have had for humans and other species. Mystery textures identification game – for example, furs, skins, mosses, exoskeletons	Graphic panels with species identifications and information. Flipbook identifying various plant species common to the area. Mystery textures identification game – for example, furs, skins, mosses, exoskeletons.
4.5 Climate Change + Pollutants	5I – Climate Change7G – Microplastics/Nurdles7H – Pollution/Atmospheric Deposition	 Climate change is having a significant impact on our planet, our continent, and our lake. Certain types of pollutants have a greater impact than others. 	Climate interactive – consider partnering with the Canadian Climate Atlas and providing it for visitors to explore. Digital interactive – a lenticular map that shows the change in conditions over time – temperatures, water levels, ice cover, rainfall, and predicts possible future outcomes and impacts.	Graphic treatment describing statistics and risks of climate change.

5.0 THE IRRESISTIBLE LAKE

- **2K** Peoples' Relationship to Lake, Lake Shape People
- 2N Stories / Gitchegaming
- **1.** Experience the grandeur and beauty of the lake and its environs.
- 2. Feel it inspire you.
- **3.** Lose yourself, find yourself

After an informative and active exploration of the previous zones, it is suggested that this be a largely uninterpreted area that is essentially visual, emotive, and experiential in nature.

Majestic large-scale still and moving images, soundscapes, and mild wind effects bring the outdoors into the interior spaces of the DC, and encourage visitors to get outside and experience the real thing.

Visitor-to-visitor zone provides an opportunity for people to share the location of their favourite spot, the best place for fishing, or their happiest moment.

People capsules share final wishes, stories, and hopes for the future.

After an informative and active exploration of the previous zones, it is suggested that this be a largely un-interpreted area that is essentially visual, emotive, and experiential in nature.

Majestic large-scale still images bring the outdoors into the interior spaces of the DC, and encourage visitors to get outside and experience the real thing.

Visitor-to-visitor zone provides an opportunity for people to share the location of their favourite spot, the best place for fishing, or their happiest moment.





06 PRELIMINARY EXHIBIT DESIGN CONCEPTS (BS 5)

THIS SECTION INCLUDES:

- PRELIMINARY EXHIBIT CONCEPTS

OPTION 1A

PRELIMINARY CONCEPT RENDERINGS
PRELIMINARY GRAPHIC STYLING
PRELIMINARY EXTERIOR EXHIBIT CONCEPTS

OPTION 1B

PRELIMINARY CONCEPT RENDERINGS
PRELIMINARY GRAPHIC STYLING
PRELIMINARY EXTERIOR EXHIBIT CONCEPTS

OPTION 2A

PRELIMINARY CONCEPT RENDERINGS
PRELIMINARY GRAPHIC STYLING
PRELIMINARY EXTERIOR EXHIBIT CONCEPTS

OPTION 2B

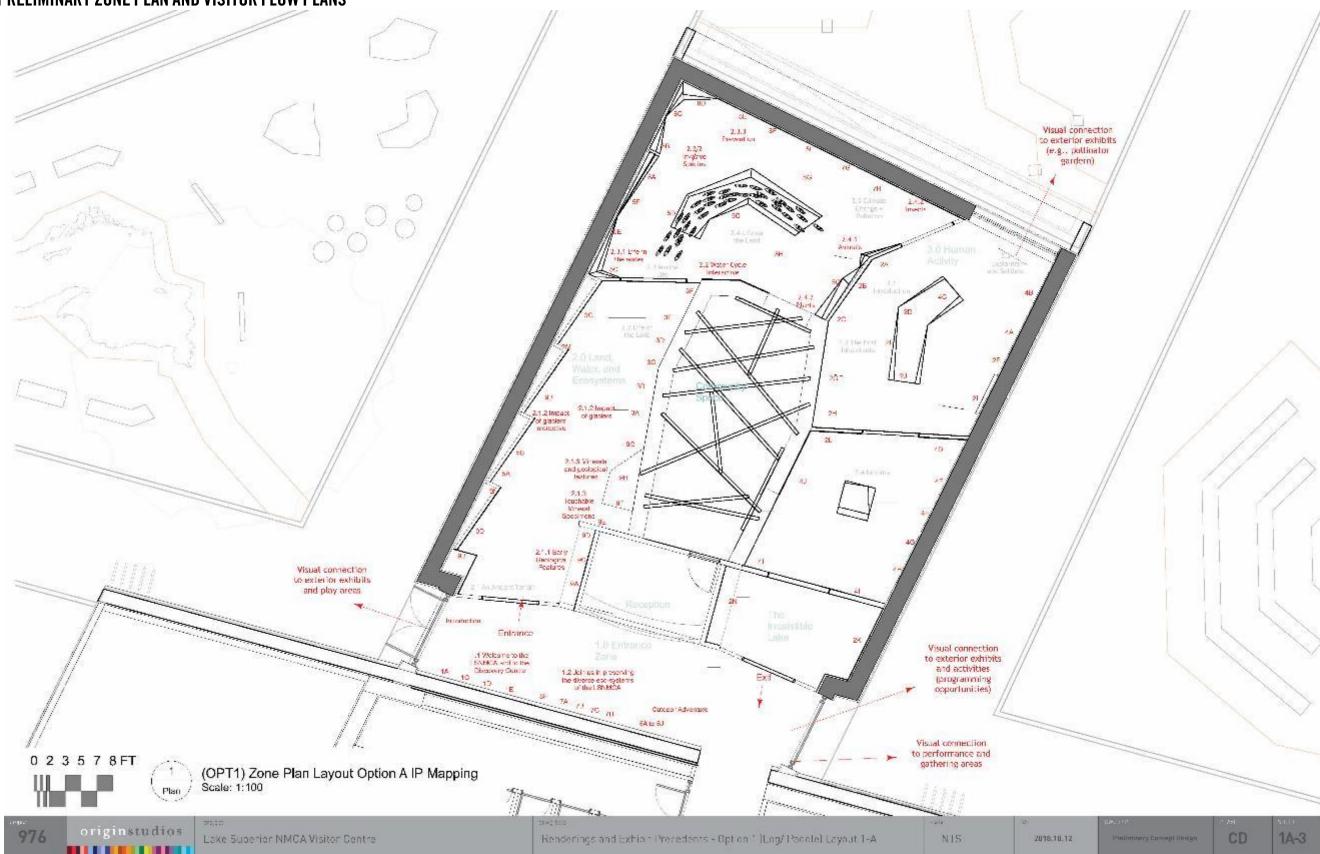
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PRELIMINARY GRAPHIC STYLING
PRELIMINARY EXTERIOR EXHIBIT CONCEPTS

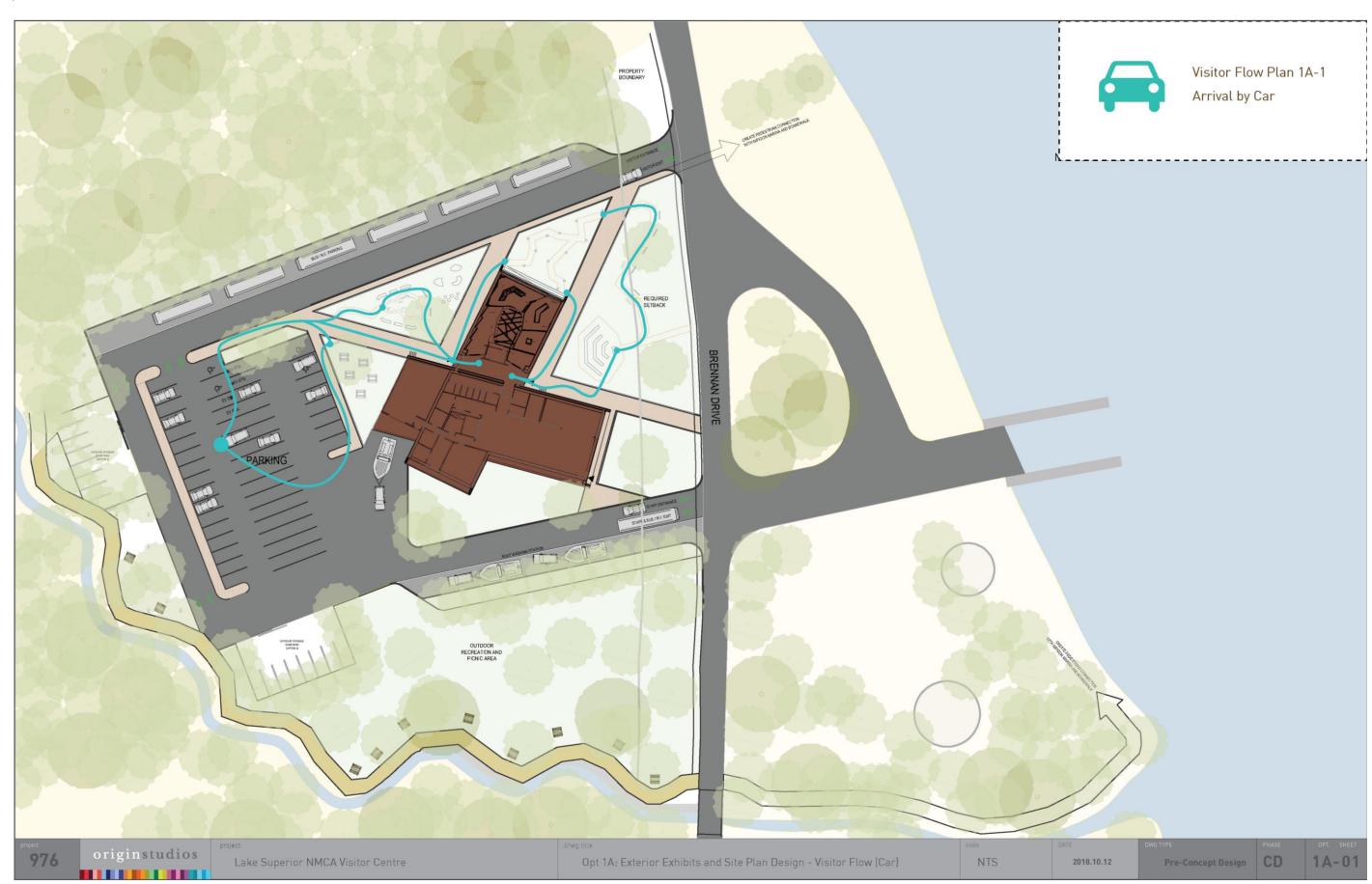


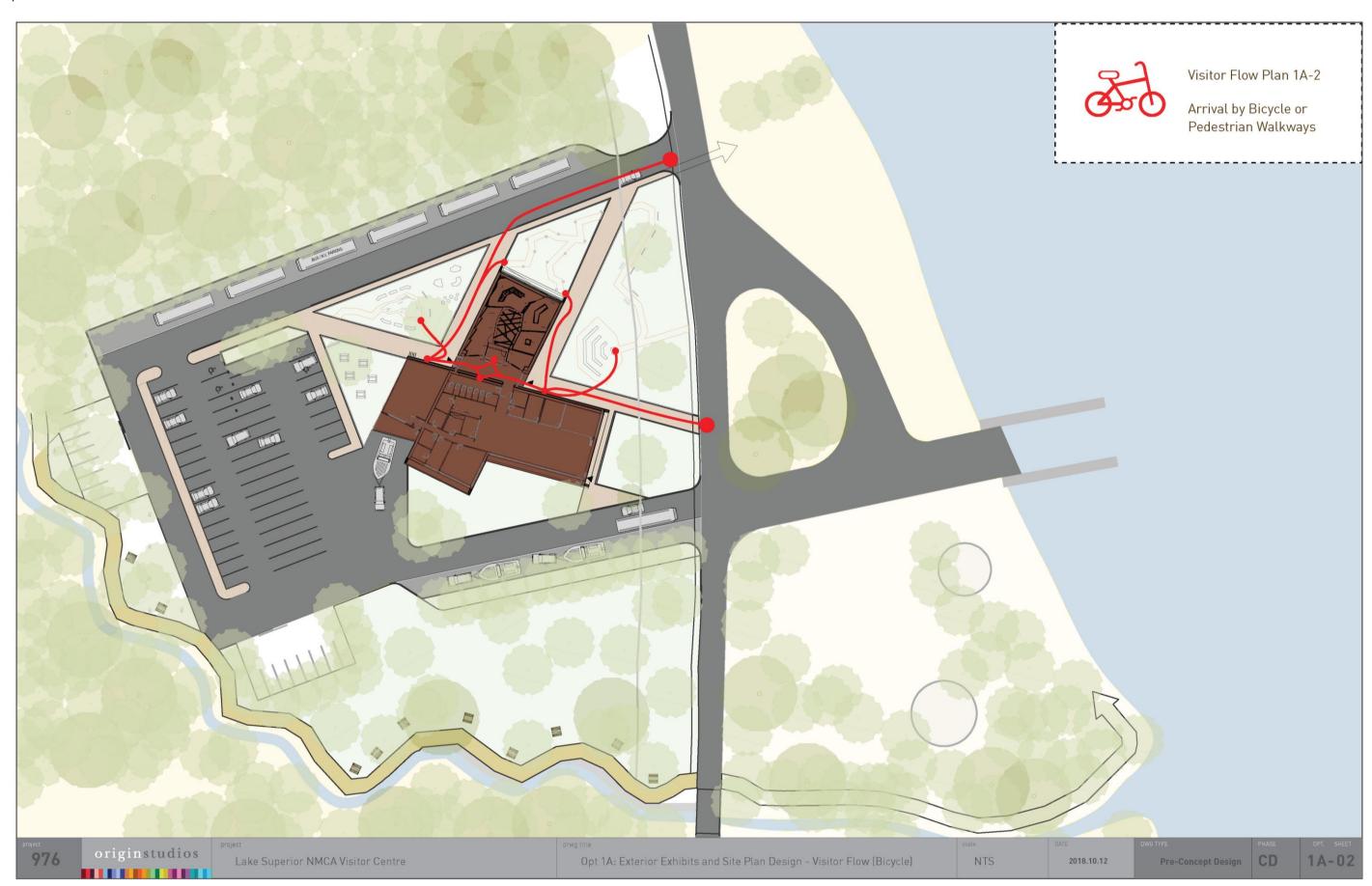
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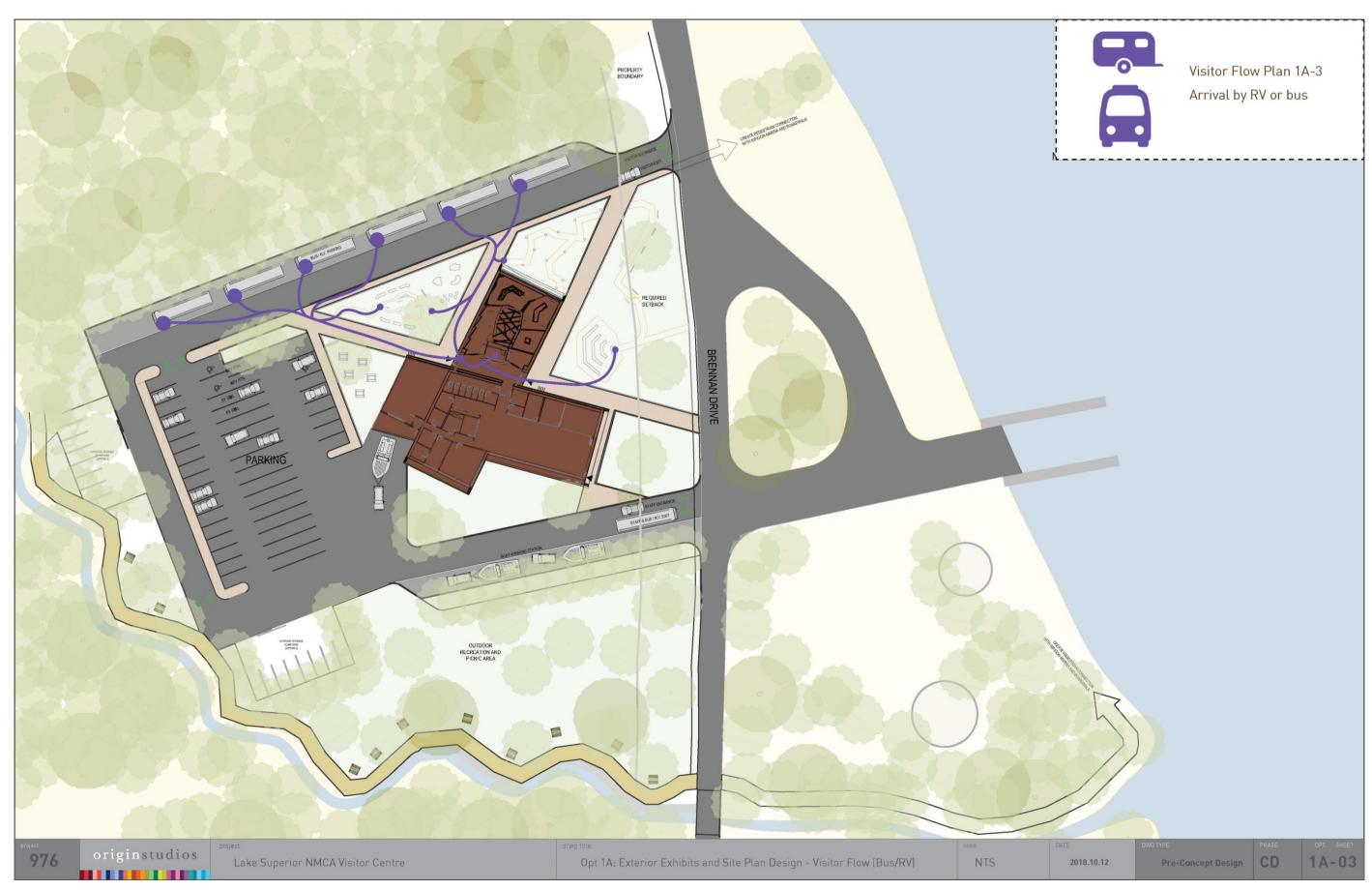
06.1 OPTION 1A

06.1.1 PRELIMINARY ZONE PLAN AND VISITOR FLOW PLANS

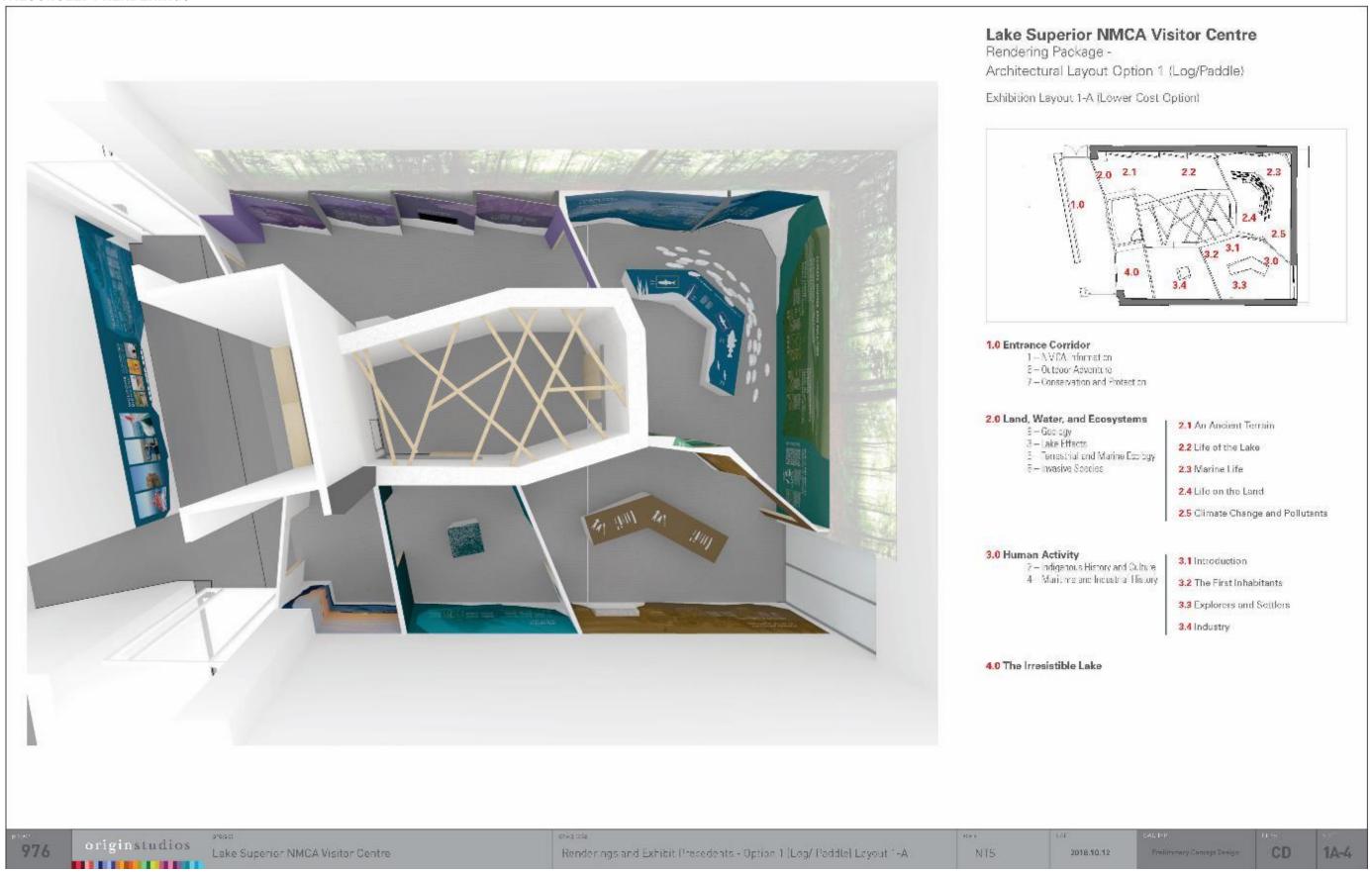








06.1.2CONCEEPT RENDERINGS





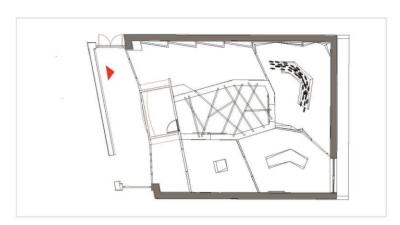






Exhibit Design Precedent

Shown here is an example of a sawtooth exhibit wall which features graphic murals on the longer face and text on the smaller verticals. Sawtooth walls add visual interest and a forced perspective down a corridor, giving different views depending on which direction you are facing.

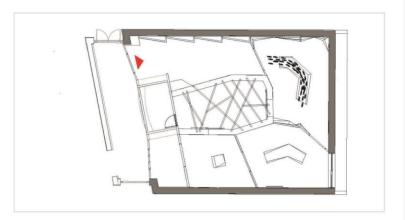
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2.1.3 Mineral and Geological Features
Graphic representations of the evolution of the Lake, along with touchable mineral specimens.



2.1.1 Early Geologic Formations

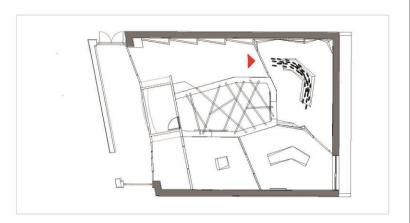
Physical interactives demonstrating the mechanisms by which different geological features are created. For example, a simple weighting and unweighting of land by ice sheets to demonstrate isostatic rebound or a gear driven model to demonstrate mid-continental rift.

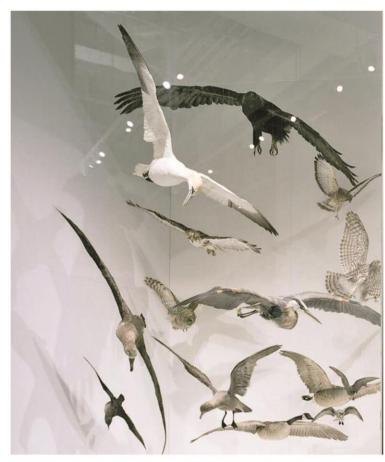
976 originstudios Lake Superior NMCA Visitor Centre drwg title Renderings and Exhibit Precedents - Option 1 (Log/ Paddle) Layout 1-A NTS DATE DWG TYPE PRASE SHEET CD 1A-6





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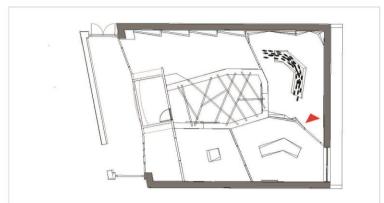




2.4.1 Animals - Migratory Birds or Fish sculptural elementAn installation of model or taxidermy birds/fish in a formation over the exhibits draws the eye up to take advantage of the architecture of the space.

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2.3.1 Life in the Water - Fish Ecology
Spinning physical interactive game to identify various aquatic species.



2.4.3 InsectsPhysical Interactive with sliding panels identifying various insect species common to the area.

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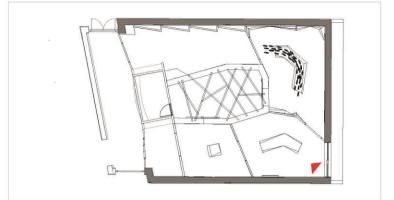
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3.2 The First Inhabitants

Projections above the exhibits highlight the tall space and draws the eye upwards. Projections of the Agawa Rock Pictographs could add a sense of wonder and immersiveness for visitors who are not able to trek to see them in person.

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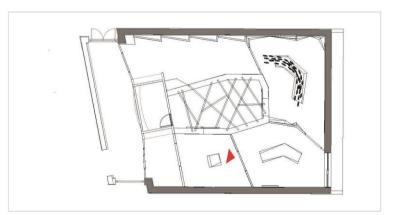




Exhibit Design Precedent

Shown here is an example of an angled, sculptural form for a table top design. The fragmented nature of the form is reminiscent of geological rock formations and is a design tool aimed at encouraging dialogue between visitors as they interact with the content.



3.2 The First Inhabitants

Cultural specimens set into display cases within angled tables assist in telling stories about the Lake and its inhabitants. Tools, adaptation, and harvesting are just some of the sub-themes explored here.

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Lake Superior NMCA Visitor Centre

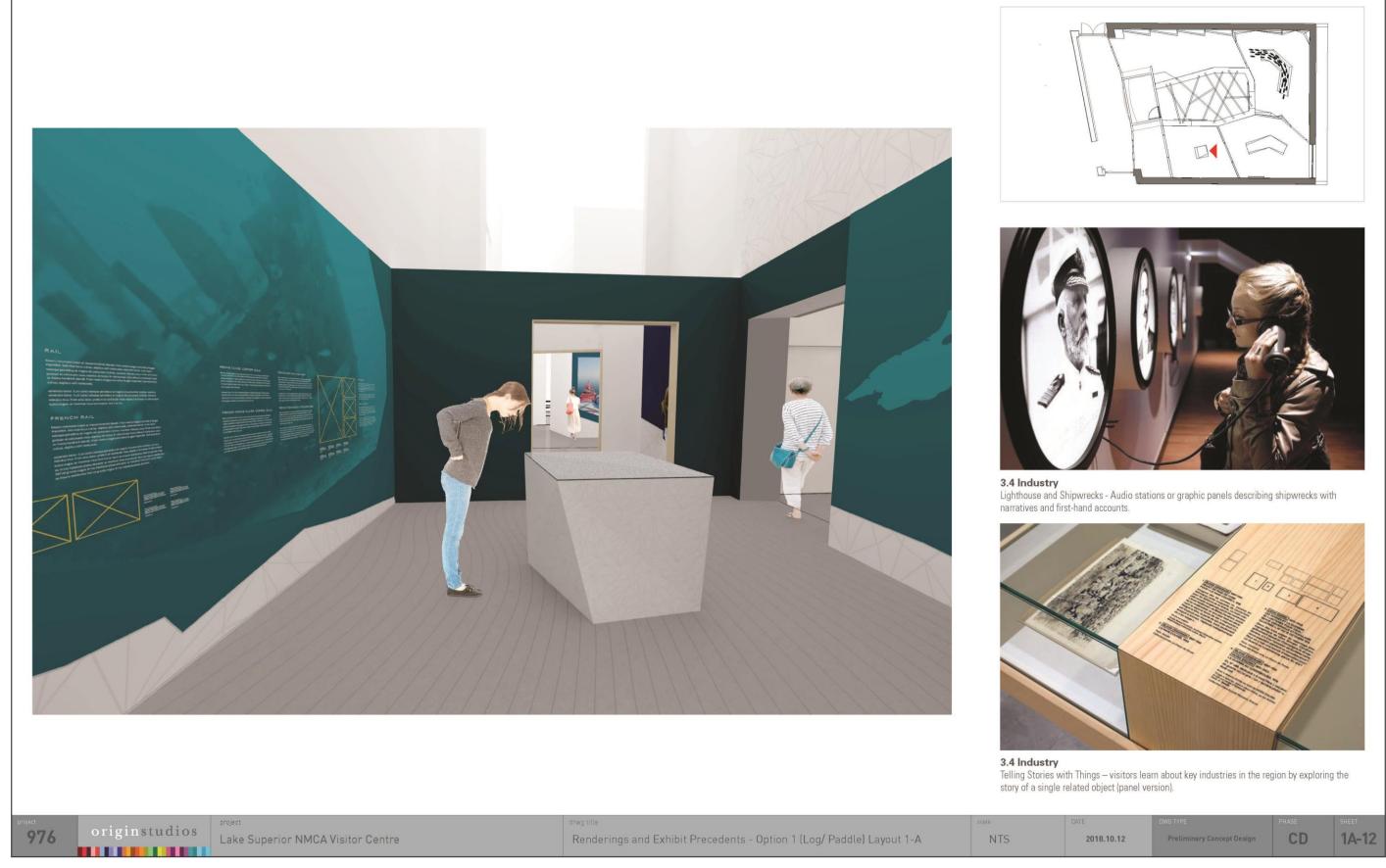
Renderings and Exhibit Precedents - Option 1 (Log/ Paddle) Layout 1-A

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2018.10.12

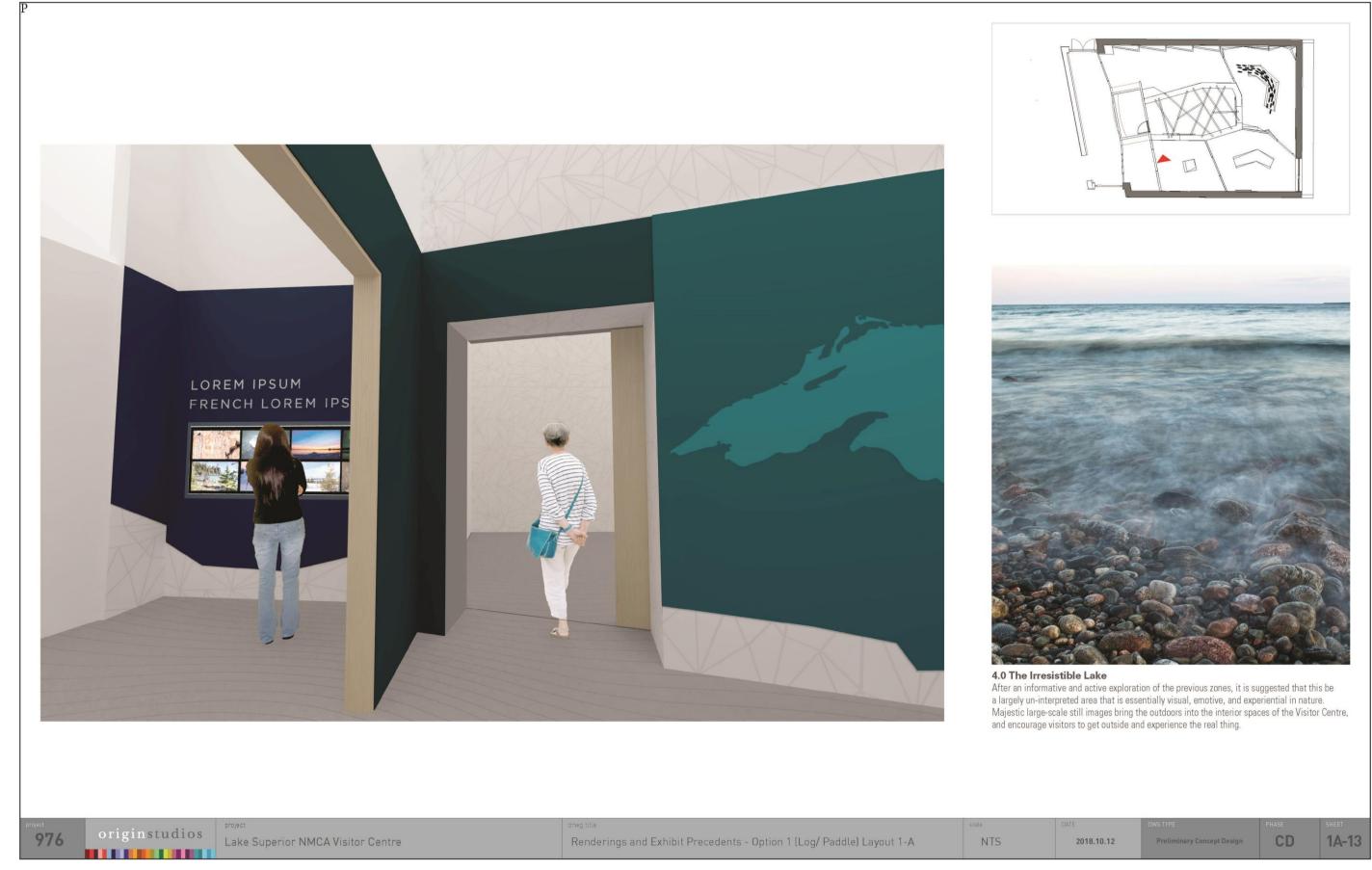
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1A-11



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Parks Parcs
Canada Canada



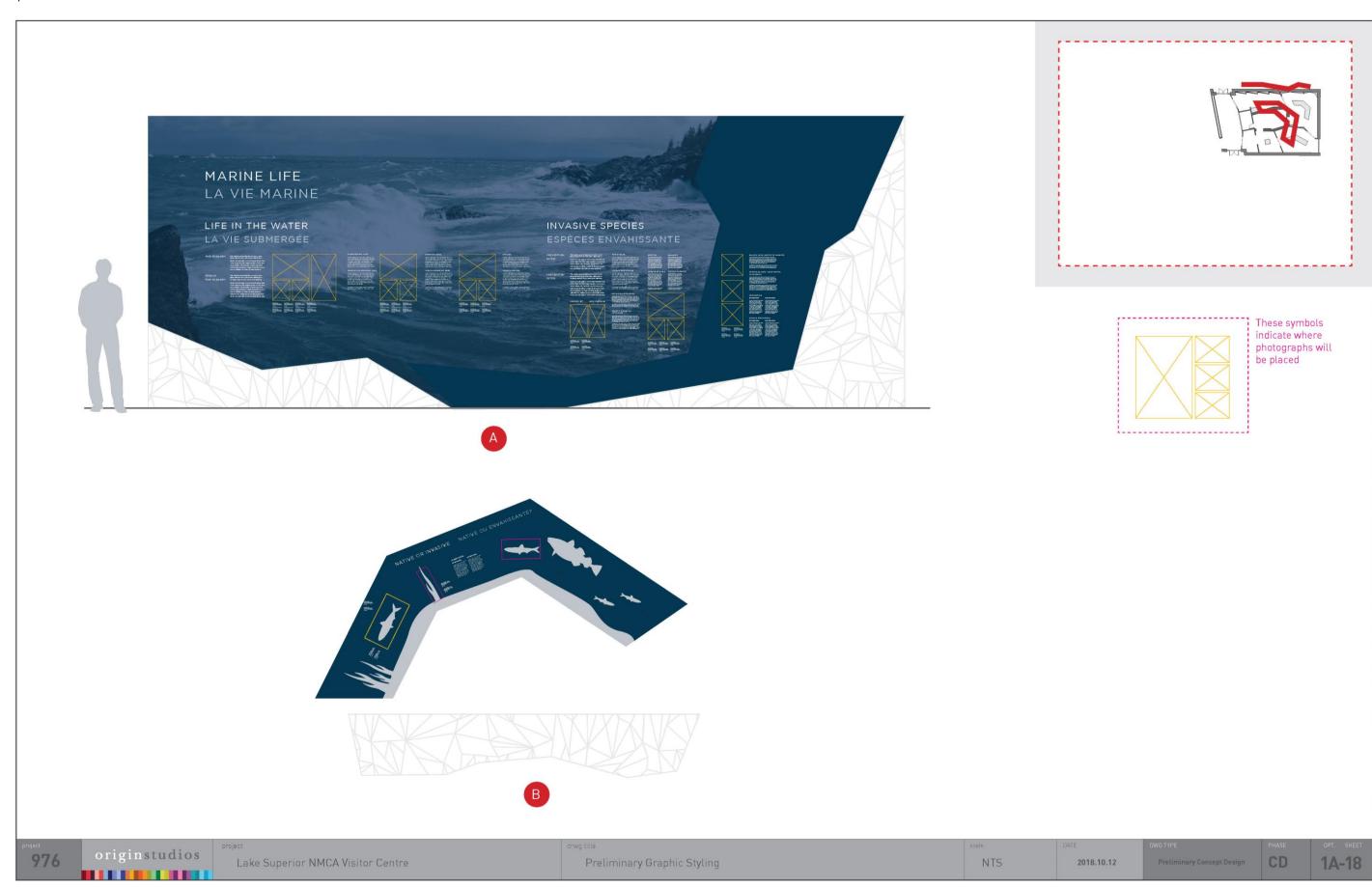
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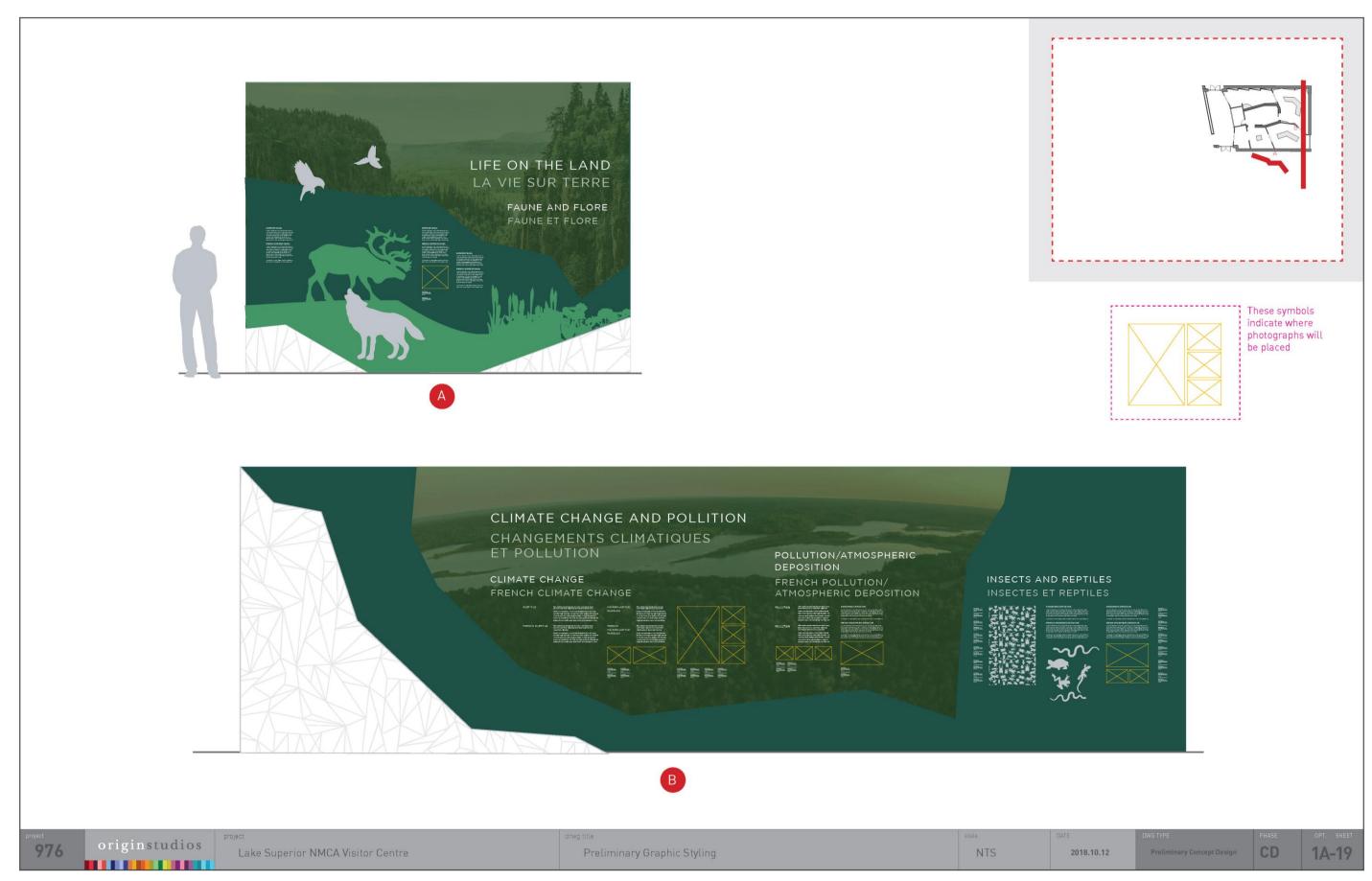


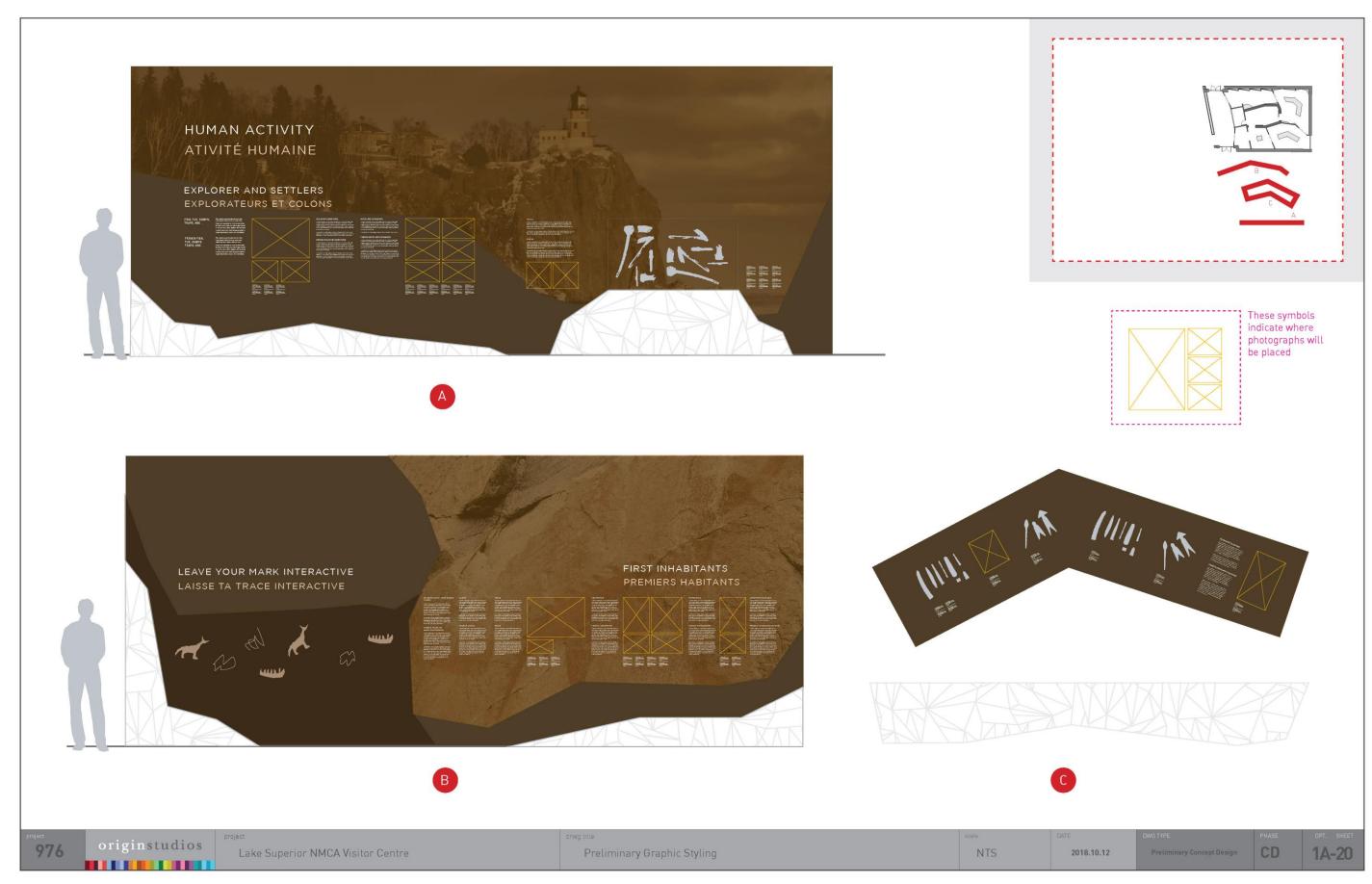


06.1.3 GRAPHIC AND EXHIBIT STYLING CONCEPTS



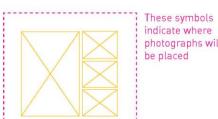




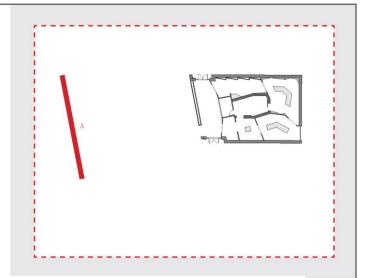








indicate where photographs will be placed







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originstudios CD 1A-23 NTS Lake Superior NMCA Visitor Centre Preliminary Graphic Styling 2018.10.12

Typography Approach

TITLE STYLING EXAMPLE

SUBTITLE STYLING EXAMPLE

This could be your introduction text style. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc pulvinar ante eget arcu commodo condimentum.

This could be your main content styling. Mauris commodo turpis ac massa hendrerit blandit. Proin viverra magna non tellus feugiat imperdiet. Sed vitae lacus cursus, dapibus velit malesuada, venenatis tortor. Cum sociis natoque penatibus et magnis dis parturient montes,

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"This would be the font of a quote sed vel gravida magna. In hac habitasse platea dictumst. Nullam tincidunt dui quis ex finibus, sed porta lectus convallis. Curabitur consectetur felis diam, et tincidunt augue condimentum non."

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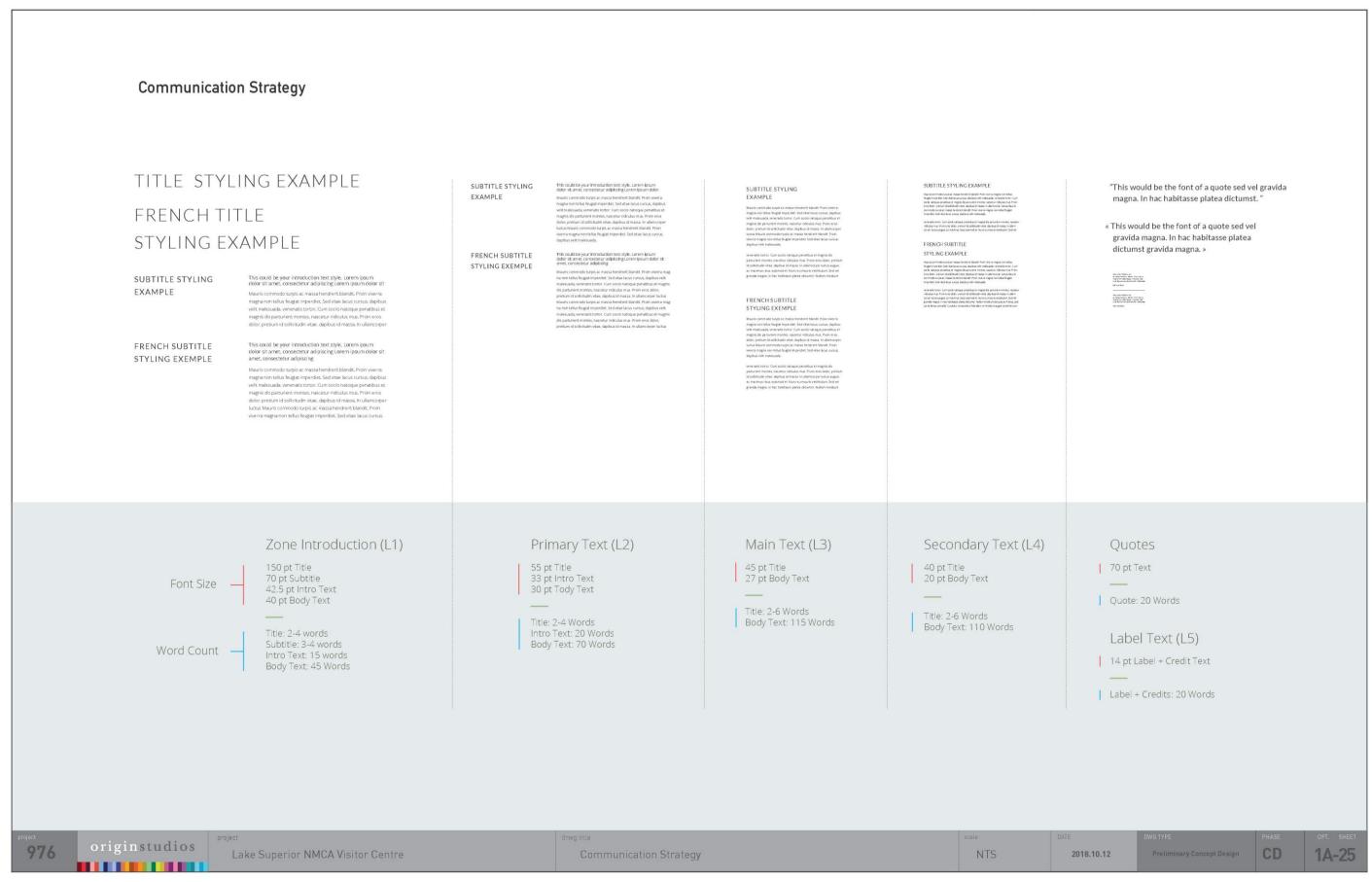
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(Body text)





06.1.4 EXTERIOR EXHIBITS AND SITE PLAN

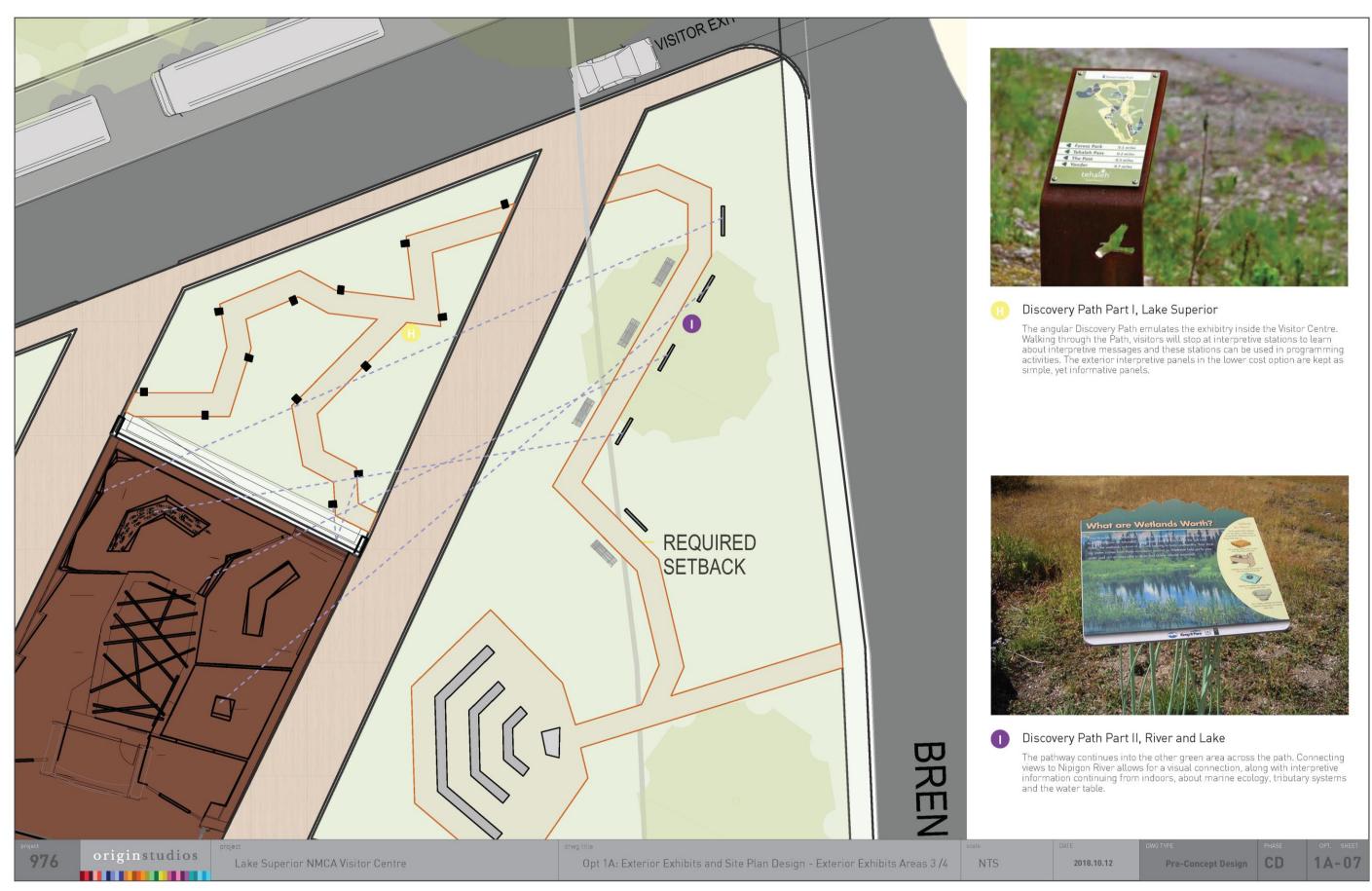


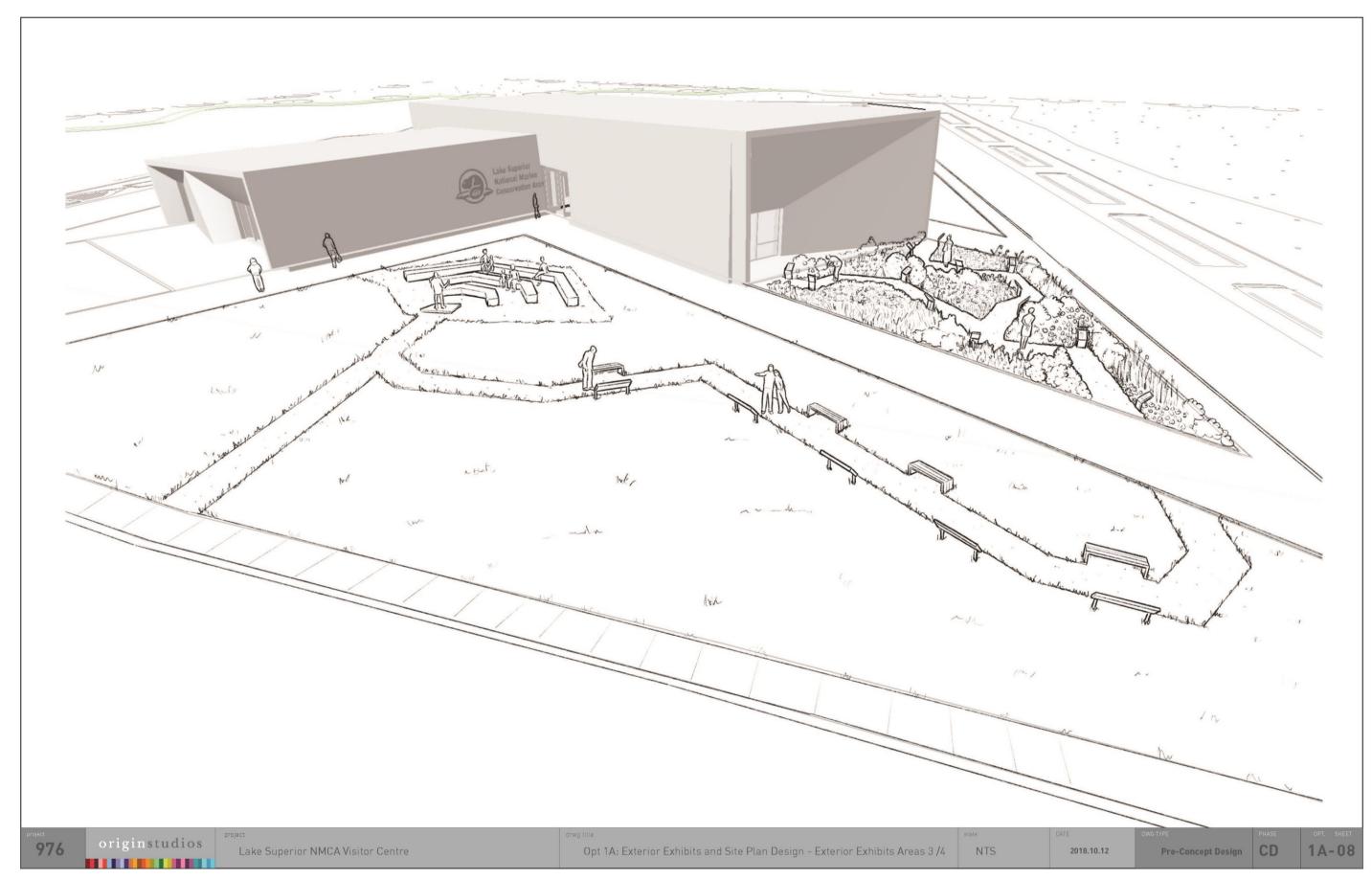
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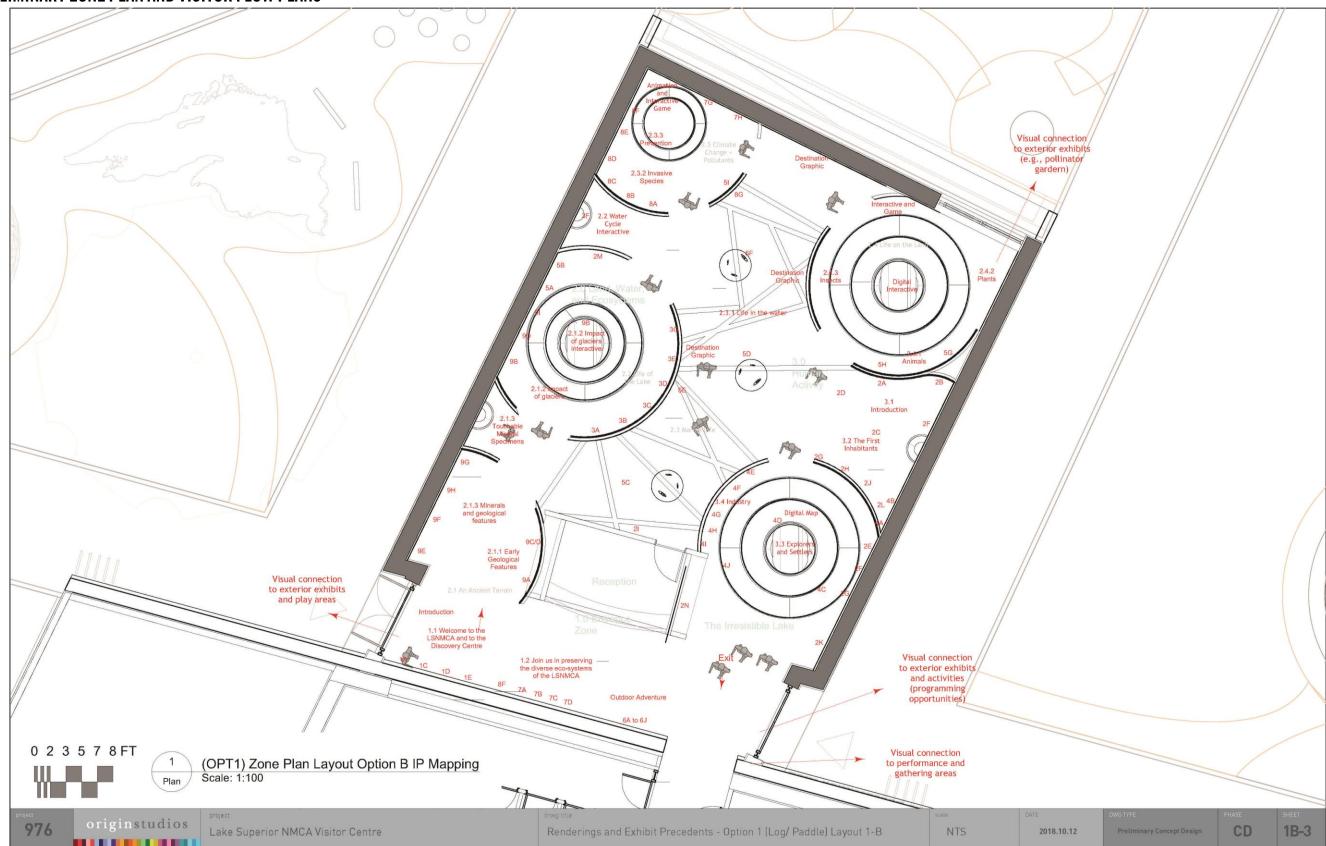


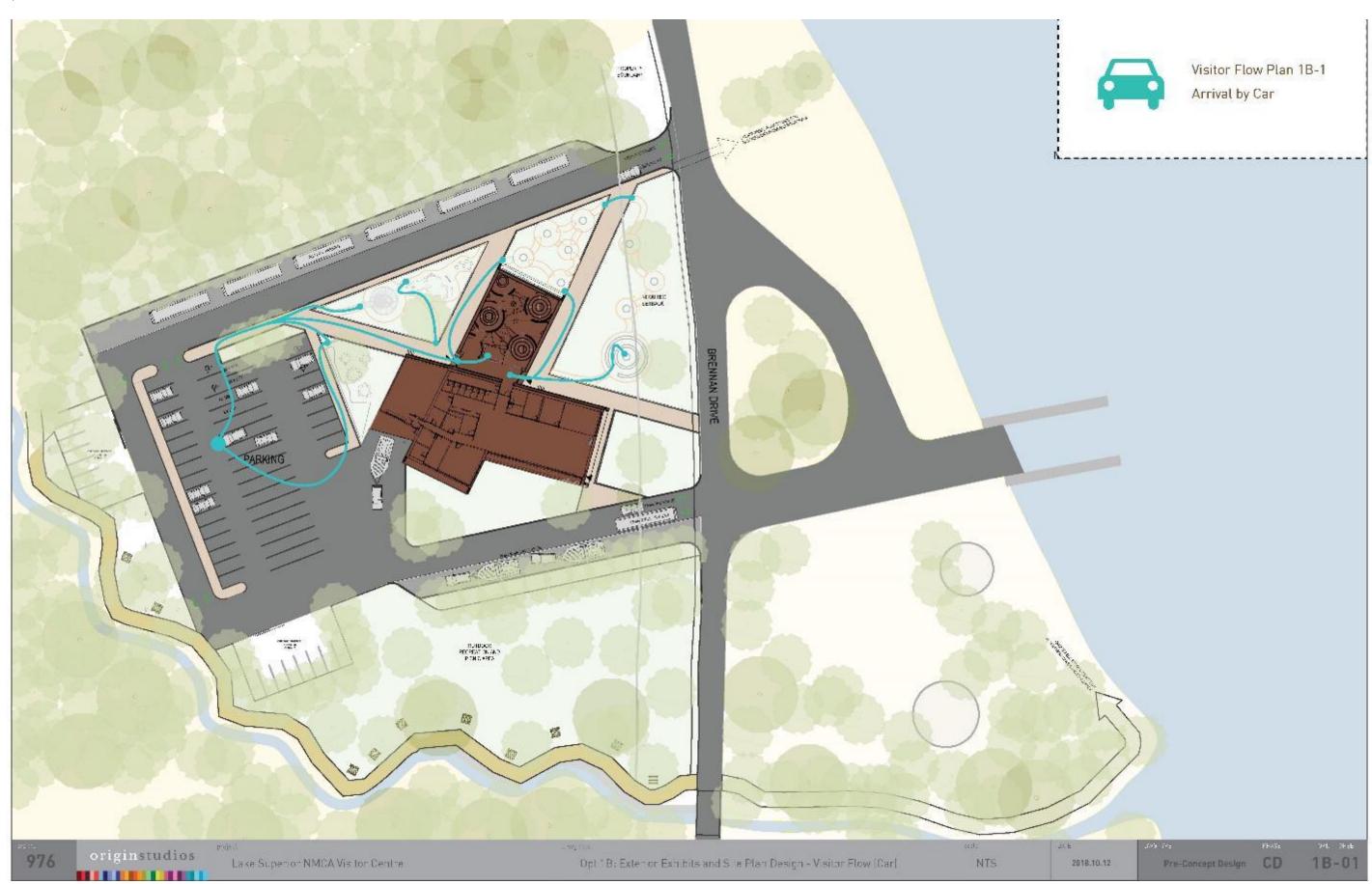


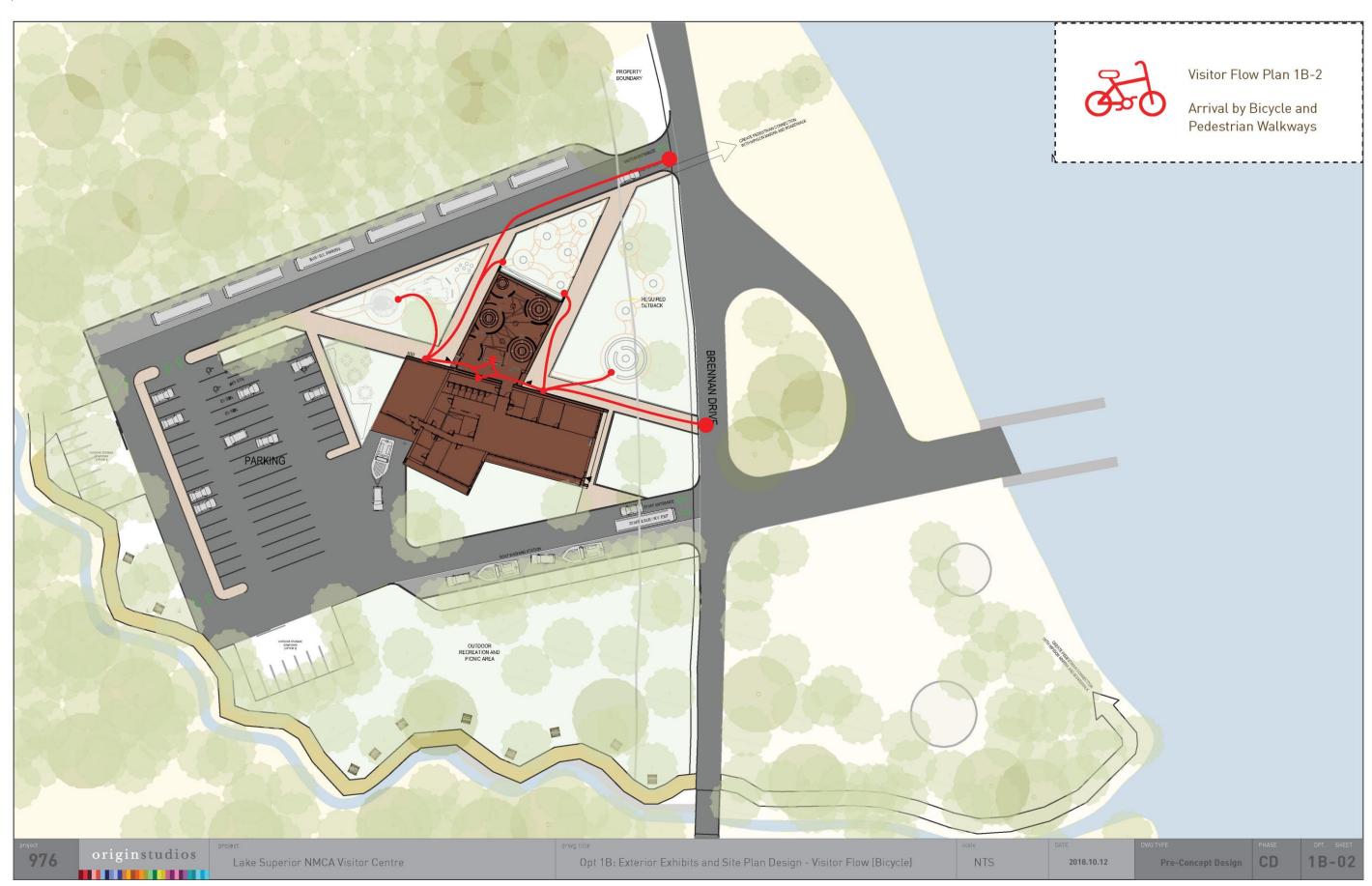


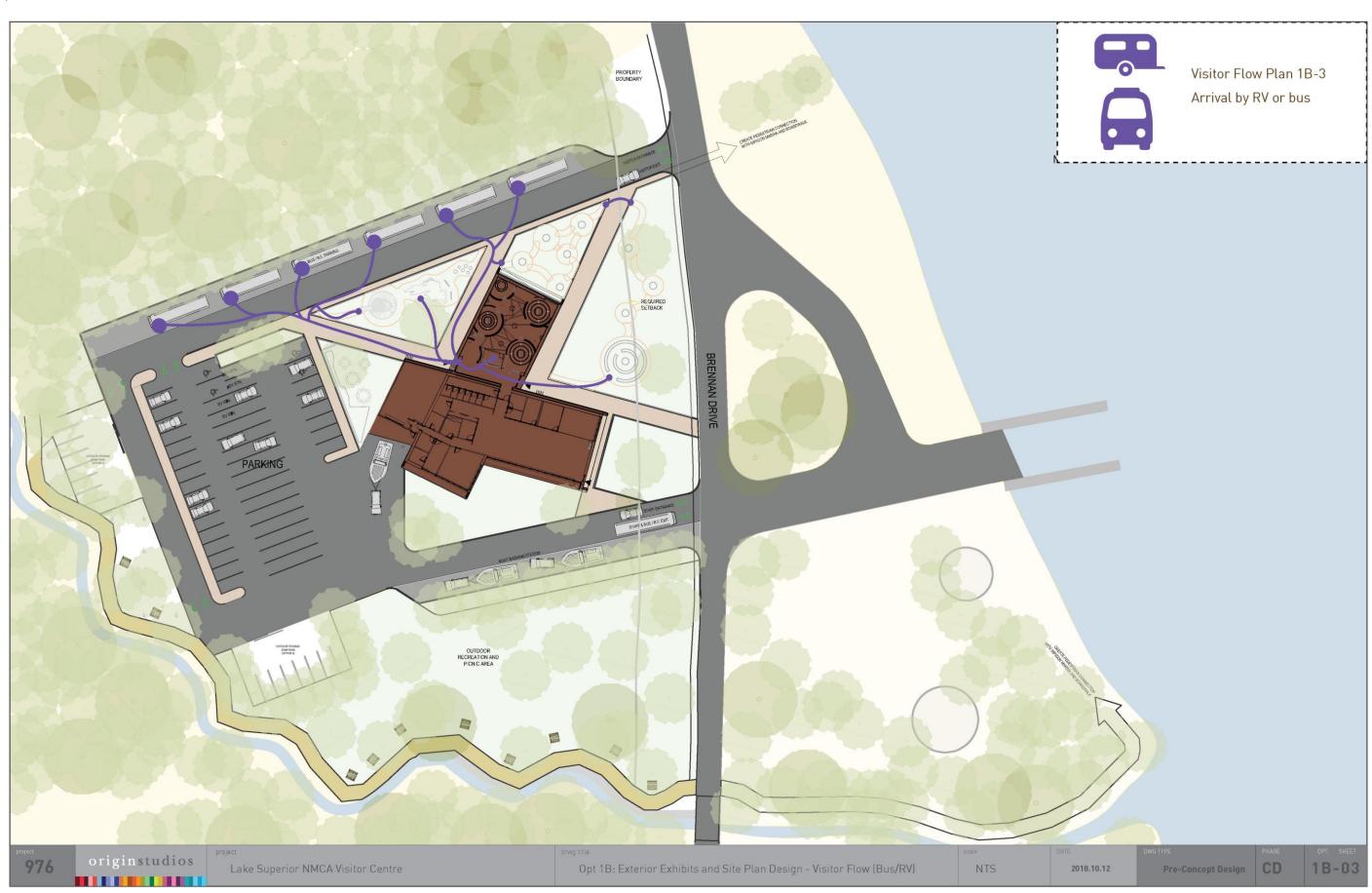
06.2 OPTION 1B

06.2.1 PRELIMINARY ZONE PLAN AND VISITOR FLOW PLANS

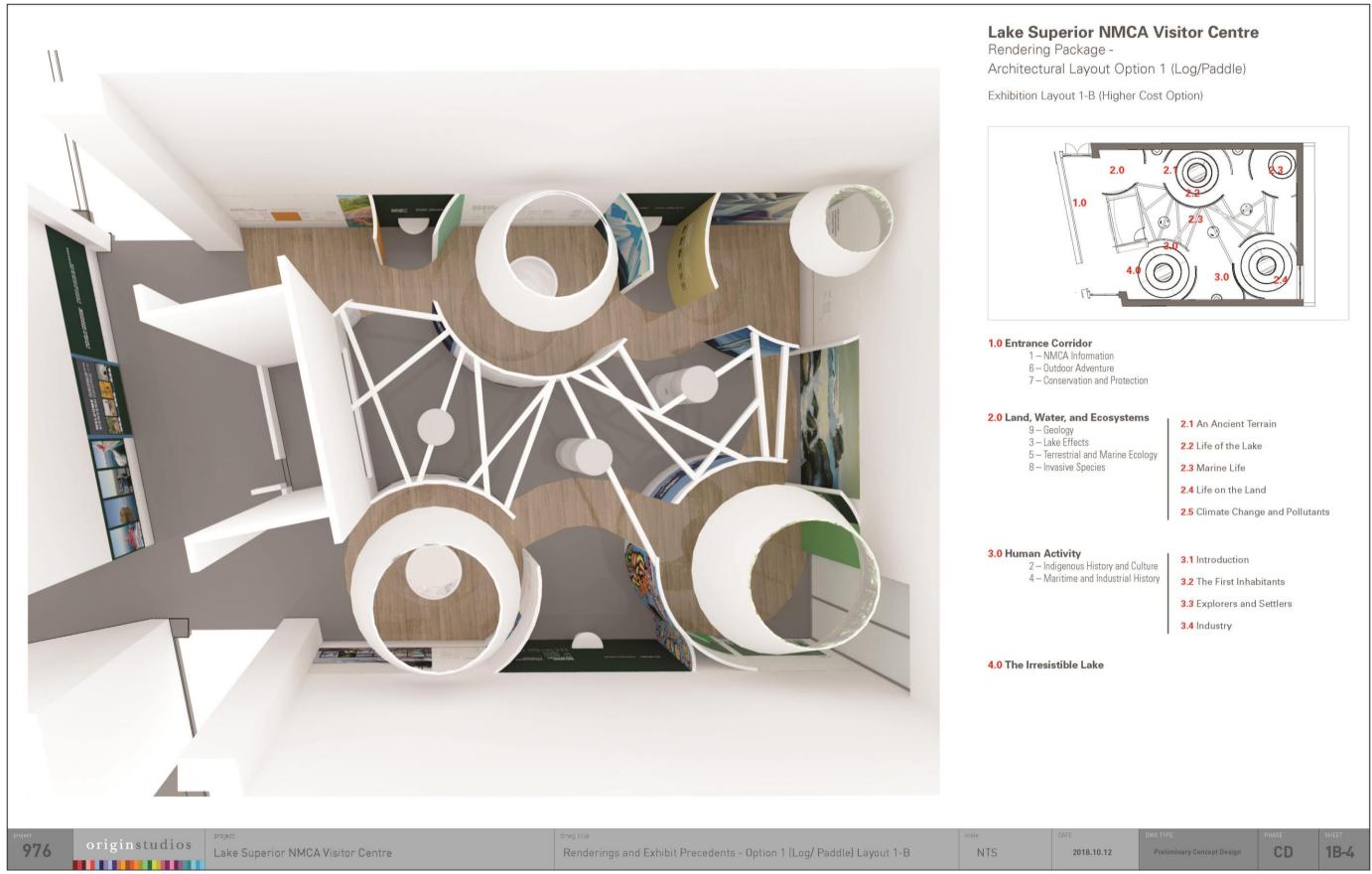








06.2.2 CONCEPT RENDERINGS







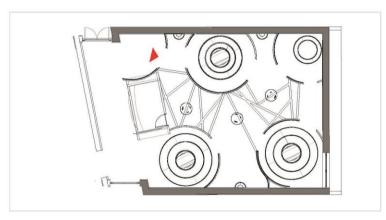






Exhibit Design Precedent

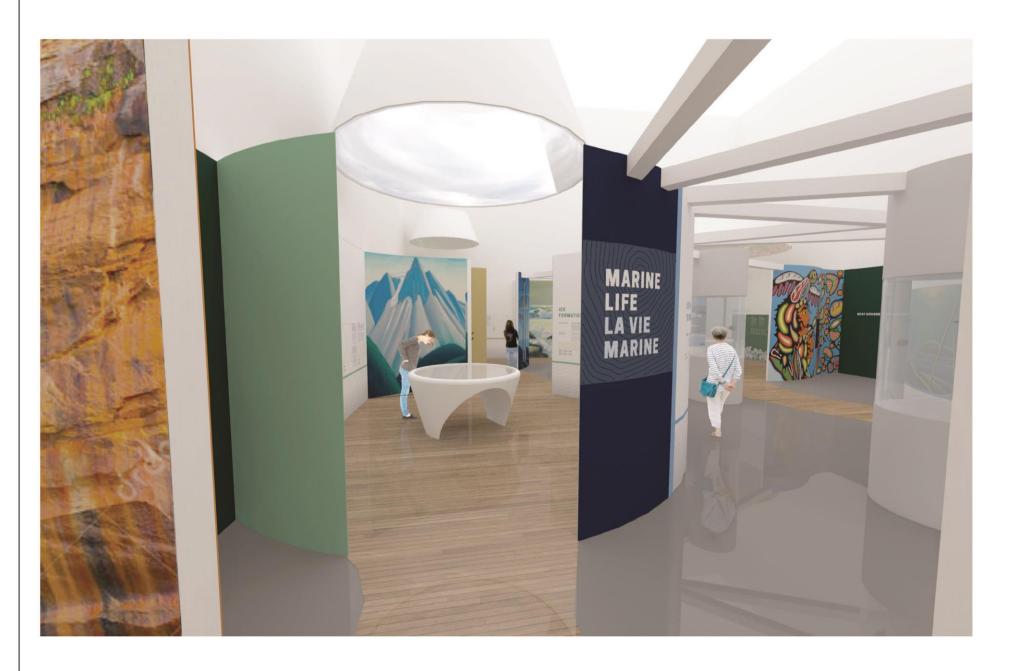
The floating ceiling structure that could hover above thematic "pods" give a highly immersive feeling when inside the "pod". In this arrangement, these rounded ceiling structures could showcase projections containing thematically related content.

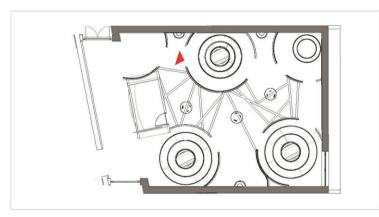
originstudios originstudios

Lake Superior NMCA Visitor Centre

originstudios

Area of the content of the conte







2.1.3 Minerals and geologic features
Shown here is an example of a vertical specimen wall of geological rocks and features.
Touchable mineral specimens next to the vertical column of rock would provide a tactile geological experience.

originstudios 976 1B-7 CD NTS Lake Superior NMCA Visitor Centre Renderings and Exhibit Precedents - Option 1 (Log/ Paddle) Layout 1-B 2018.10.12

Stantec



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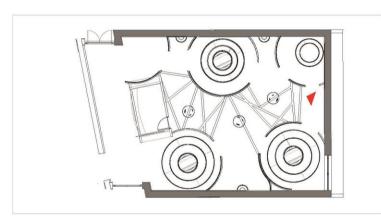
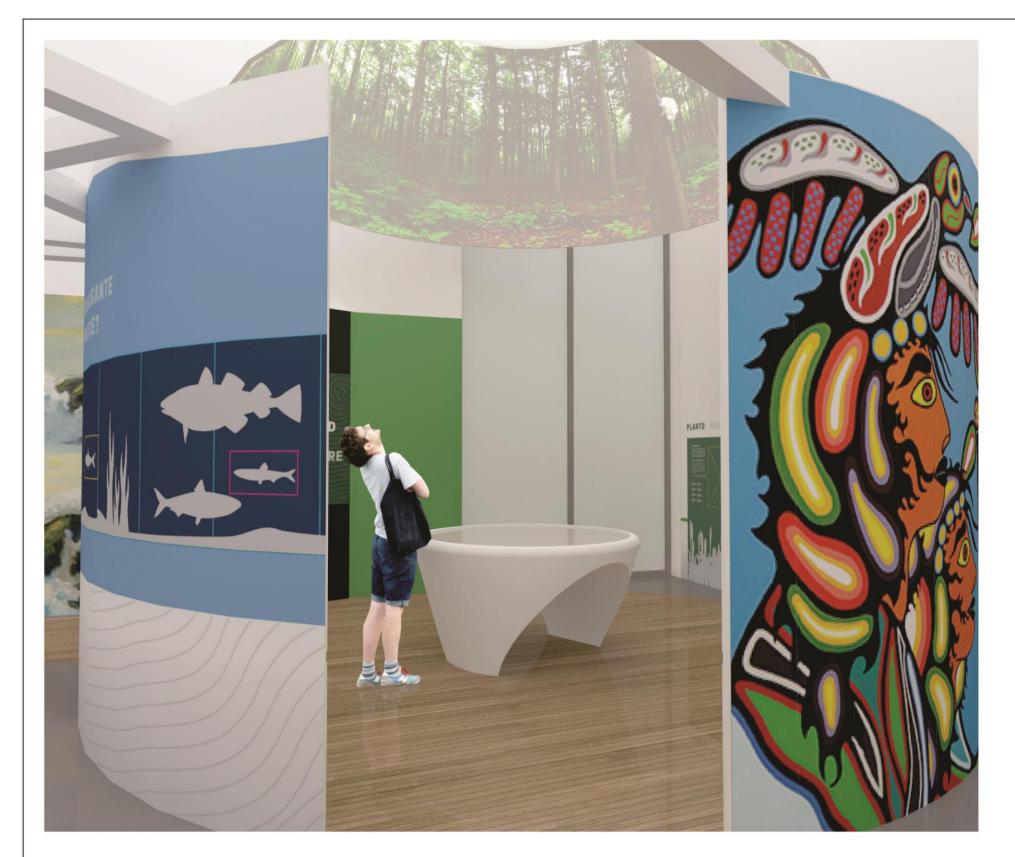


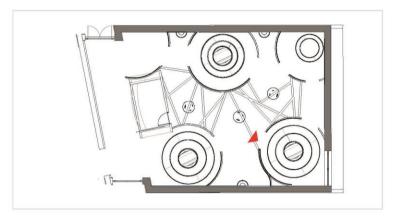


Exhibit Design PrecedentShown here is an example of an aquarium in a cylinder form as a vertical post in the space. The interstitial area between the "pods" will showcase a range of aquariums with a wide variety of fish, plant, and potentially crustacean life.

originstudios 976 NTS CD 1B-10 Lake Superior NMCA Visitor Centre Renderings and Exhibit Precedents - Option 1 (Log/ Paddle) Layout 1-B 2018.10.12

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2.4 Life on the Land

Digital bird (and other species) identification interactive with silhouettes, calls, and descriptions of behaviour and habitats of each species.



2.4 Life on the Land

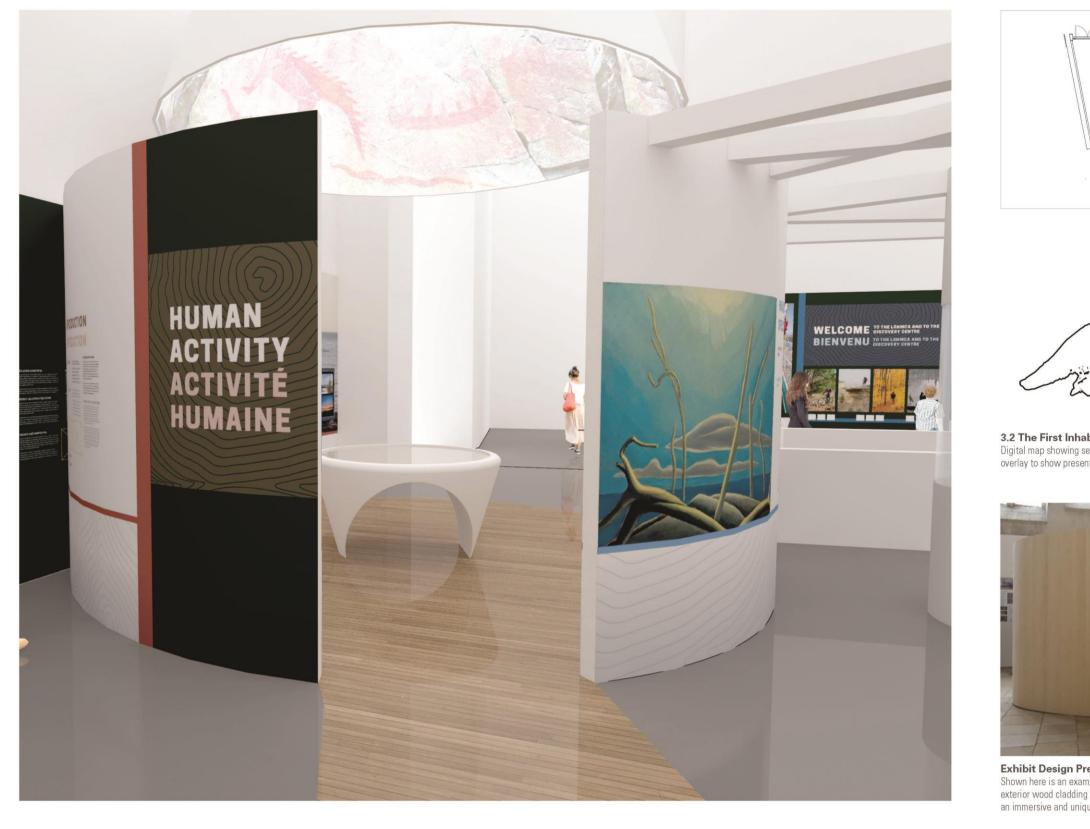
Stantec

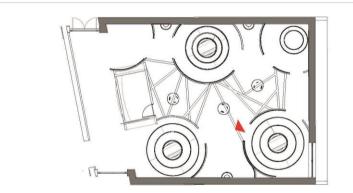
Virtual herbarium identifying the various plants, where they are found, what uses they may have or have had for humans and other species supported by a physical interactive matching game and a connecting thematic garden in the exterior spaces that indicates the same native plant species.

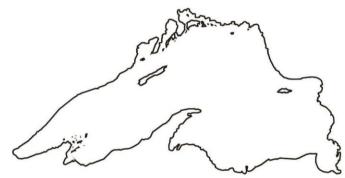
976 originstudios originstudios originstudios DATE DWG TYPE PHASE SHEET Lake Superior NMCA Visitor Centre Renderings and Exhibit Precedents - Option 1 (Log/ Paddle) Layout 1-B NTS DWG TYPE PHASE SHEET CD 1B-11



158







3.2 The First Inhabitants

Digital map showing settlements and cultural groups, trade and travel routes, with contemporary overlay to show present day location of highways and cities.



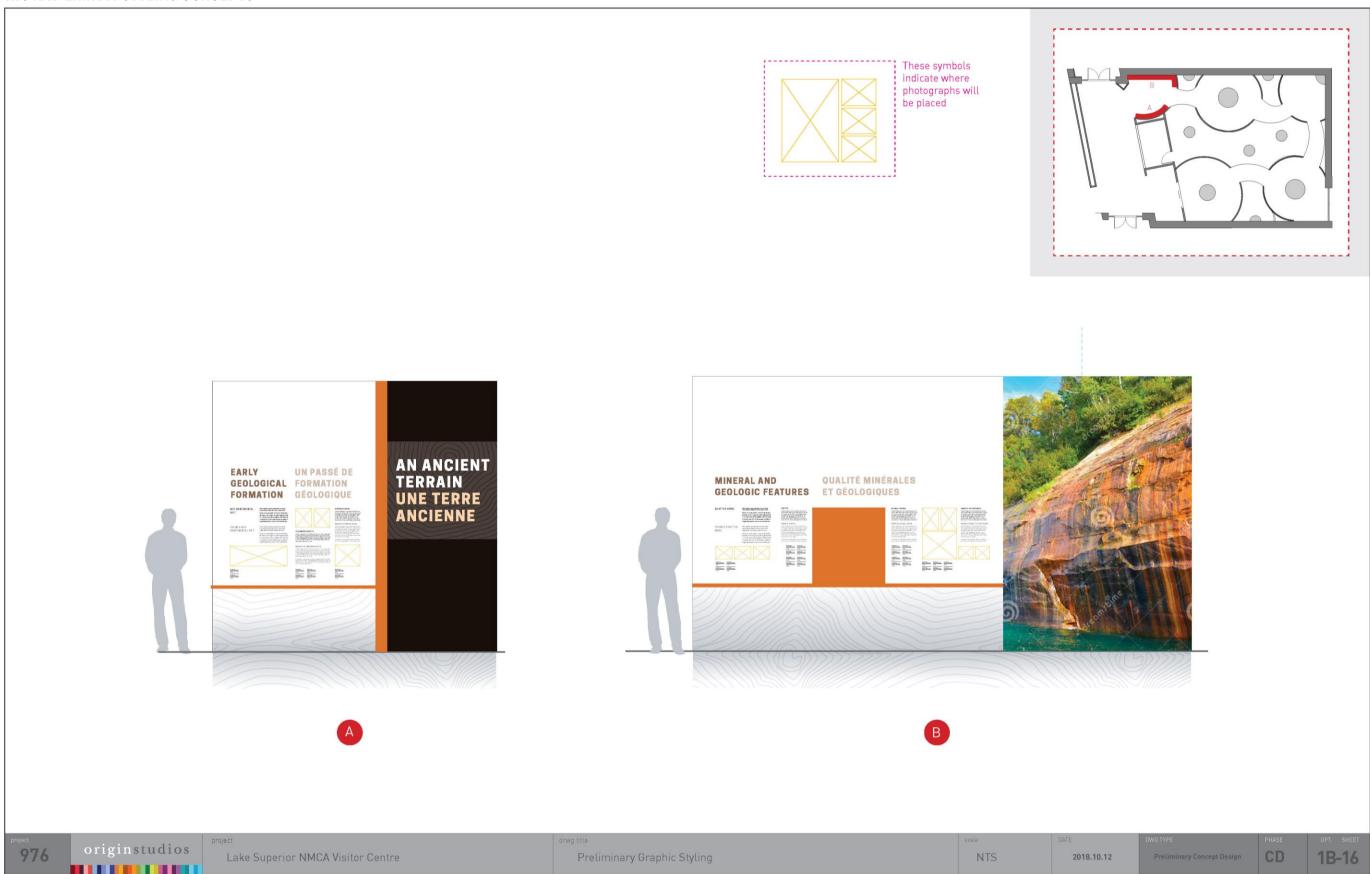
Exhibit Design Precedent

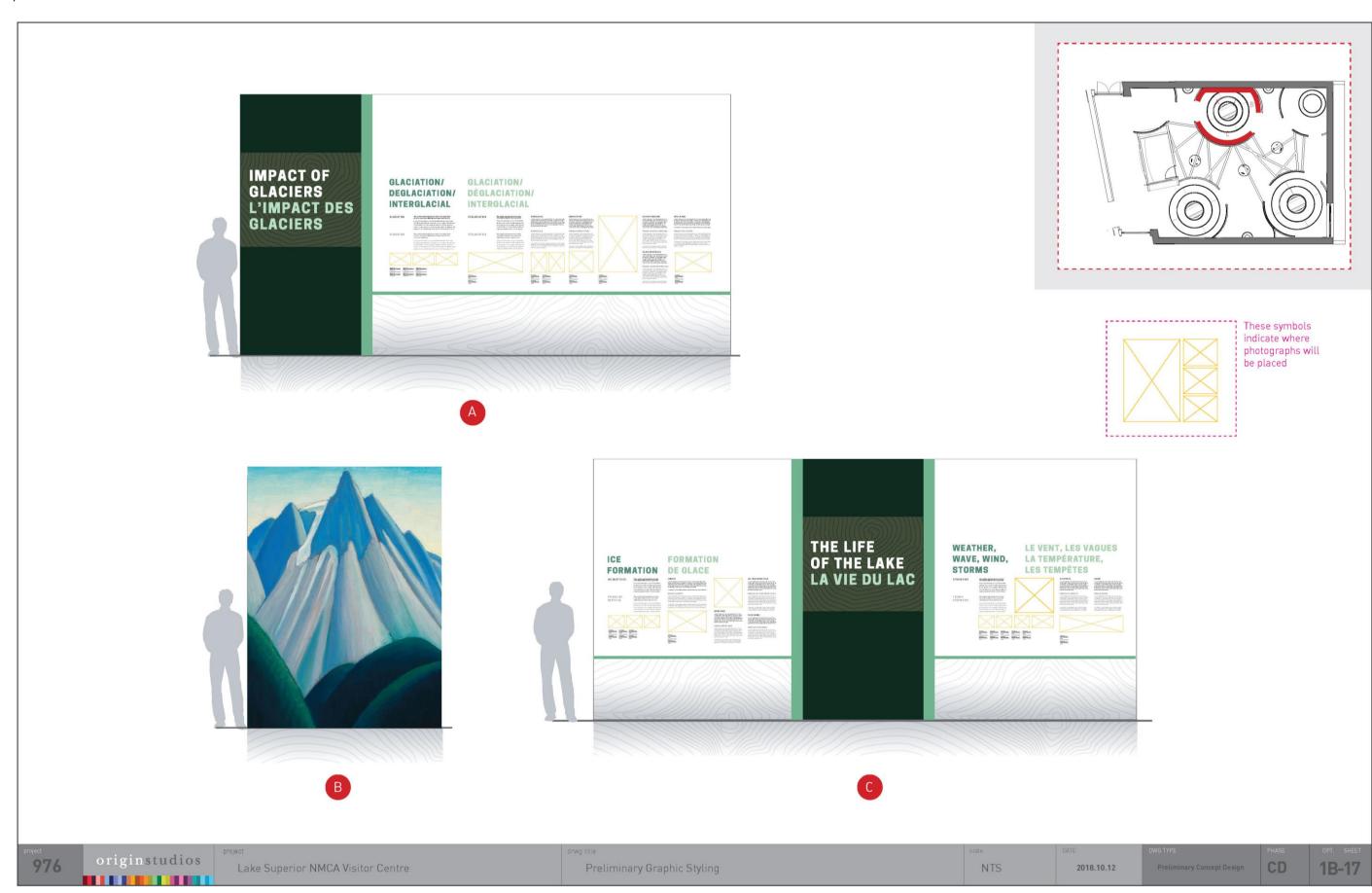
Shown here is an example of the curved walls that highlights a thematic "pod" with contrasting exterior wood cladding material and graphics. The unique graphic application per "pod" creates an immersive and unique experience per room and sub-theme.

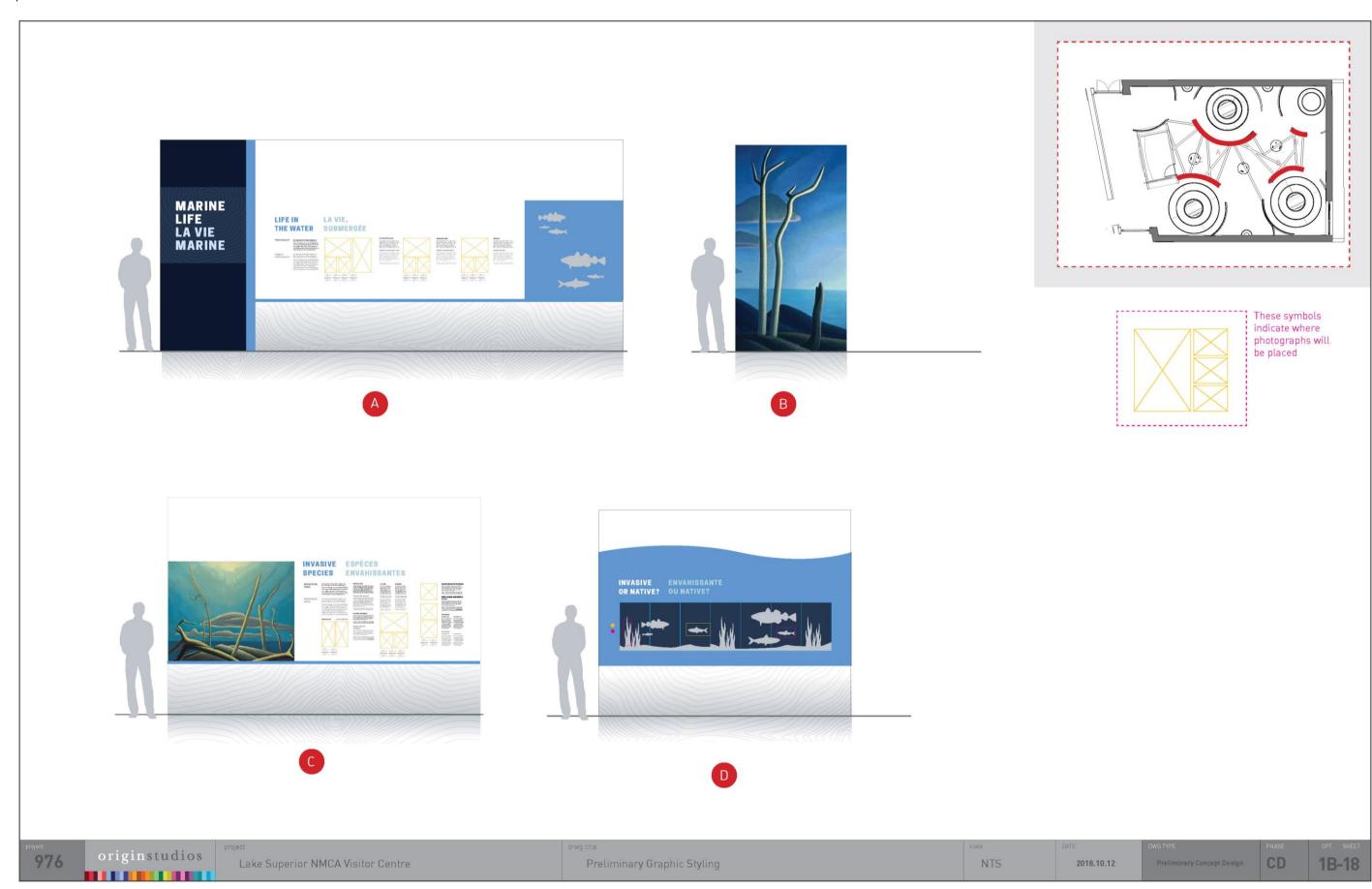
originstudios 1B-13 Lake Superior NMCA Visitor Centre Renderings and Exhibit Precedents - Option 1 (Log/ Paddle) Layout 1-B CD 2018.10.12

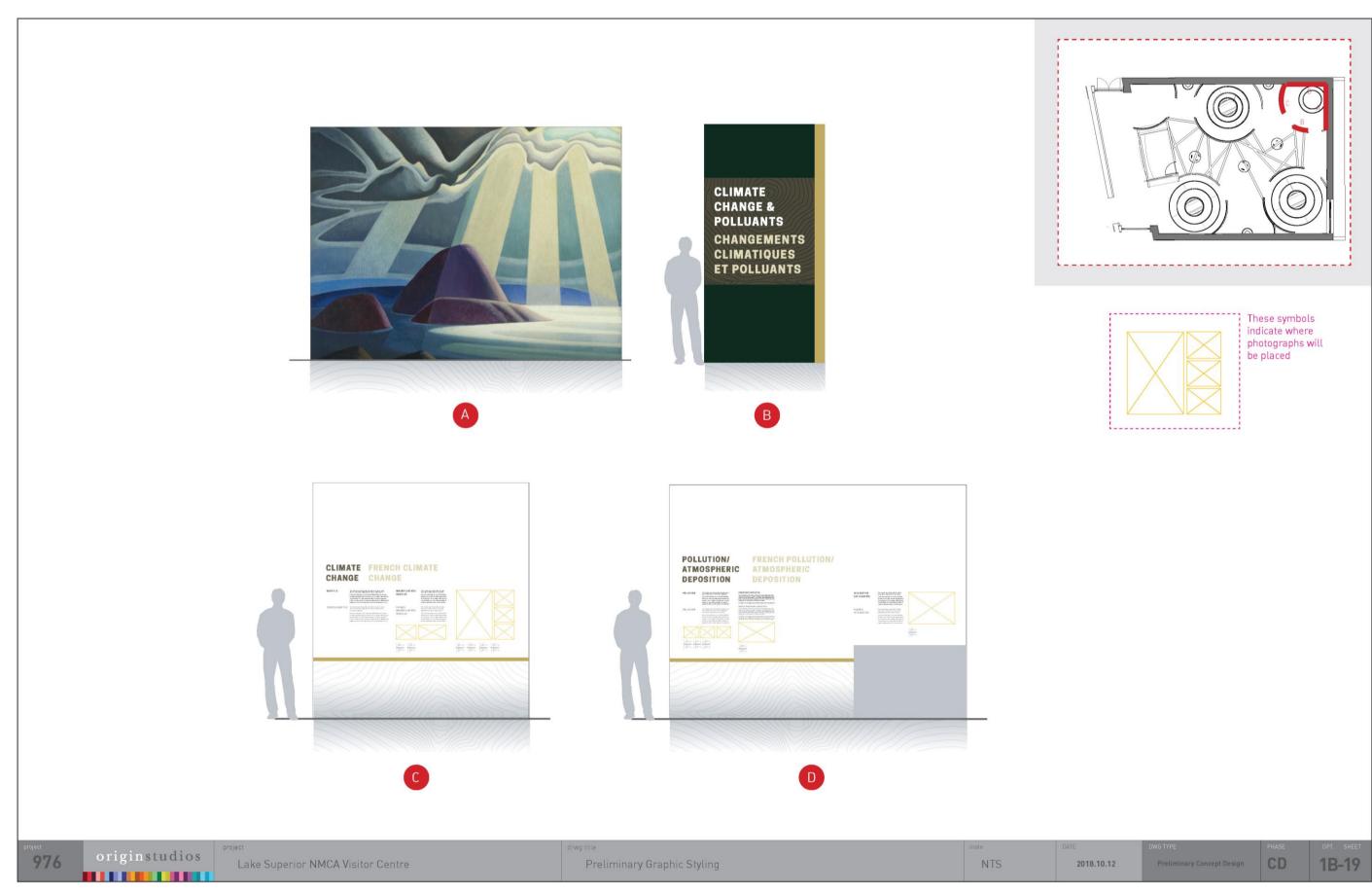


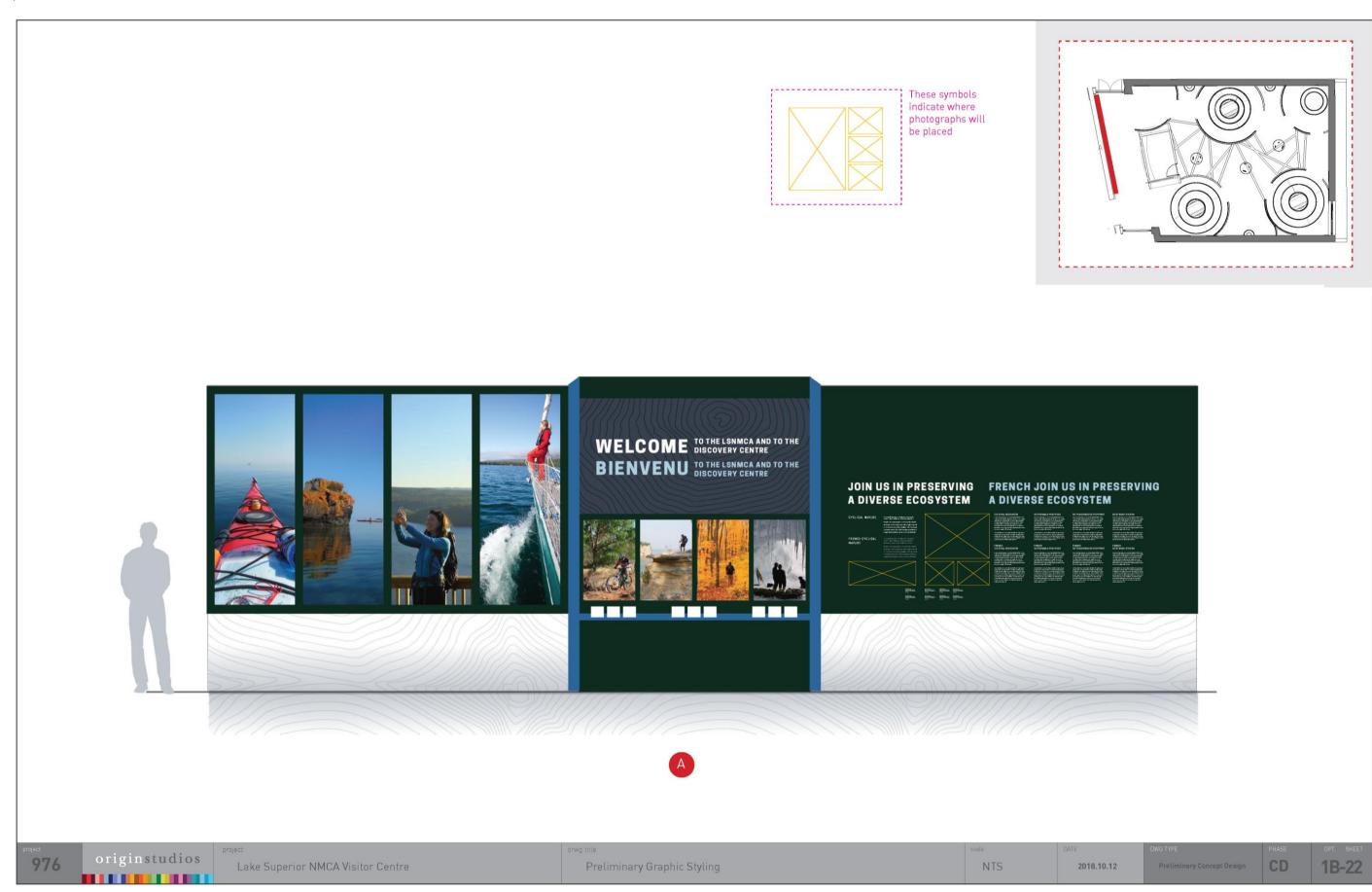
06.2.3 GRAPHIC AND EXHIBIT STYLING CONCEPTS











Typography Approach

TITLE STYLING EXAMPLE

SUBTITLE STYLING EXAMPLE

This could be your introduction text style. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc pulvinar ante eget arcu commodo condimentum.

This could be your main content styling. Mauris commodo turpis ac massa hendrerit blandit. Proin viverra magna non tellus feugiat imperdiet. Sed vitae lacus cursus, dapibus velit malesuada, venenatis tortor. Cum sociis natoque penatibus et magnis dis parturient montes,

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Cooper Hewitt

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(Title text)

Cooper Hewitt Semibold

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(Subtitles and Quotes)

Open Sans Regular

ABCDEFGHIJKLM NOPQRSTUVWXYZ abcdefghijklmnop qrst uvwxyz 1234567890

Stantec

(Label text)

Open Sans Regular

ABCDEFGHIJKLM NOPQRSTUVWXYZ abcdefghijklm nopqrst uvwxyz 1234567890

(Intro text)

Open Sans Light

ABCDEFGHIKLM NOPQRSTUVWXYZ abcdefghijklmnop qrst uvwxyz 1234567890

(Body text)

originstudios CD Lake Superior NMCA Visitor Centre NTS 2018.10.12 1B-23 Typography Approach





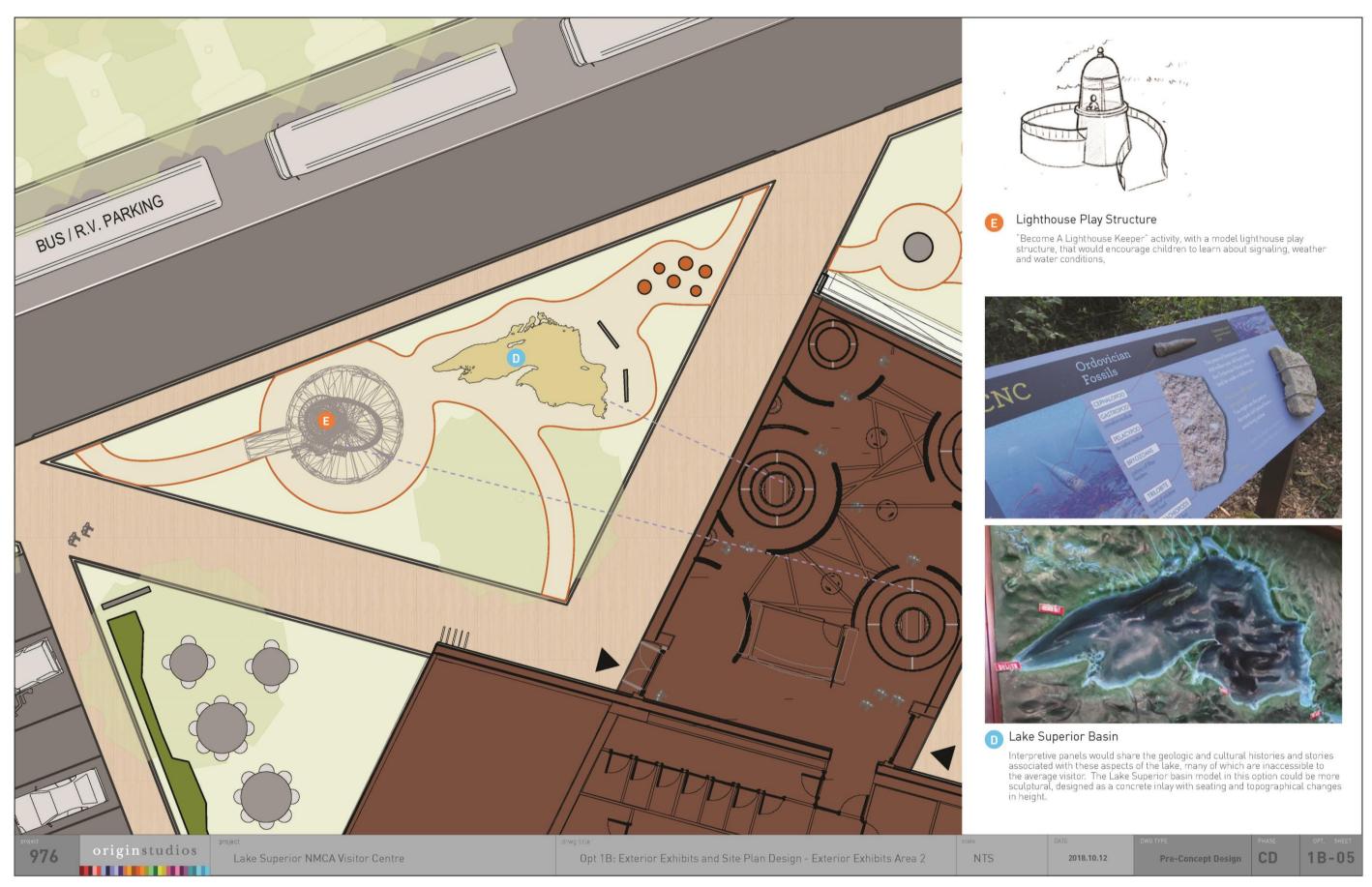
Communication Strategy TITLE STYLING EXAMPLE SUBTITLE STYLING This could be your introduction text style, Lorem loxum dolor sit, amet, consectedur adiplocing Lorem lissum dolor SUBTITLE STYLING EXAMPLE "This would be the font of a quote sed vel gravida SUBTITLE STYLING EXAMPLE EXAMPLE magna. In hac habitasse platea dictumst." **FRENCH TITLE** « This would be the font of a quote sed vel **STYLING EXAMPLE** gravida magna. In hac habitasse platea FRENCH SUBTITLE dictumst gravida magna.» FRENCH SUBTITLE STYLING EXAMPLE STYLING EXEMPLE Approximation of a group of the control of the cont SUBTITLE STYLING This could be your introduction text style. Lorem ipsum dolor sit amet, consectetur adipiscing Lorem ipsum dolor sit **EXAMPLE** Mauris commodo turpis ac massa hendrerit blandit, Proin viverra magna non tellus feuglat imperdiet. Sed vitae lacus cursus. dapbus velt magna non tellus feuglat imperdiet. Sed vitae lacus cursus. dapbus velt malesuada, venenats sortor. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Proin eros dolor, pretium id solliotudin vitae, dapbus id massa, in ullamoorper FRENCH SUBTITLE STYLING EXEMPLE This could be your introduction text style. Lorem ipsum dolor sit amet, consectetur adipiscing Lorem ipsum dolor sit amet, consectetur adipiscing FRENCH SUBTITLE STYLING EXEMPLE Mauris commodo turpis ac massa hendrerit blandit. Proin viverra magna non tellus feuglat imperdiet. Sed vitae lacus cursus, dapibus velit malesuada, venenatis tortor, Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Proin eros dolor, pretium id sollicitudin vitae, dapibus id massa, in ullamcorpe luctus Mauris commodo turpis ac massa hendrerit blandit, Proin viverra magna non tellus feuglat imperdiet. Sed vitae lacus cursus. Zone Introduction (L1) Primary Text (L2) Main text (L3) Secondary Text (L4) Quotes 50 pt Title 65 pt Title 54.5 pt Title 70 pt Text 33 pt Intro Text 27 pt Body Text 80 pt Subtitle 20 pt Body Text Font Size 42.5 pt Intro Text 30 pt Body Text 40 pt Body Text Quote: 20 Words Title: 2-6 Words Title: 2-6 Words Title: 2-4 words Body Text: 115 Words Body Text: 110 Words Intro Text: 20 Words Title: 2-4 Words Label Text (L5) Body Text: 70 Words Subtitle: 3-4 Words Word Count Intro Text: 15 Words 14 pt Label + Credit Text body Text: 45 Words Label + Credits: 20 Words originstudios CD 1B-24 Lake Superior NMCA Visitor Centre Communication Strategy NTS 2018.10.12



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06.2.4 EXTERIOR EXHIBITS AND SITE PLAN



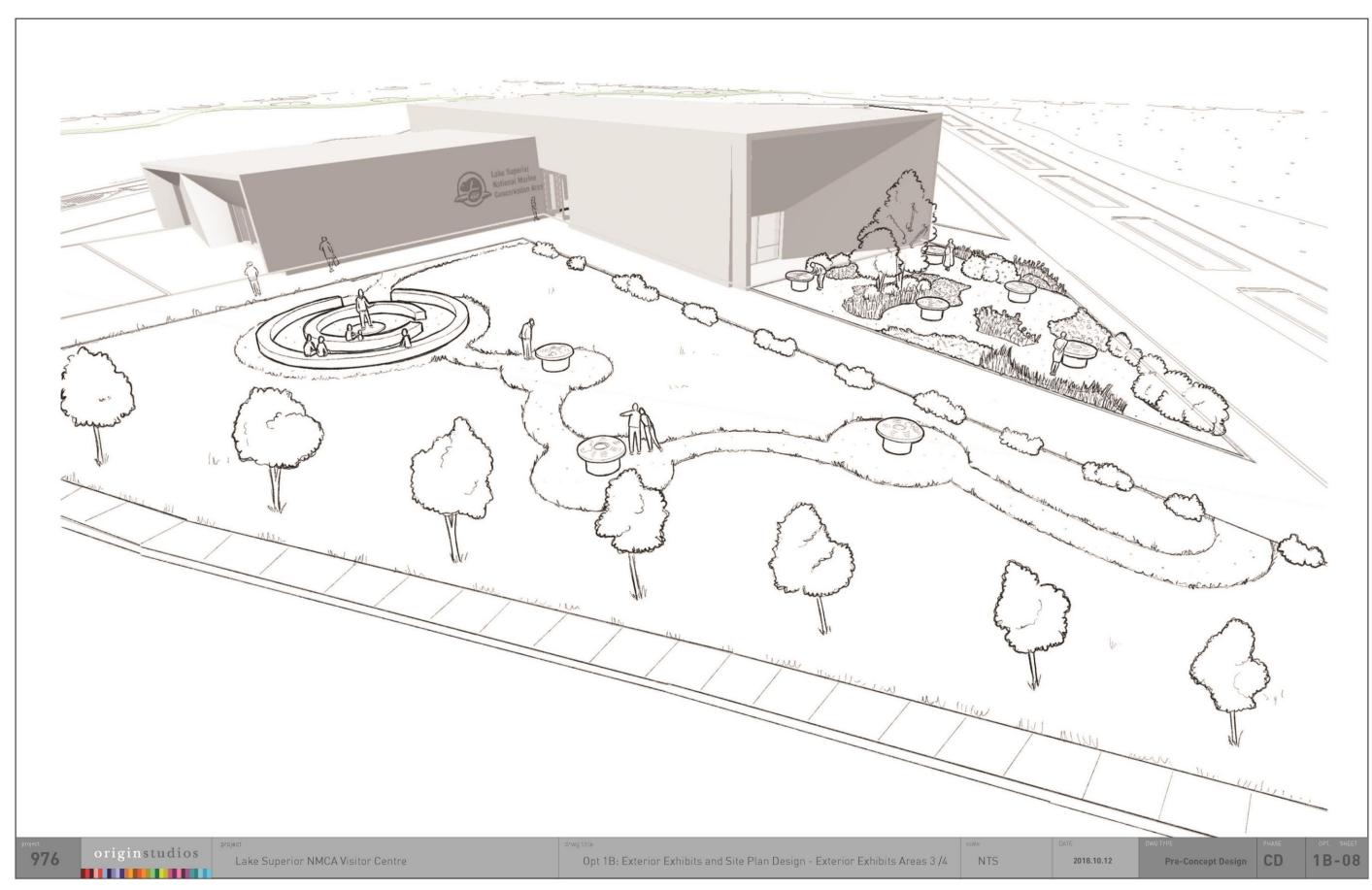


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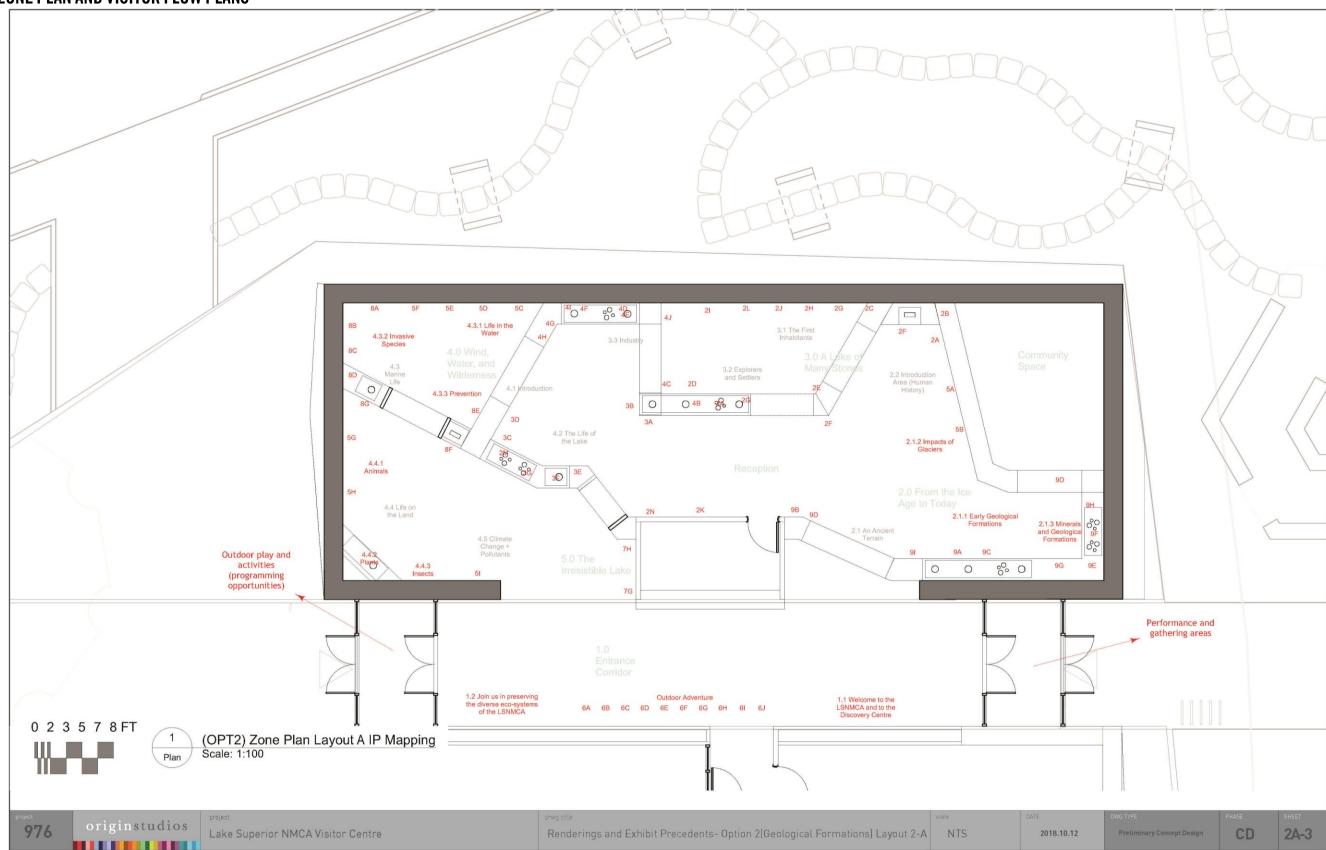


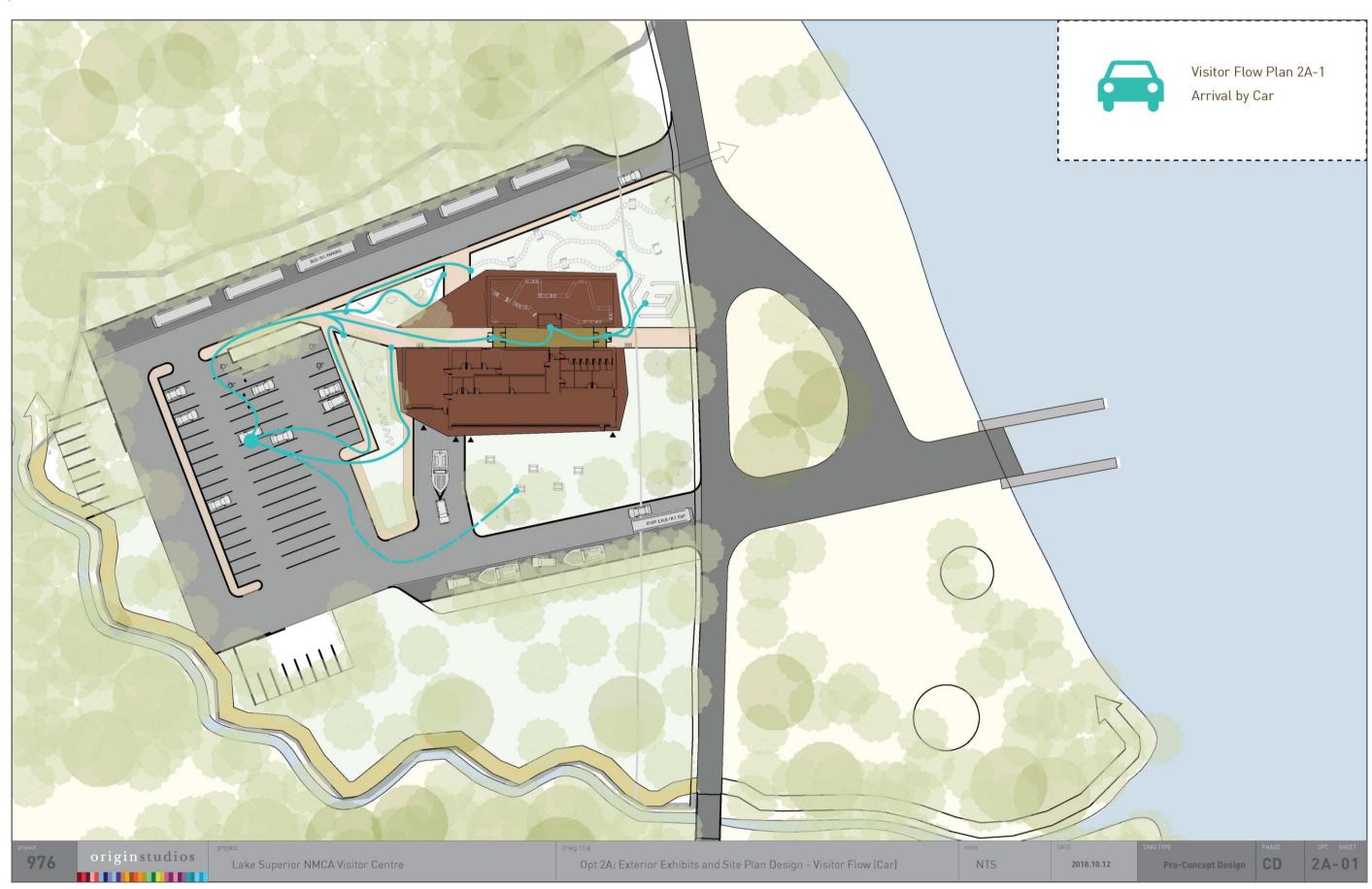
PERKINS+WILL

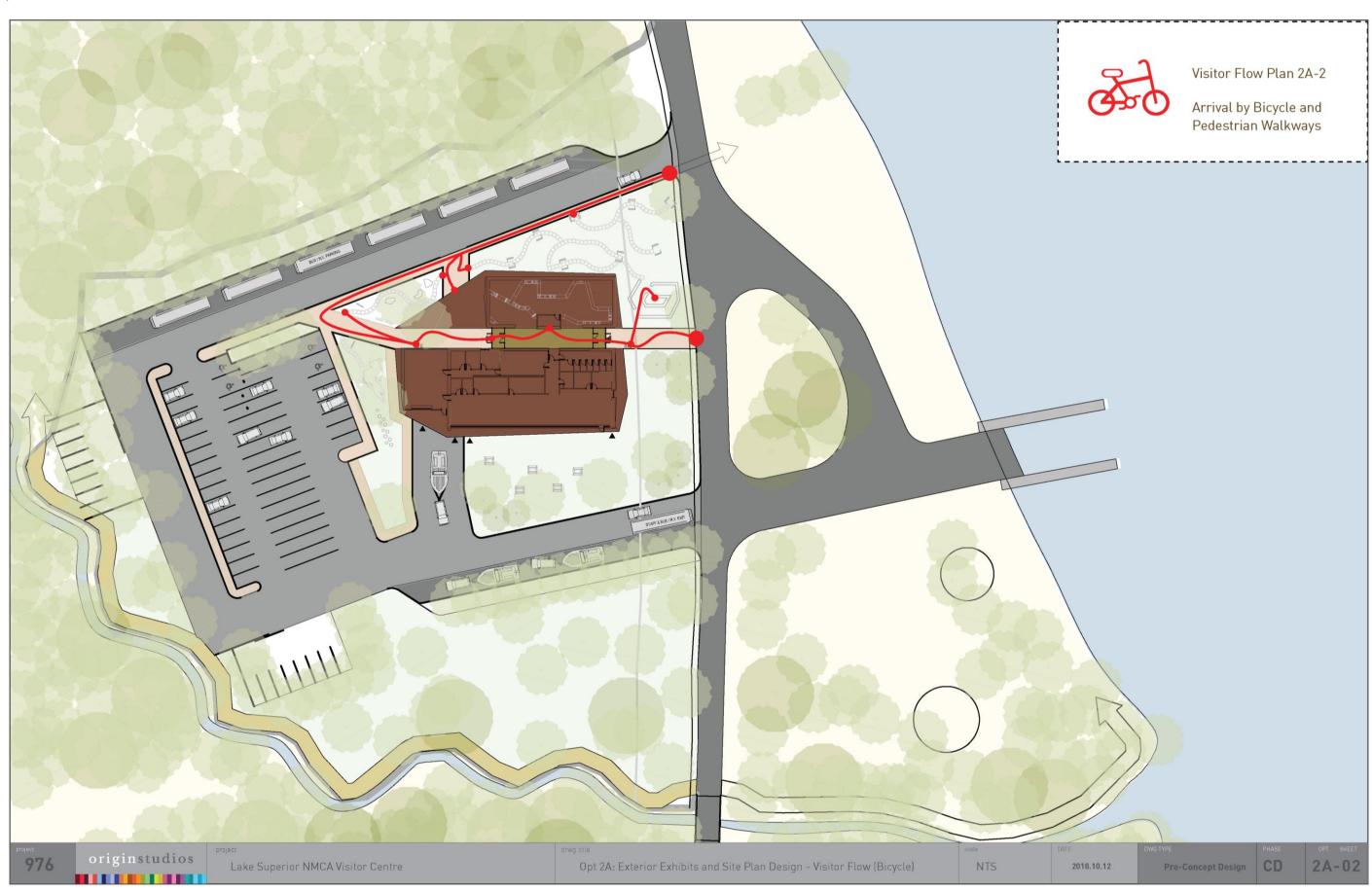


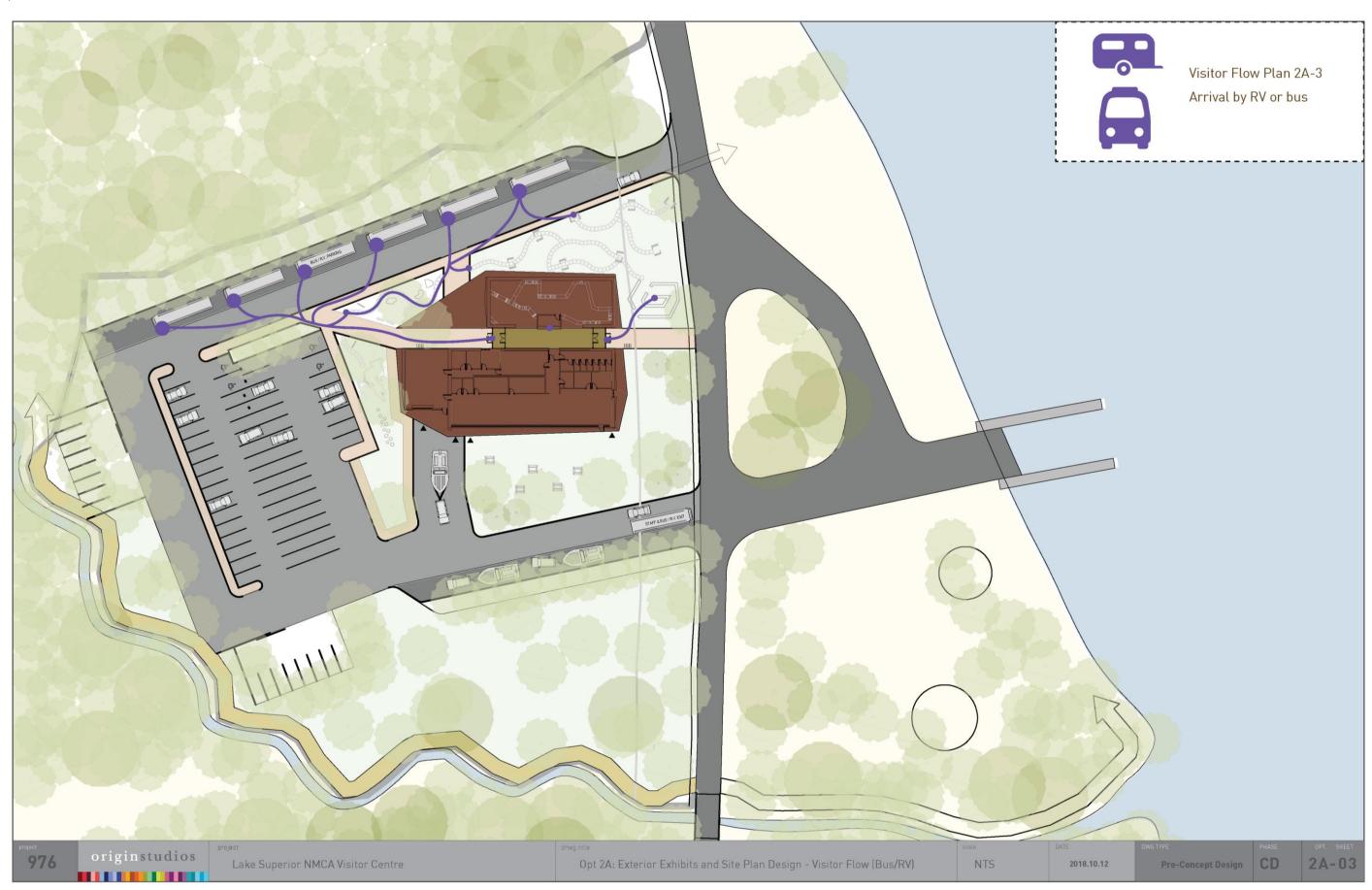
06.3 OPTION 2A

06.3.1 ZONE PLAN AND VISITOR FLOW PLANS







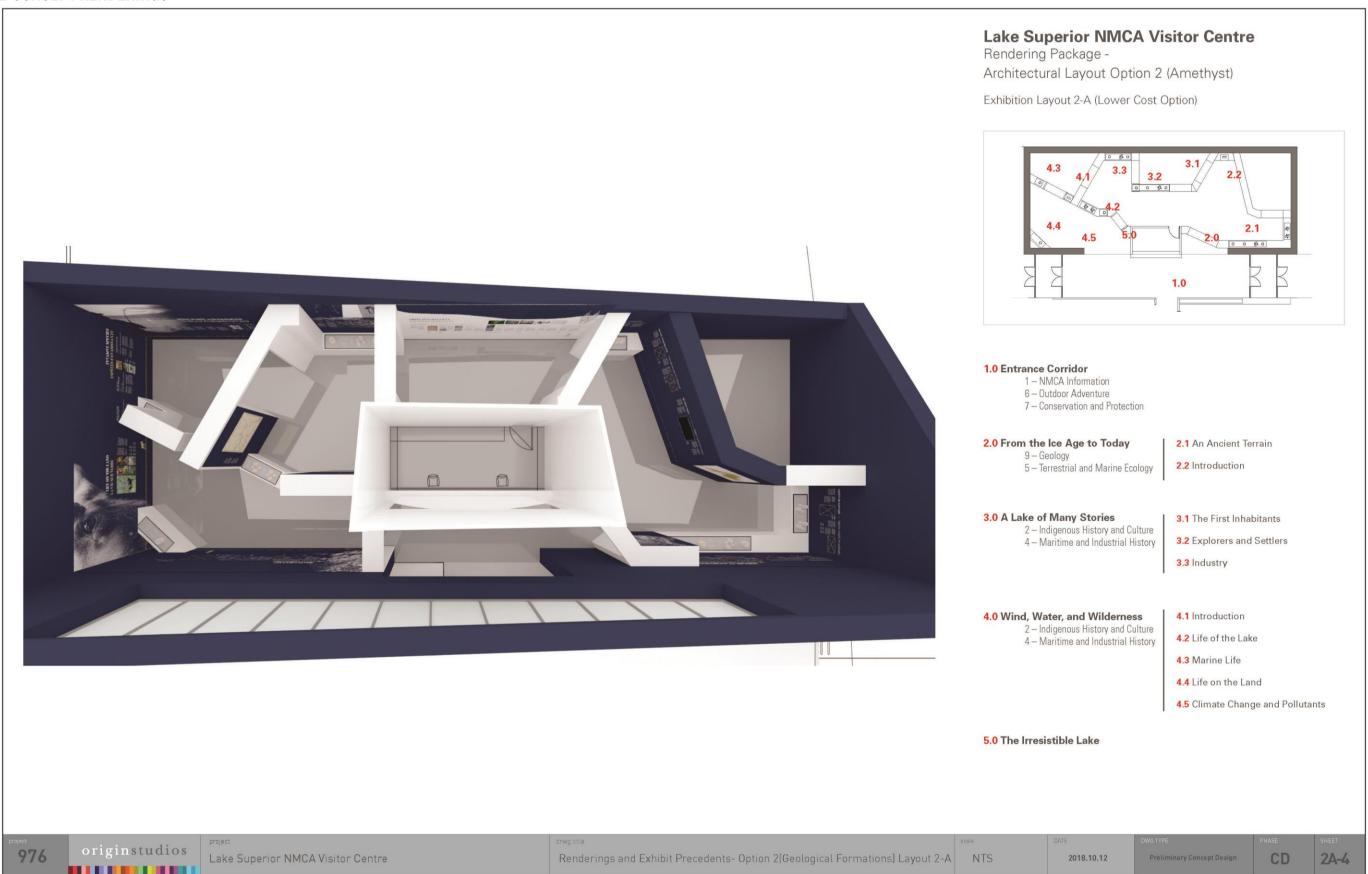


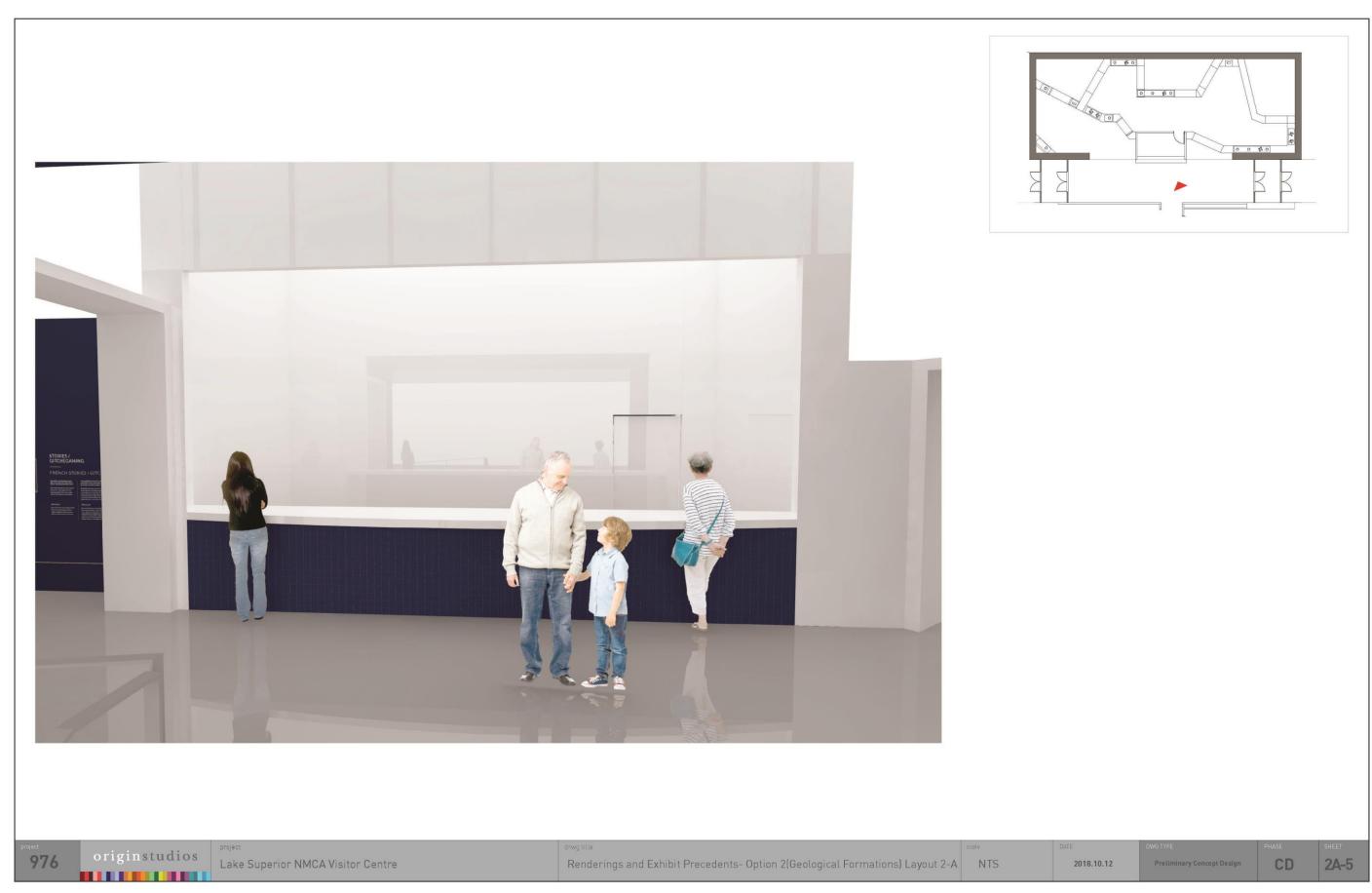
PERKINS+WILL

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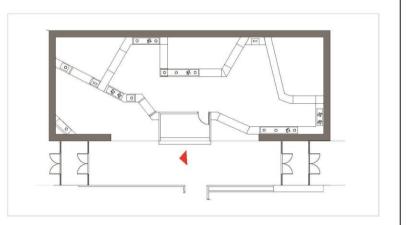
January 21, 2019

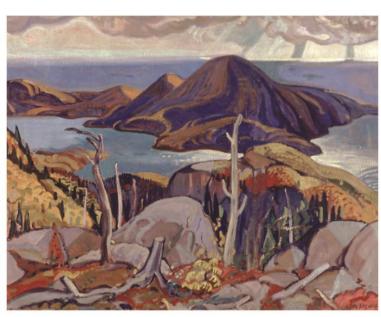
06.3.2 CONCEPT RENDERINGS







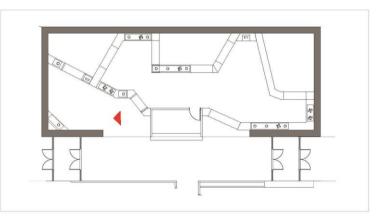




5.0 The Irresistible LakeIt is suggested that this be a largely un-interpreted area that is essentially visual, emotive, and experiential in nature. This could include large destination graphics, or an inspring image or famous painting of Lake Superior.

originstudios CD 2A-6 Lake Superior NMCA Visitor Centre Renderings and Exhibit Precedents- Option 2[Geological Formations] Layout 2-A NTS 2018.10.12







4.0 A Lake for All SeasonsStories / Gitchegaming and Visitor-to-Visitor interactives here provides an opportunity for people to share the location of their favourite spot, the best place for fishing, or their happiest moment.



Exhibit Design Precedent

Shown here is an example of a type of folded wall that could define this concept.

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Lake Superior NMCA Visitor Centre

Renderings and Exhibit Precedents- Option 2(Geological Formations) Layout 2-A NTS

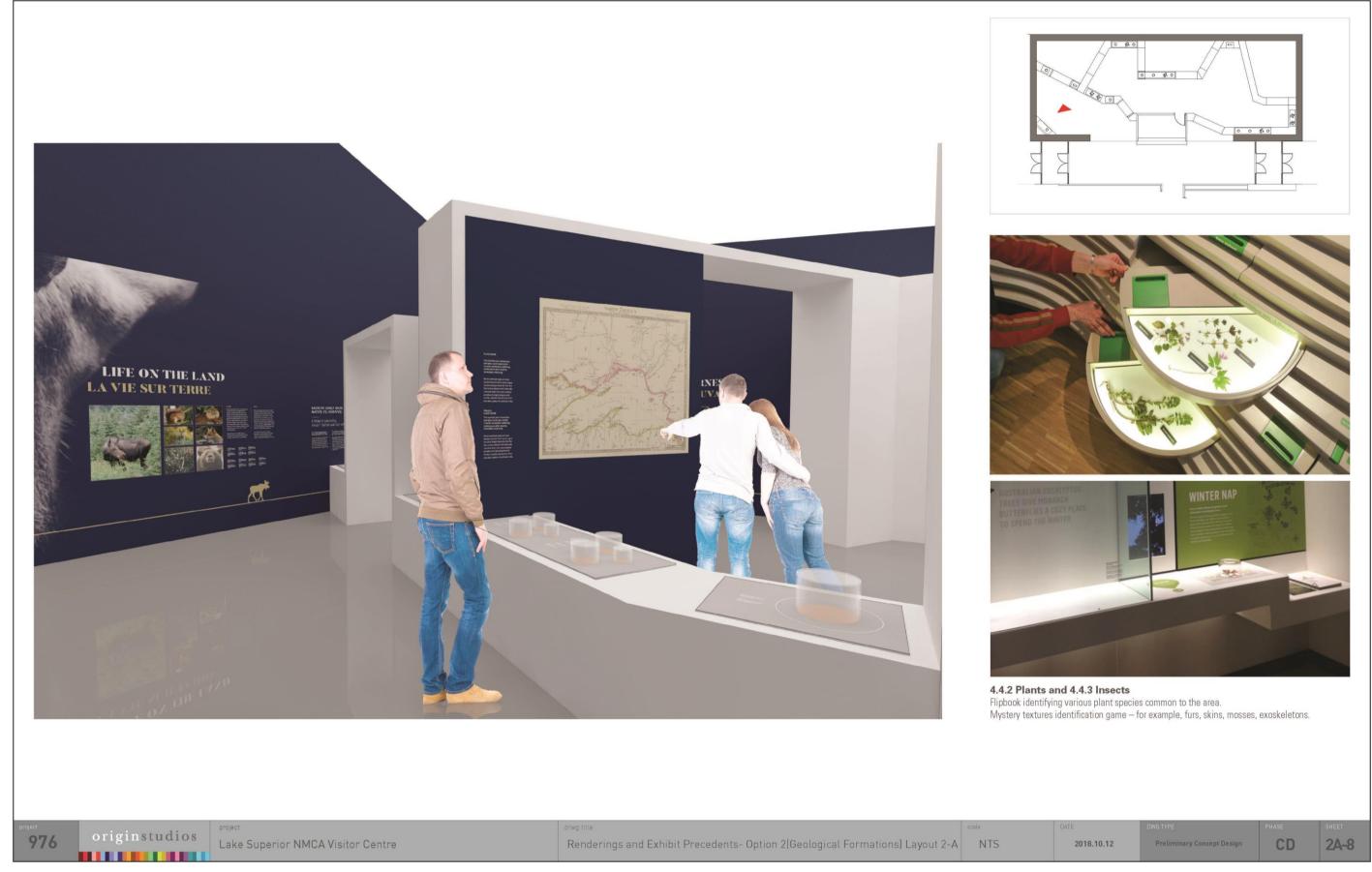
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CD

2A-7

180



PERKINS+WILL

181



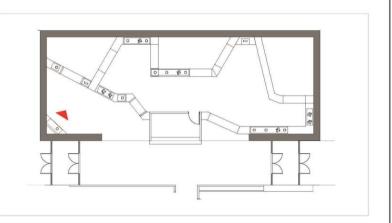


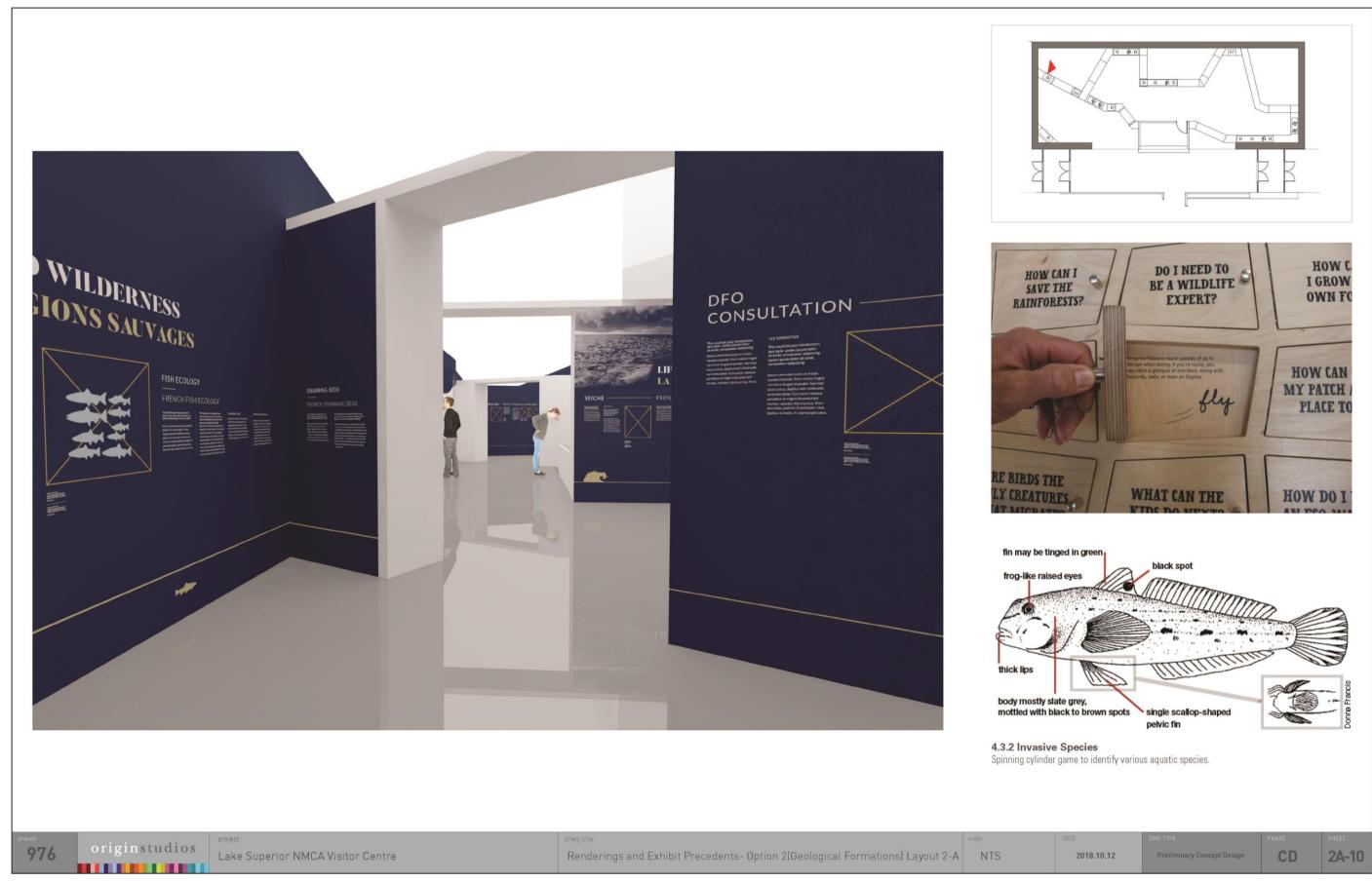




Exhibit Design Precedent

Shown here is an example of exhibit walls that fold up from a reader rail and then continue to create an arch. The pathway through the gallery allows for peak throughs and adjacencies in content and themes and creates a bright, open space.

originstudios Lake Superior NMCA Visitor Centre Renderings and Exhibit Precedents- Option 2[Geological Formations] Layout 2-A NTS 2018.10.12 CD

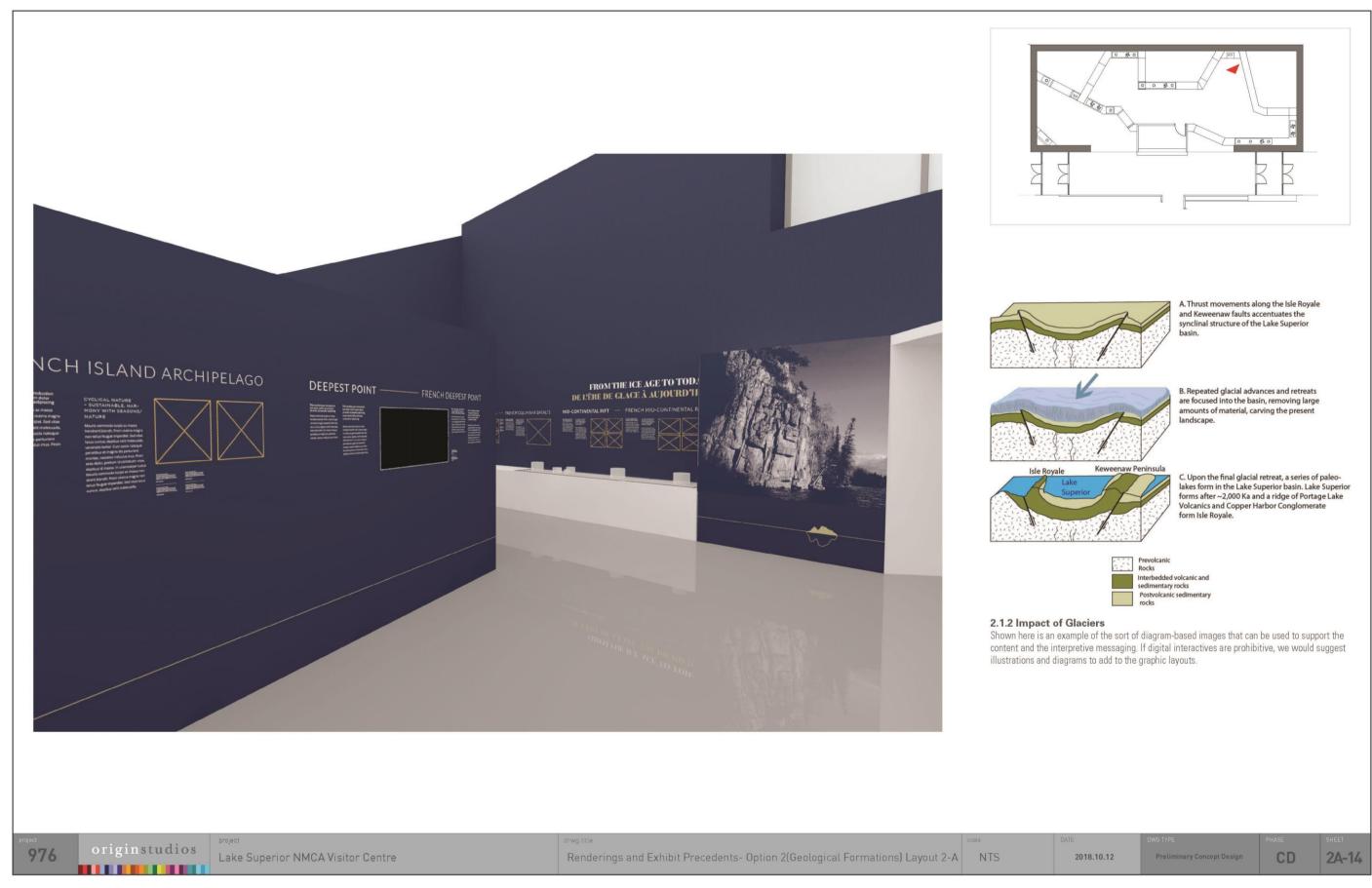


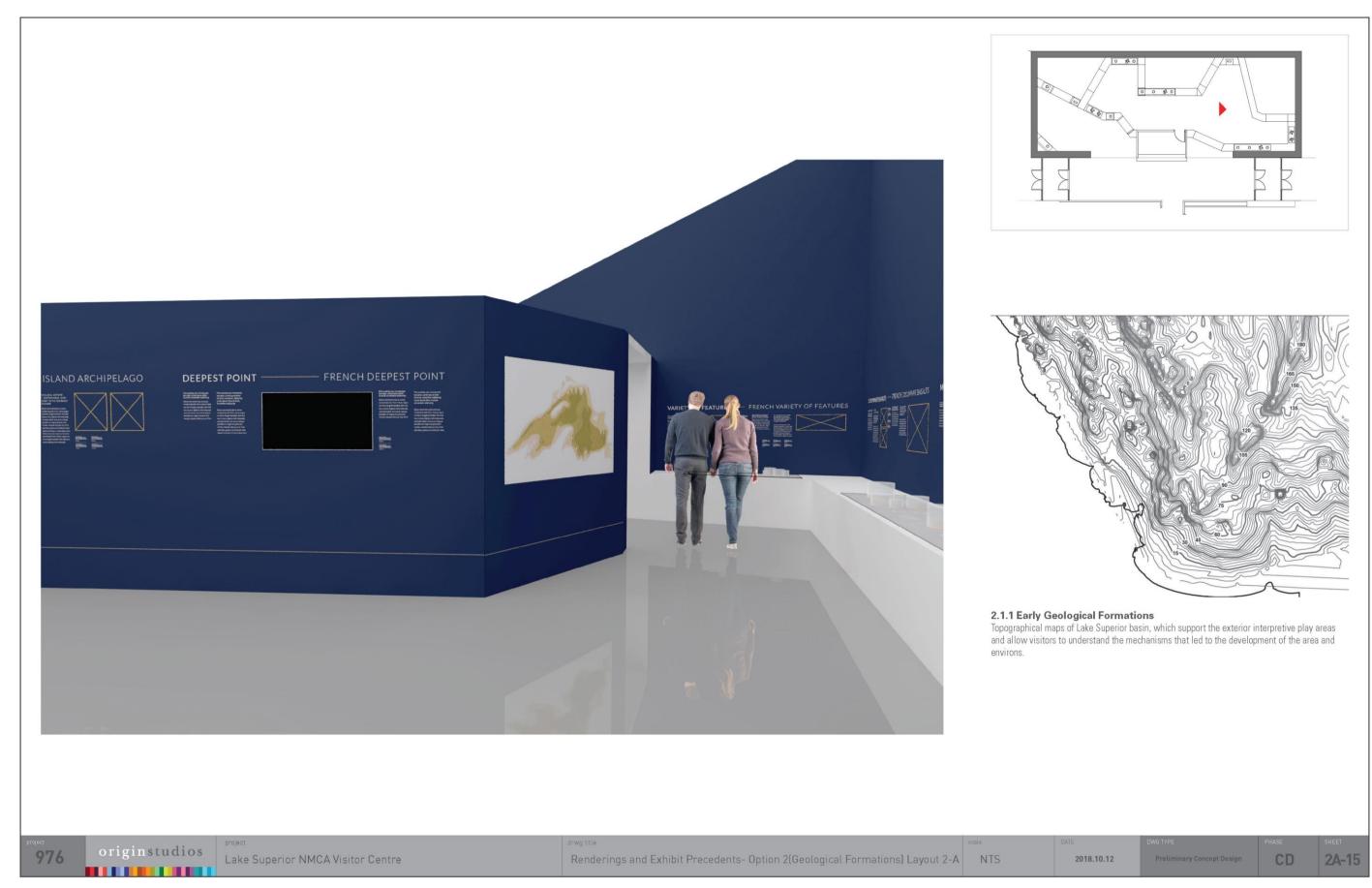


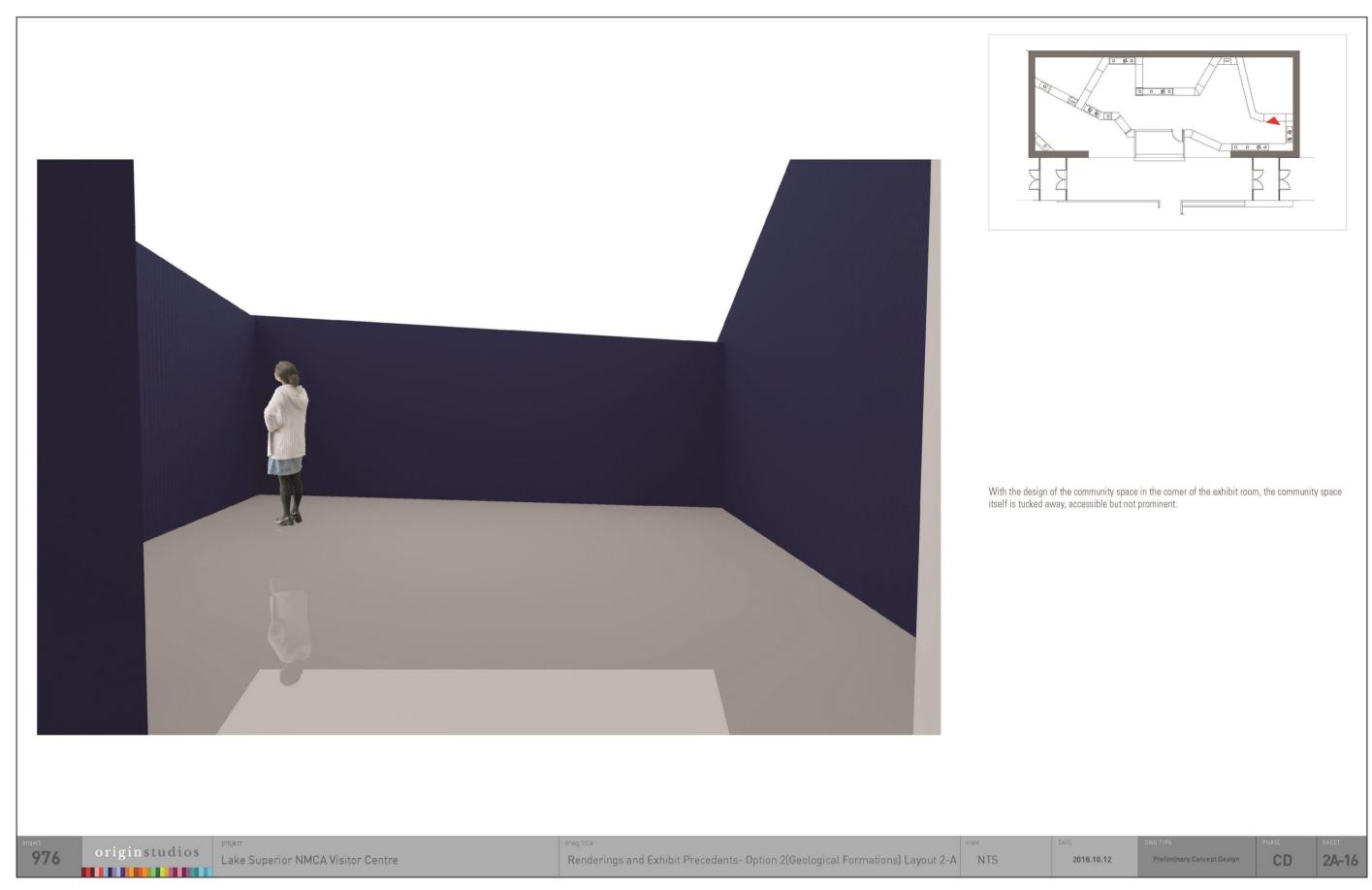
originstudios





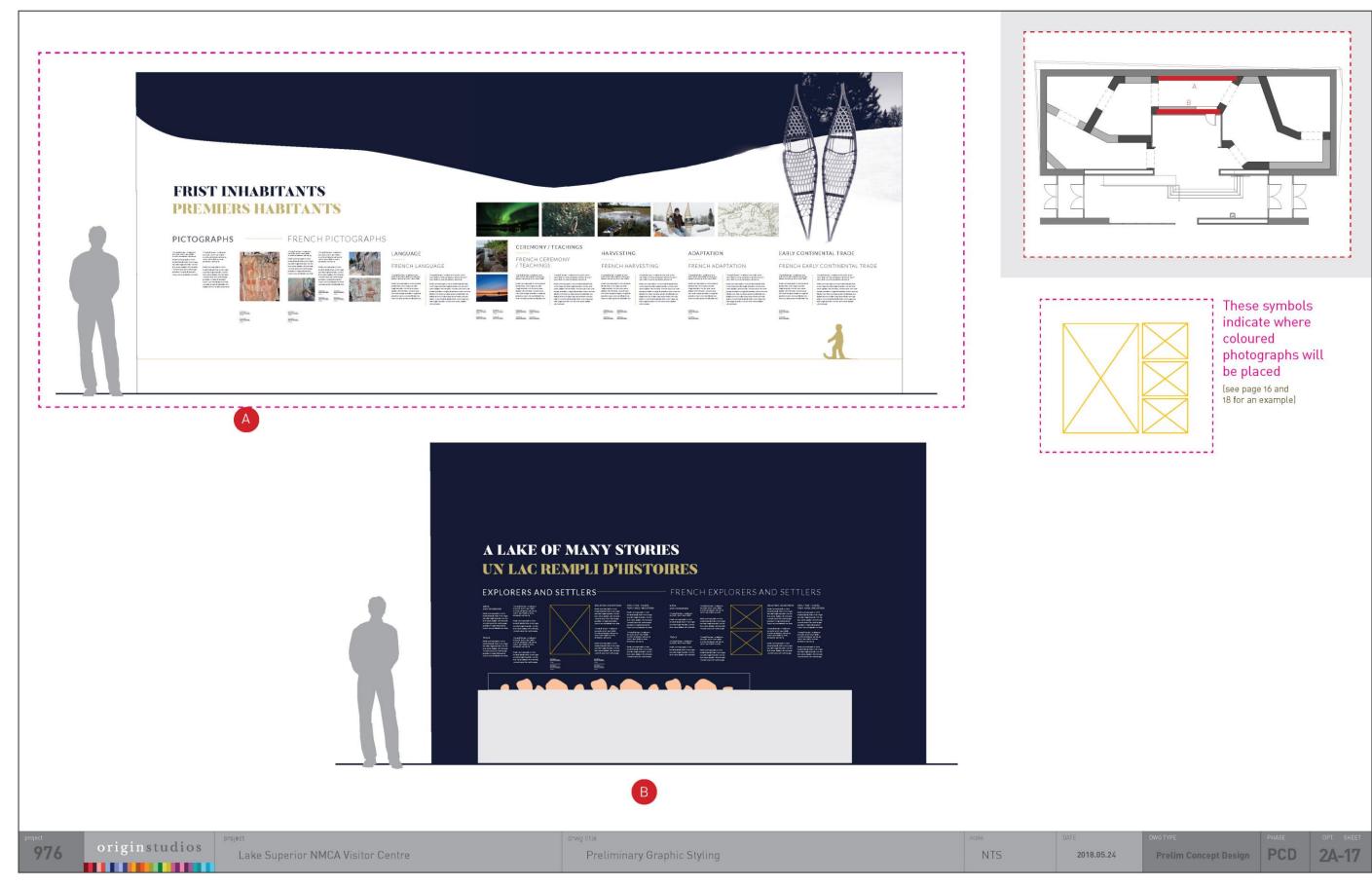


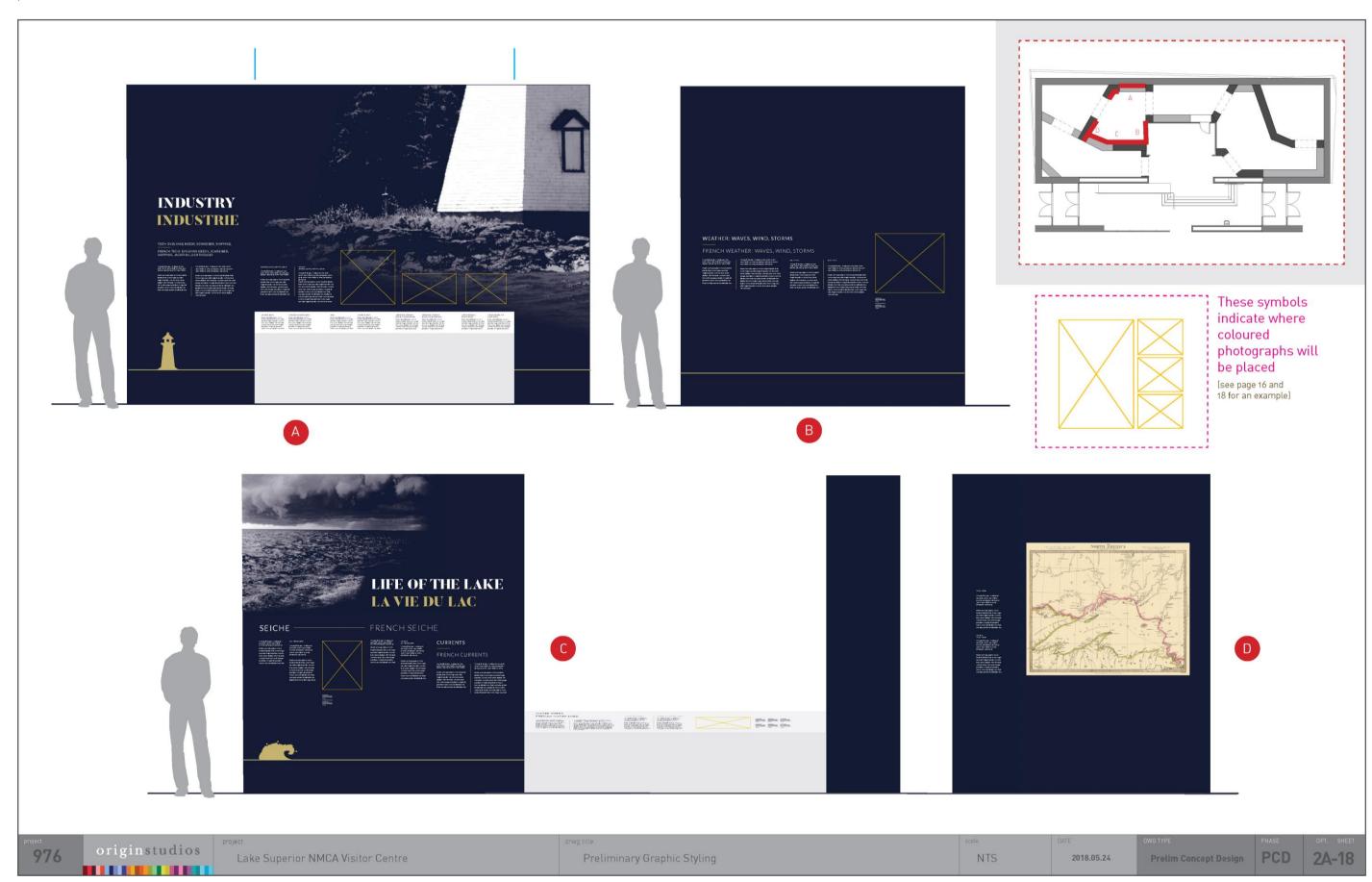


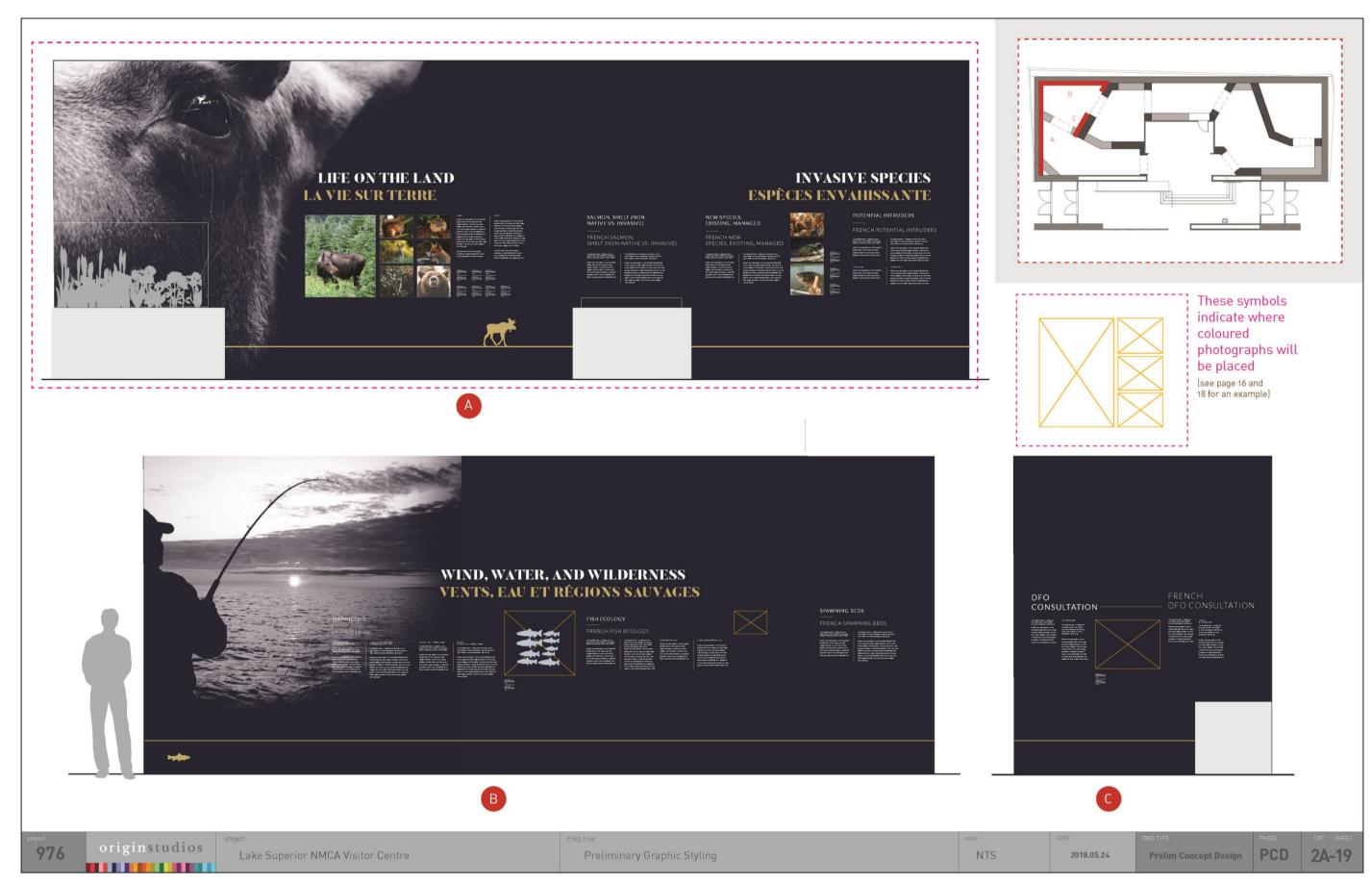


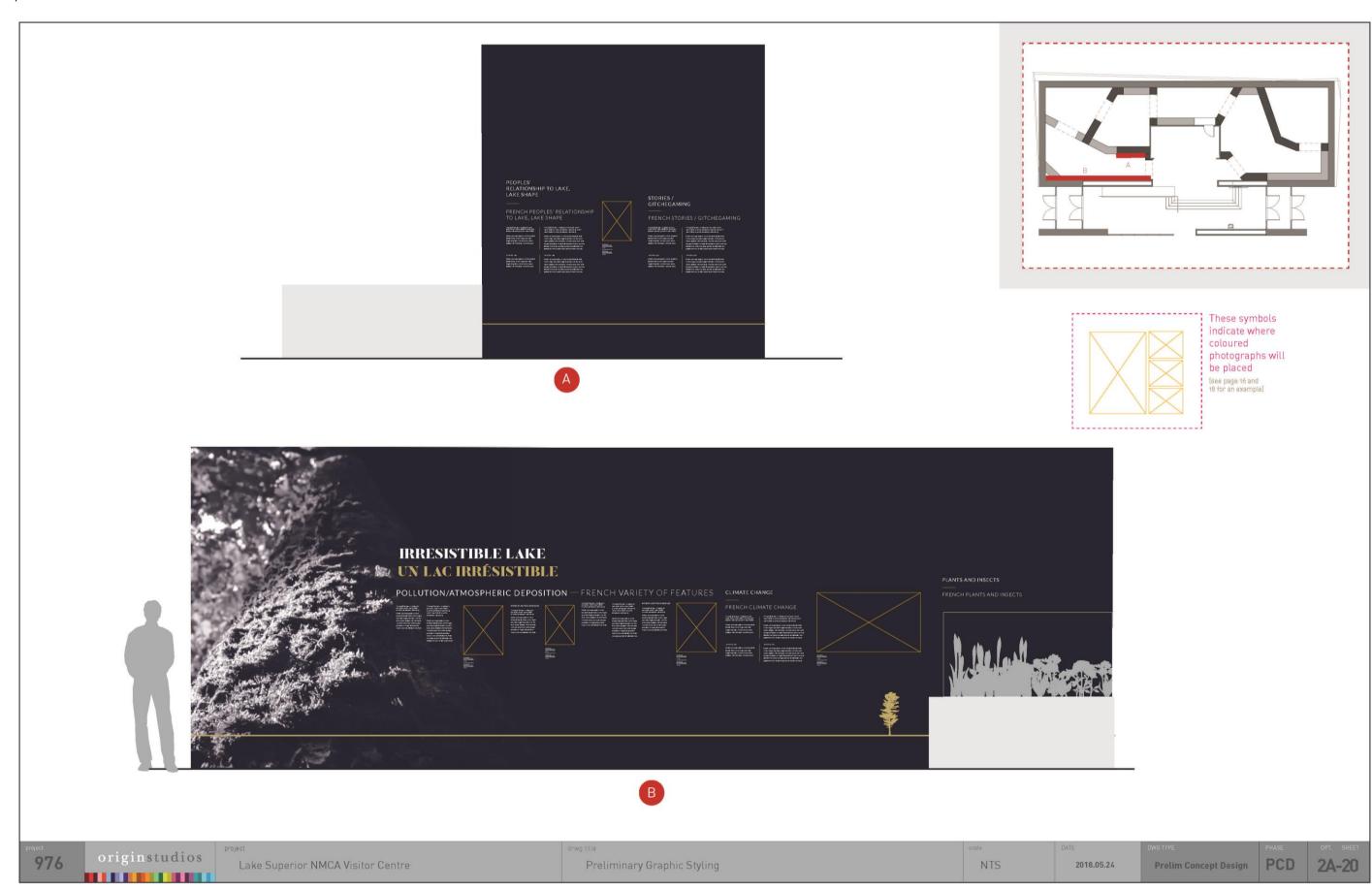
06.3.3 PRELIMINARY GRAPHIC STYLING

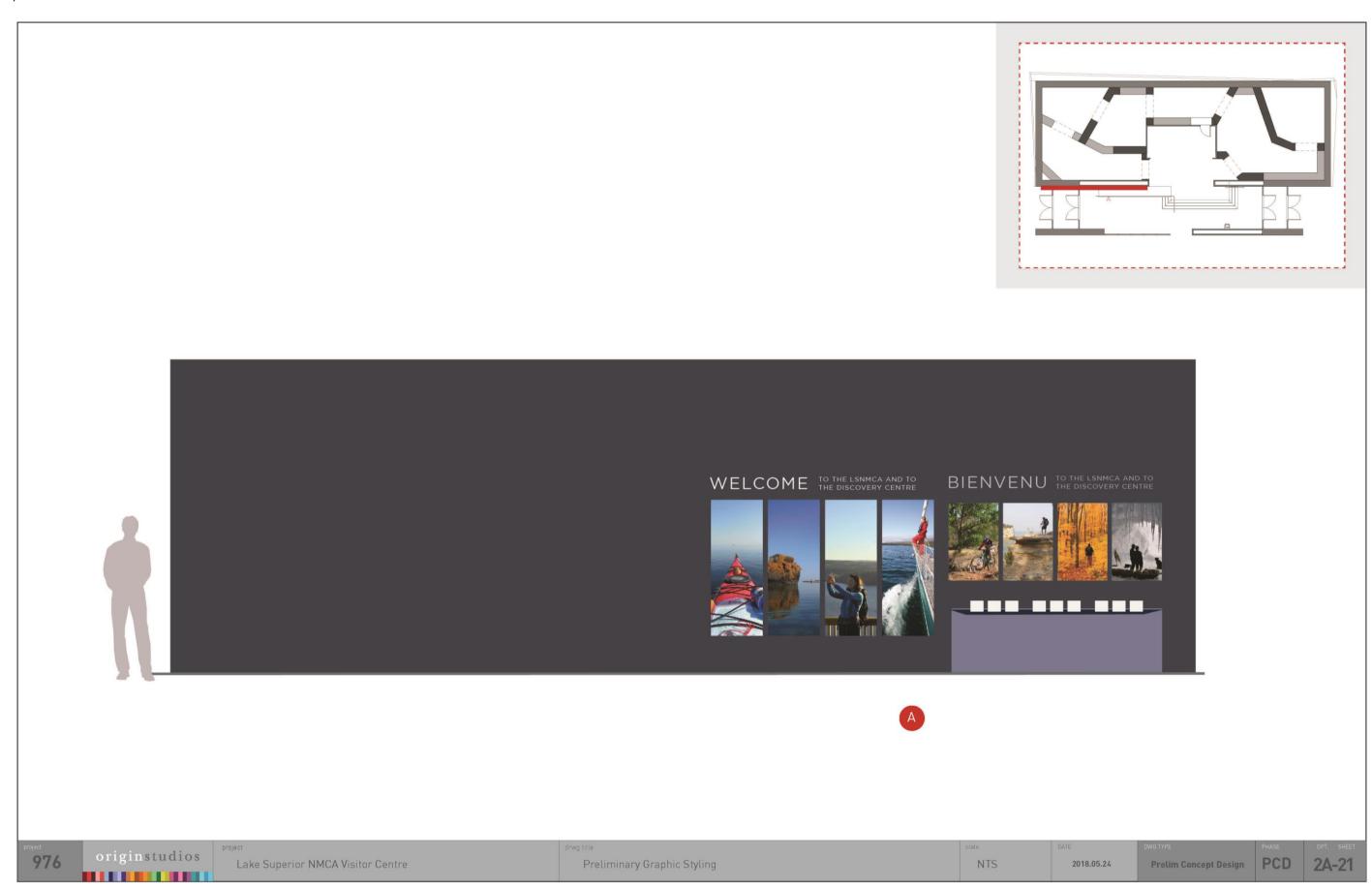












Typography Approach

This page is simply to demonstrate the fonts interaction between each different family, it is not to scale it really is to showcase the possibility each fonts can create.

TITLE STYLING EXAMPLE

SUBTITLE STYLING EXAMPLE

This could be your introduction text style. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc pulvinar ante eget arcu commodo condimentum.

This could be your main content styling. Mauris commodo turpis ac massa hendrerit blandit. Proin viverra magna non tellus feugiat imperdiet. Sed vitae lacus cursus, dapibus velit malesuada, venenatis tortor. Cum sociis natoque penatibus et magnis dis parturient montes,

nascetur ridiculus mus. Proin eros dolor, pretium id sollicitudin vitae, dapibus id massa. In ullamcorper luctus augue, ac maximus risus euismod et. Nunc eu mauris vestibulum, Sed vel gravida magna. In hac habitasse platea dictumst. Nullam tincidunt dui quis ex finibus, sed

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Alfa Slab One

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abcdefghijklmn opqrst uvwxyz 1234567890

(Title text)

Gotham - Book

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(Subtitles and Quotes)

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(Label text)

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(Body text)

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PERKINS+WILL

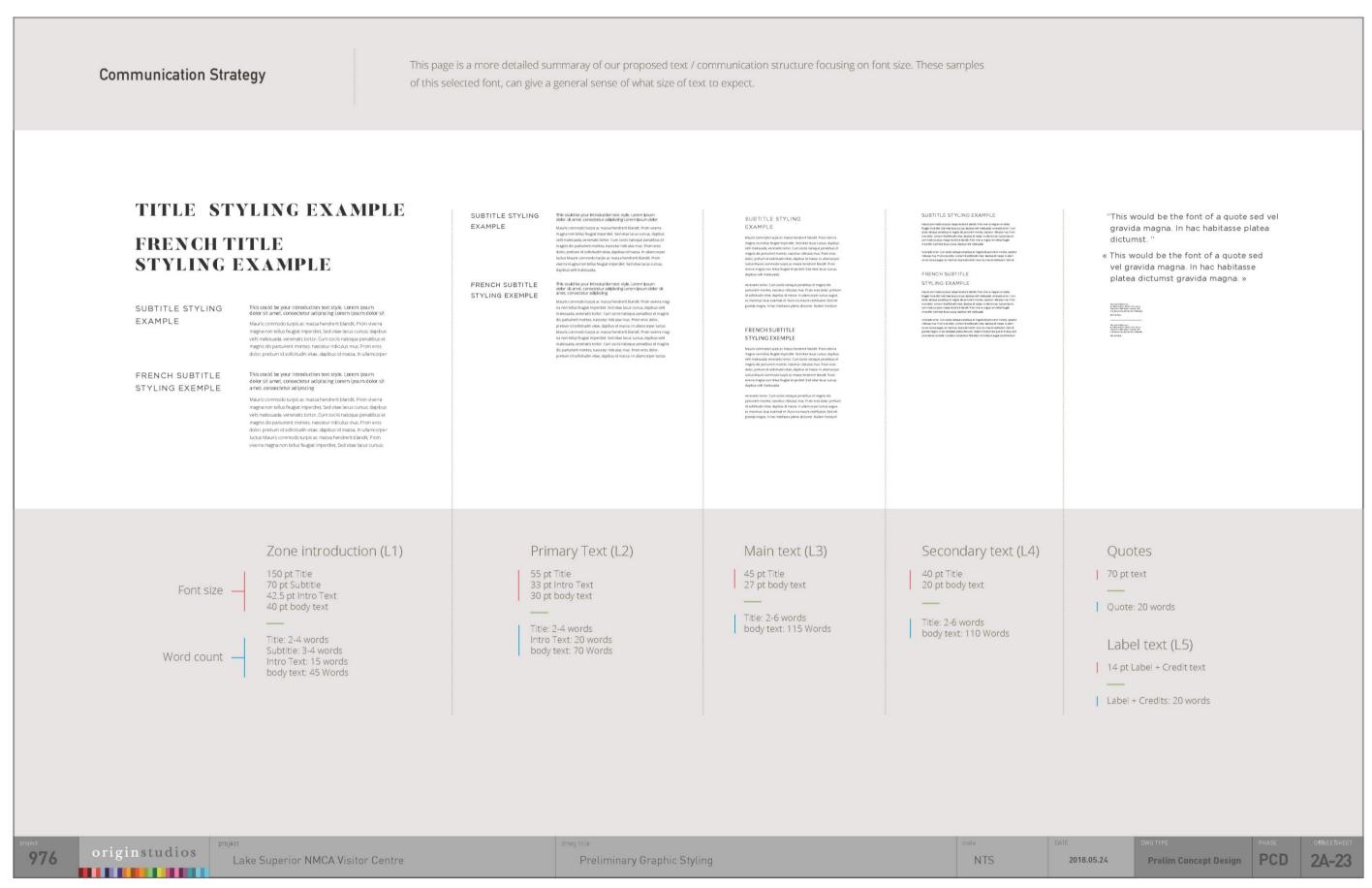
drwg title DATE DWG TYPE PHASE OPT.

Lake Superior NMCA Visitor Centre Preliminary Graphic Styling NTS 2018.05.24 Prelim Concept Design PCD 2A-



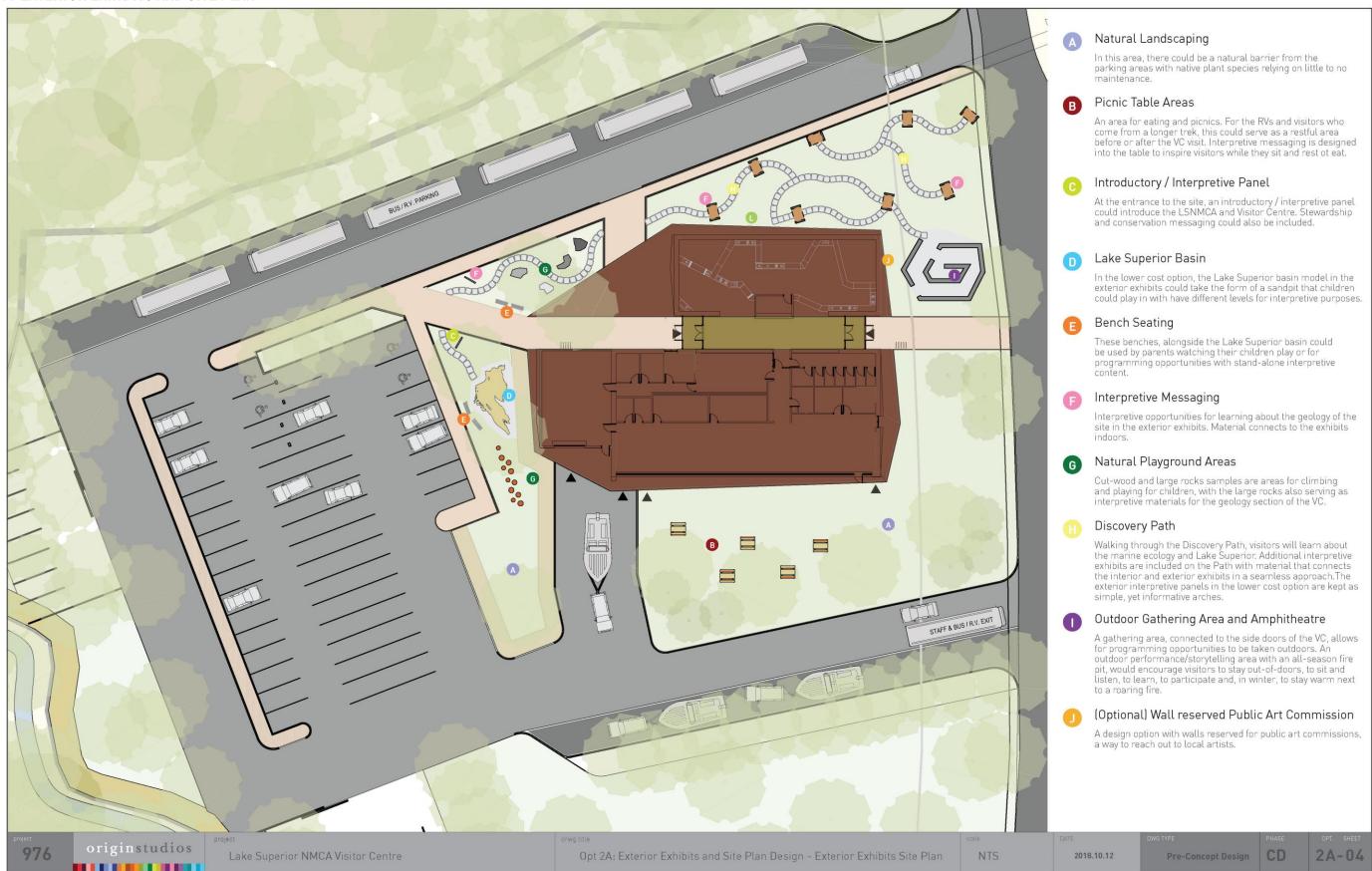
originstudios



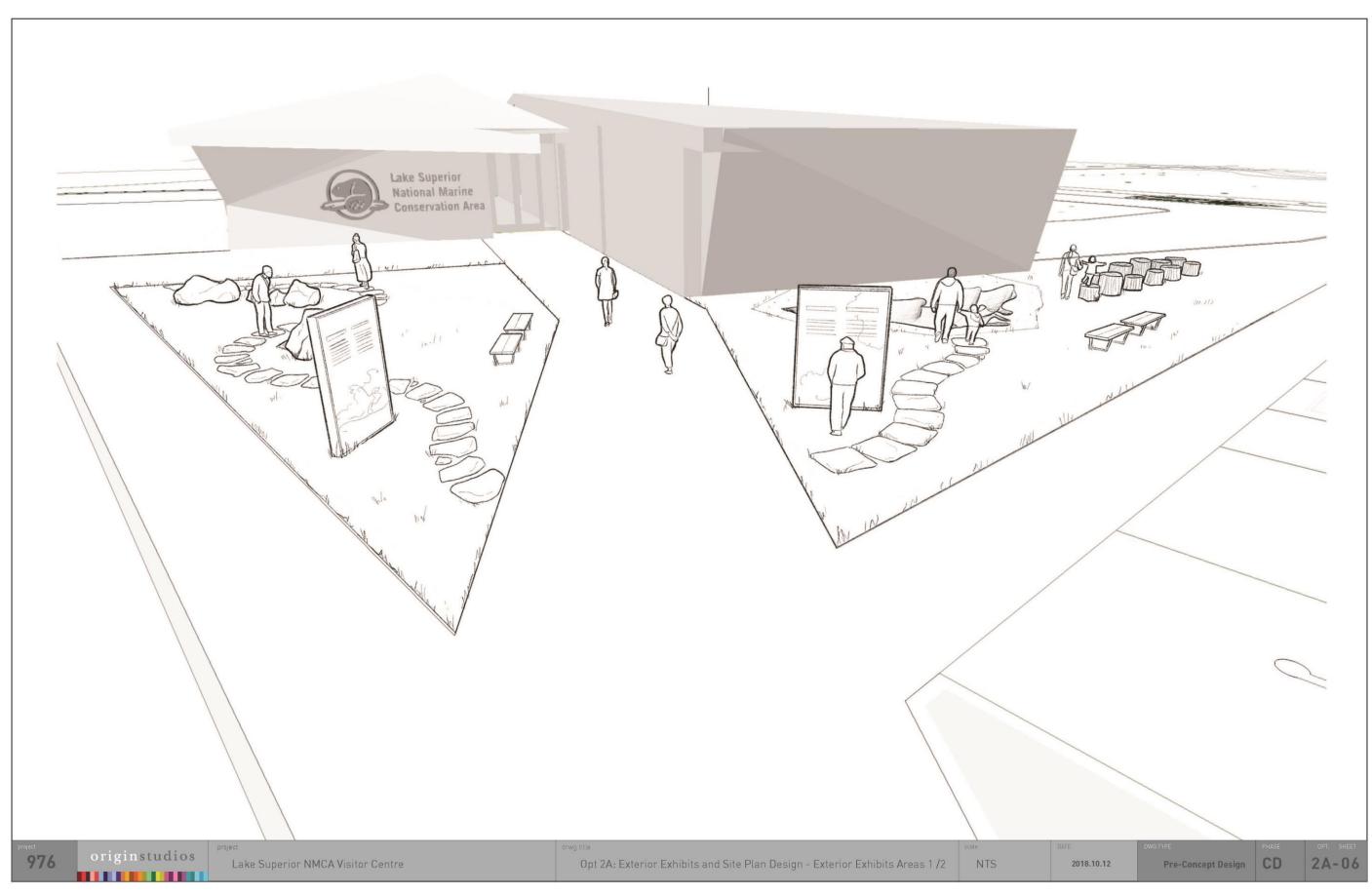


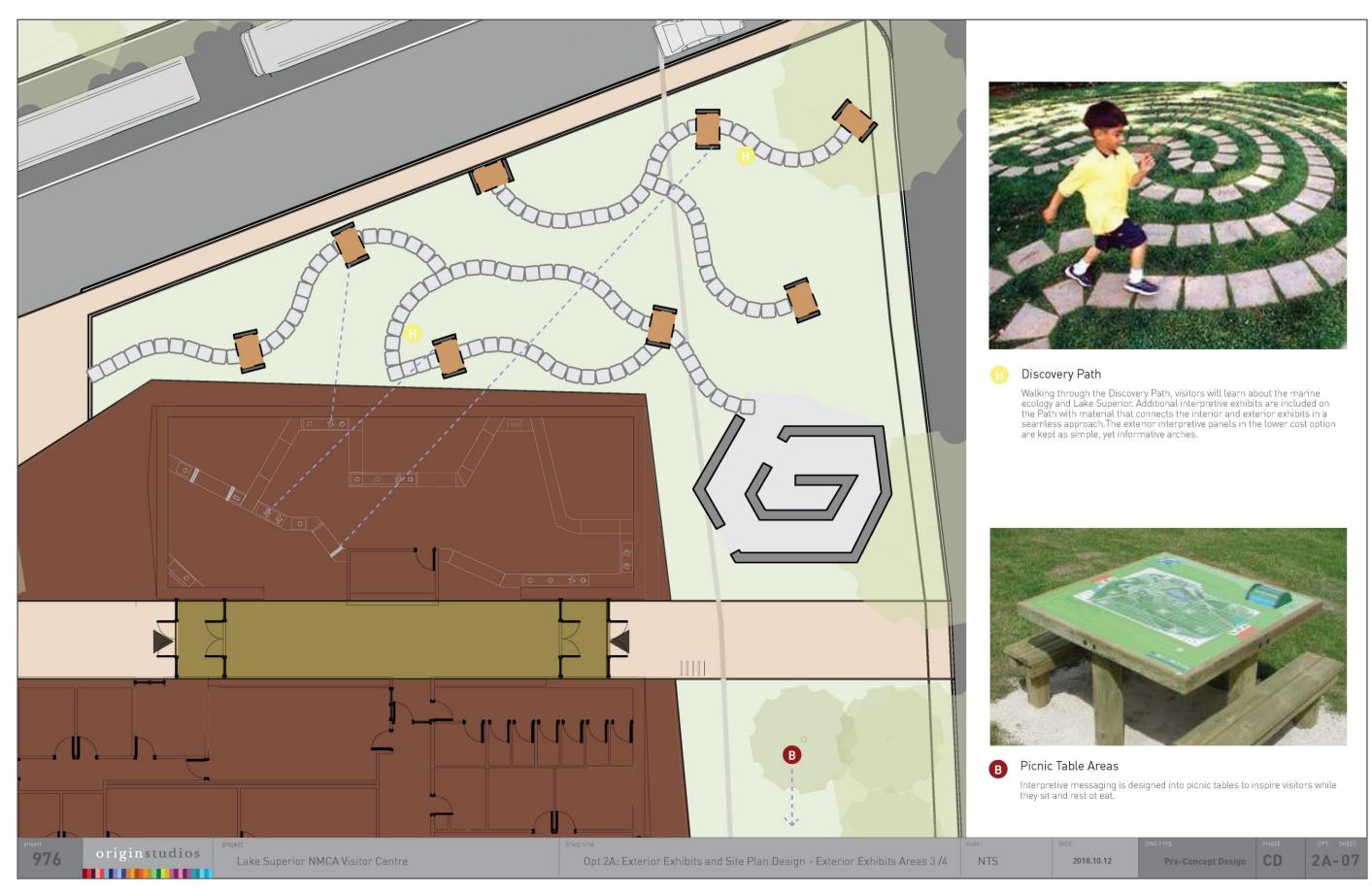


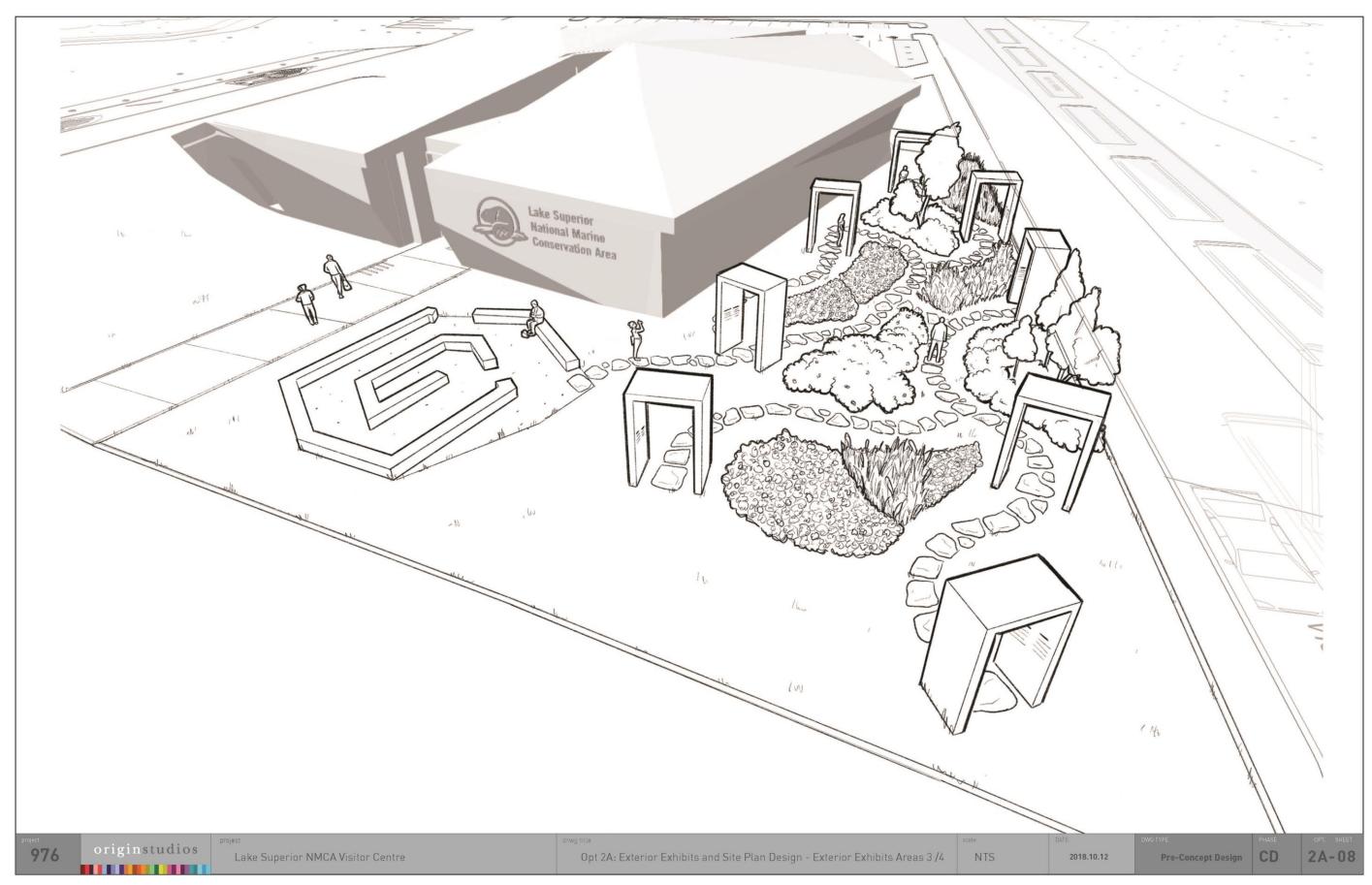
06.3.4 EXTERIOR EXHIBITS AND SITE PLAN





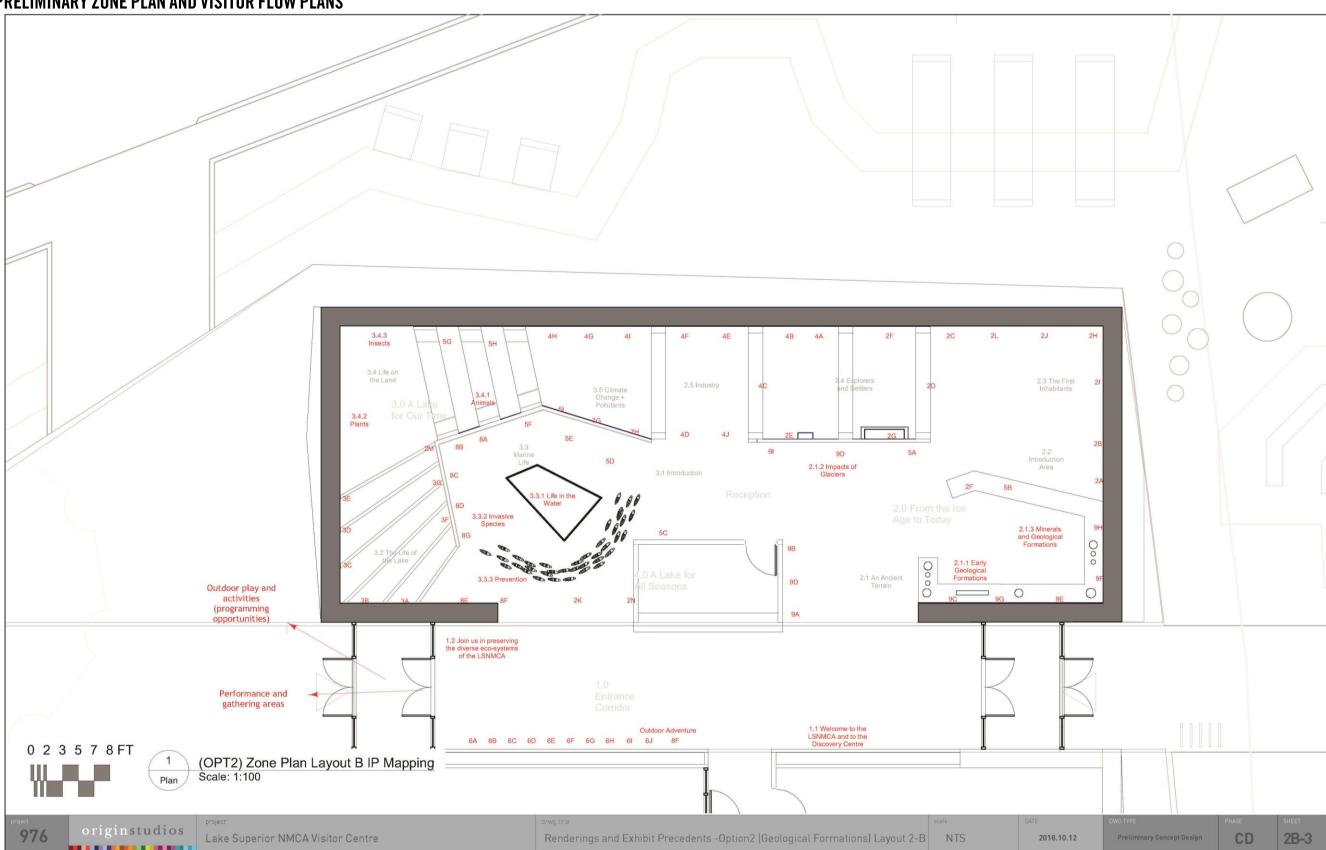


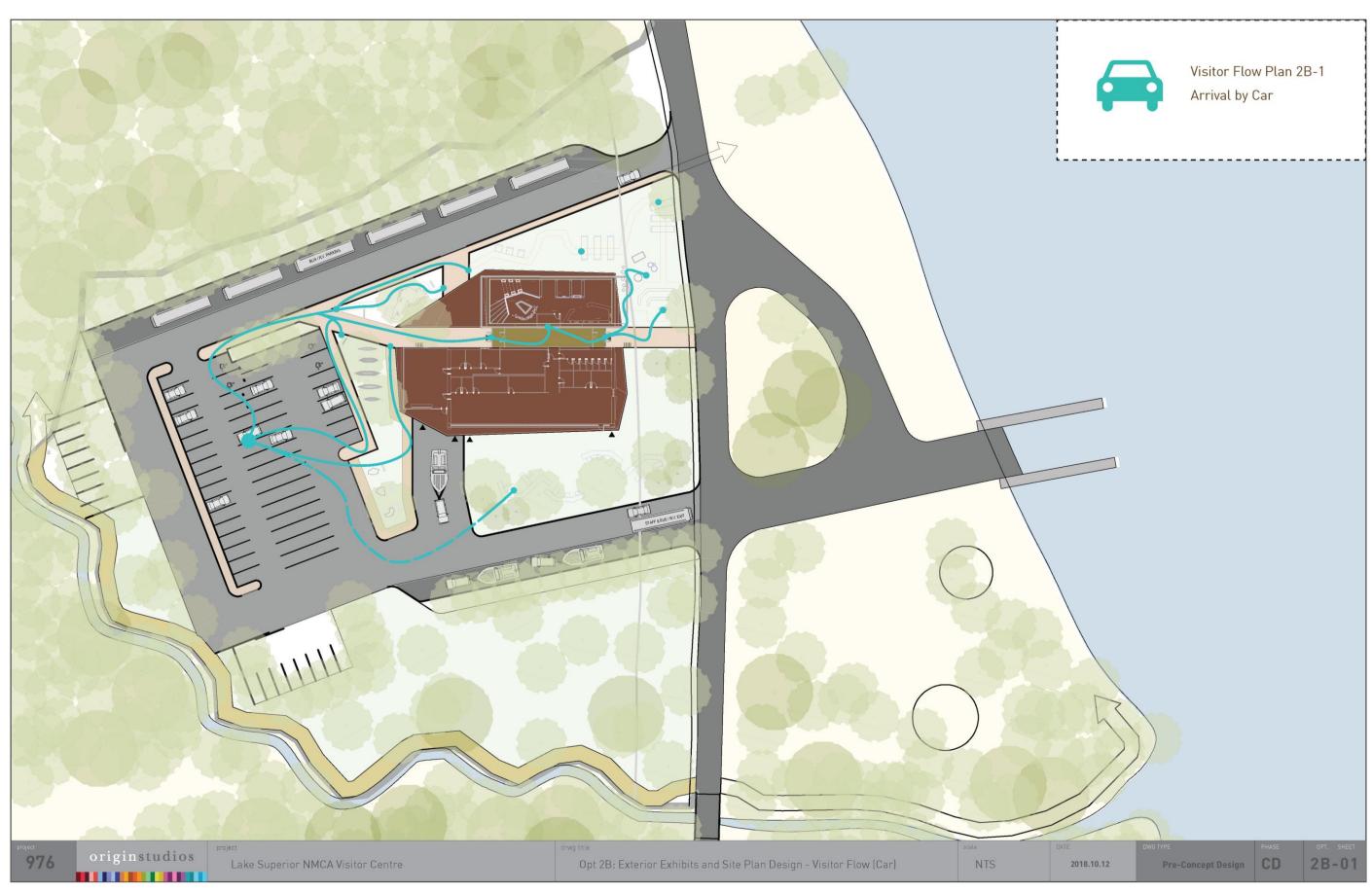


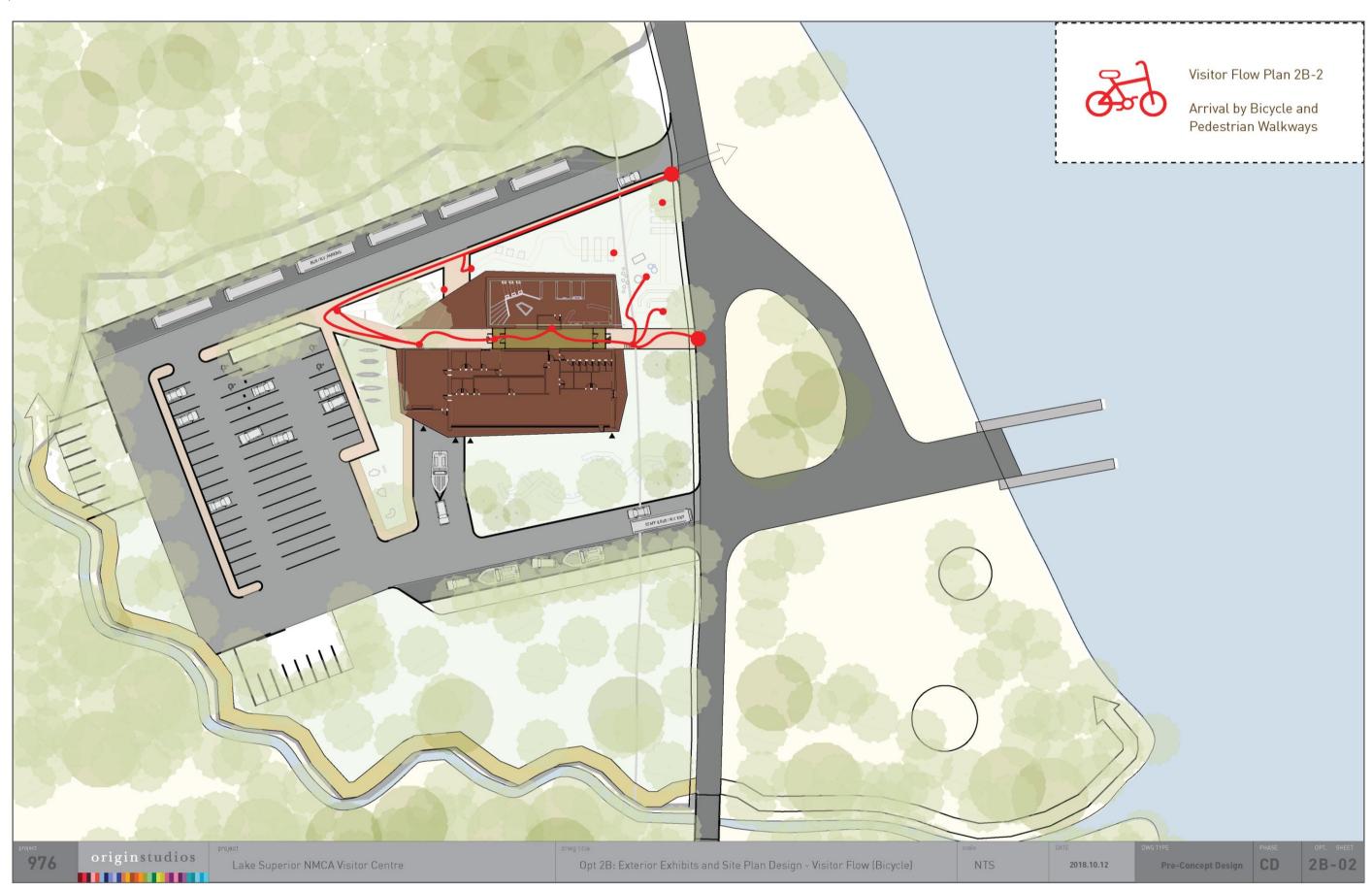


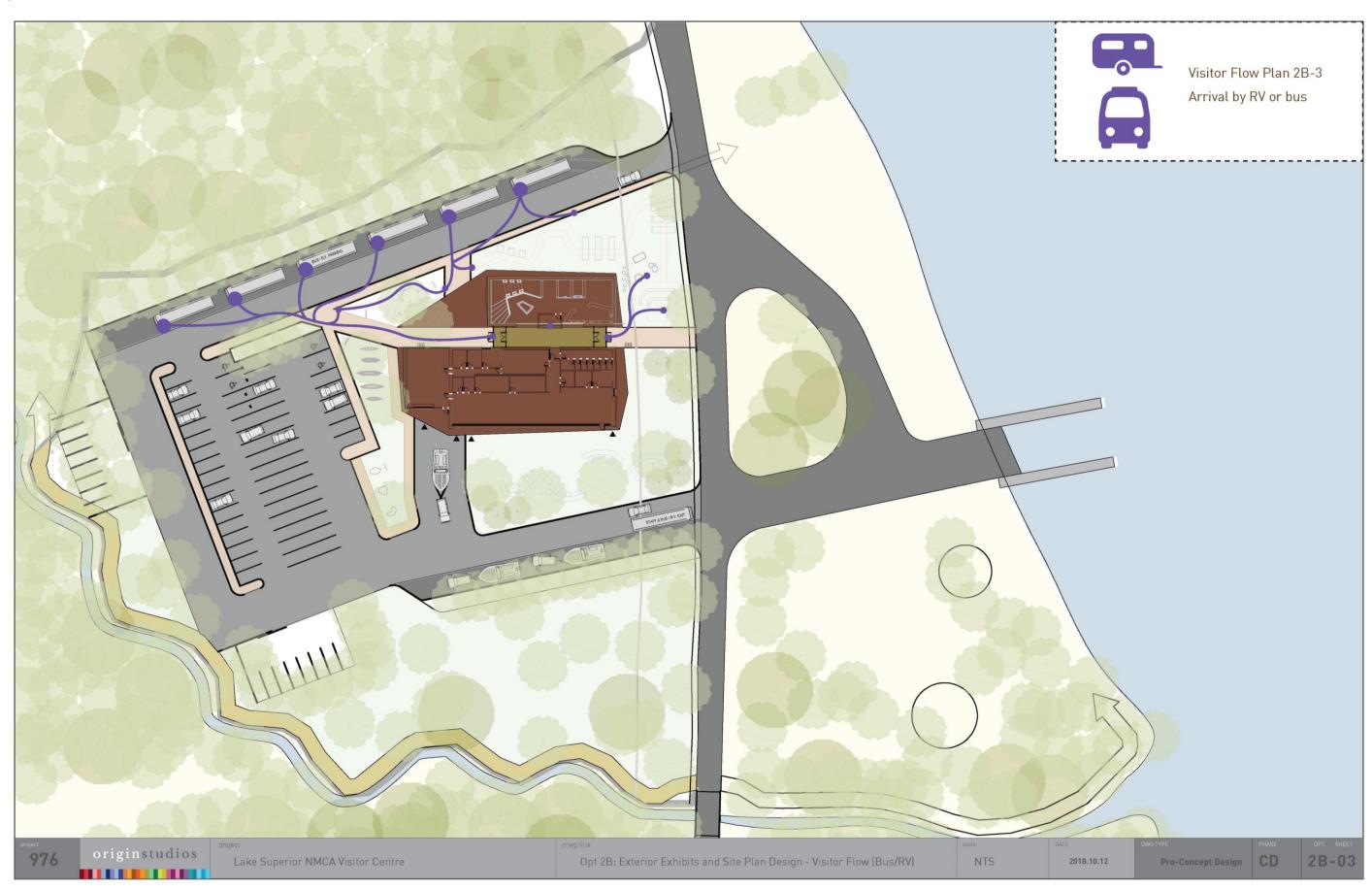
06.4 OPTION 2B

06.4.1 PRELIMINARY ZONE PLAN AND VISITOR FLOW PLANS

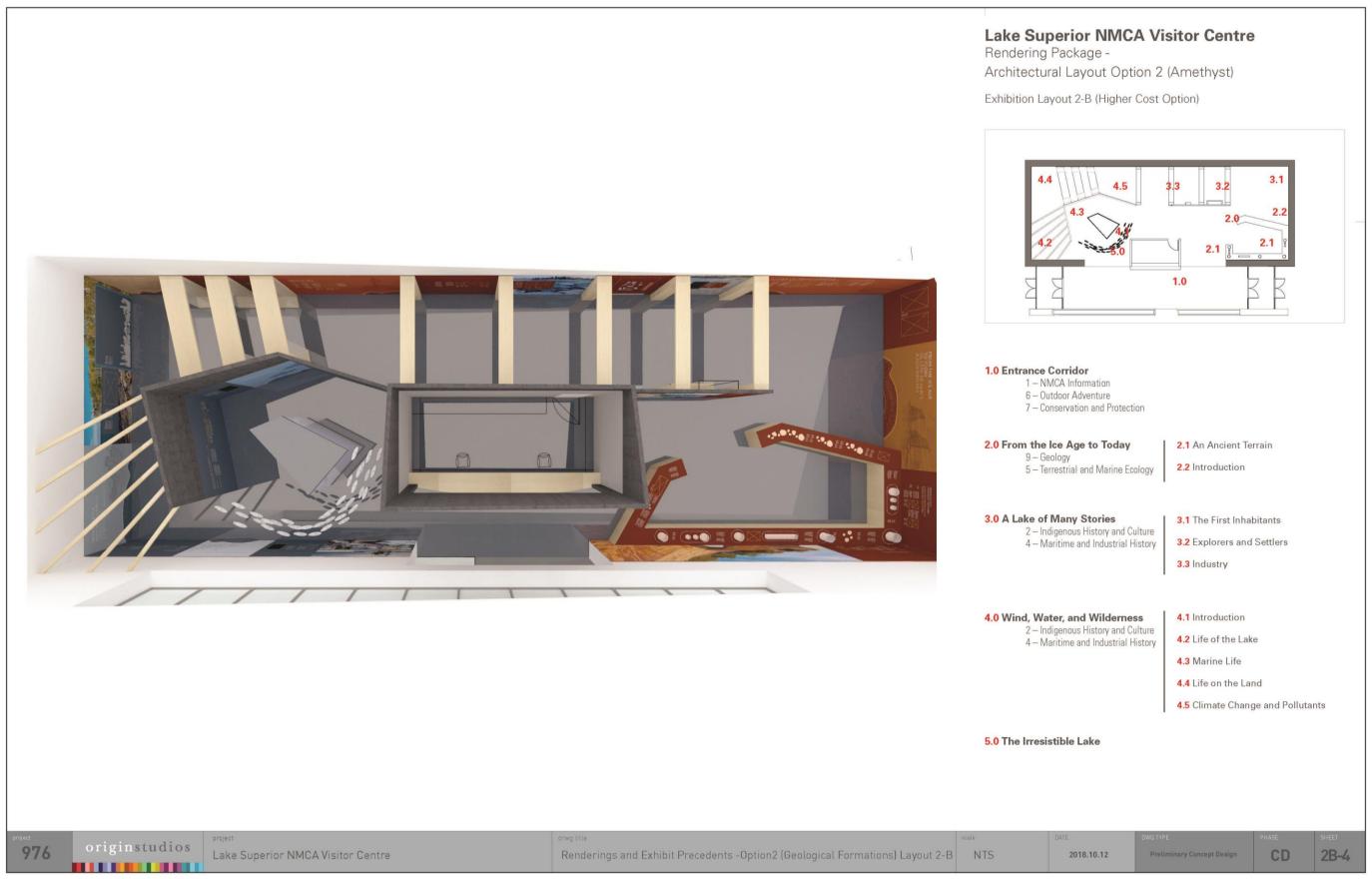






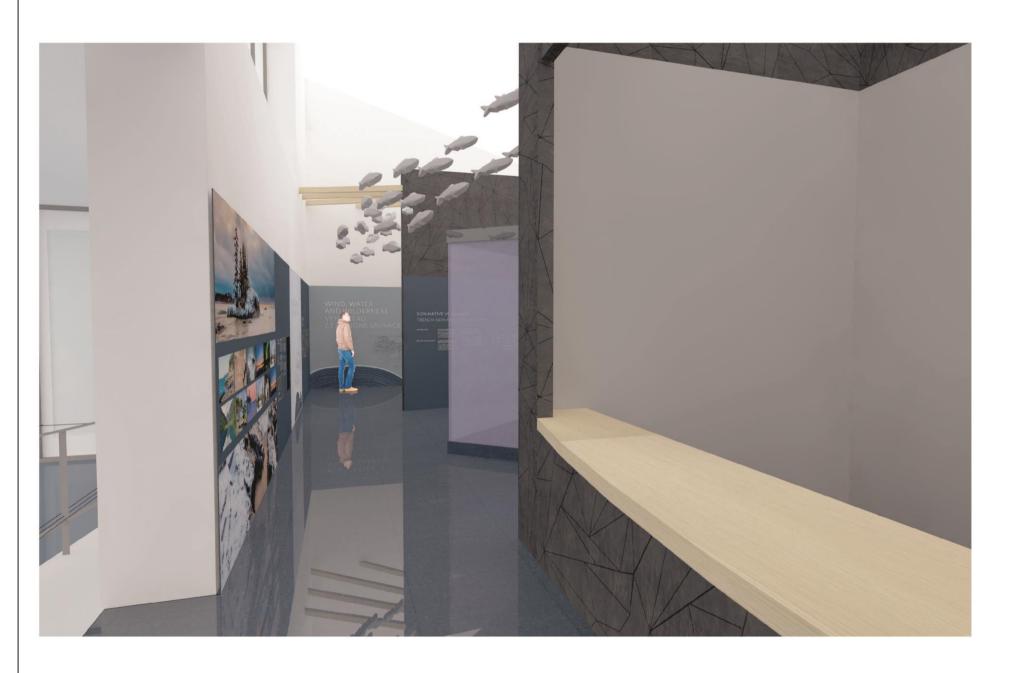


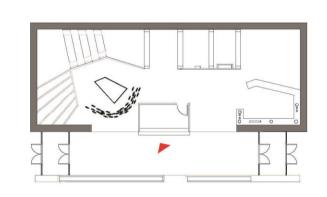
06.4.2 CONCEPT RENDERINGS





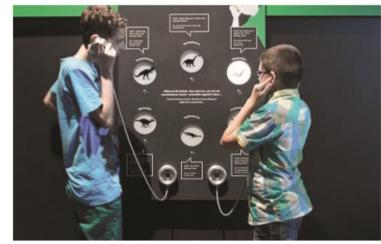
Parks Parcs
Canada Canada







5.0 The Irresistible LakeBeautiful and stunning images of Lake Superior help showcase this zone.



5.0 The Irresistible Lake

Visitor-to-visitor zone provides an opportunity for people to share the location of their favourite spot, the best place for fishing, or their happiest moment. Recordings of people capsules could be available that share final wishes, stories, and hopes for the future.

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NTS

DATE

DWG TYPE

PHASE

SHEET

Lake Superior NMCA Visitor Centre

Renderings and Exhibit Precedents - Option 2 (Geological Formations) Layout 2-B

NTS

DATE

DWG TYPE

PHASE

SHEET

CD

2B-6



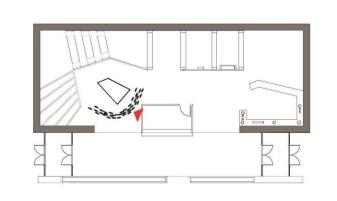






Exhibit Design Precedent

Shown here is an example of the central form that the aquarium would take in the Marine Life room. The angled planes of the aquarium add interest and are the "wow" factor that draws visitors into the Visitor Centre upon arriving at the reception desk area.

976 originstudios

Lake Superior NMCA Visitor Centre

Renderings and Exhibit Precedents -Option2 (Geological Formations) Layout 2-B NTS

Stantec

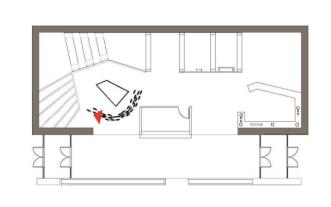
NTS

2018.10.12 Preliminary Concept

esign CD

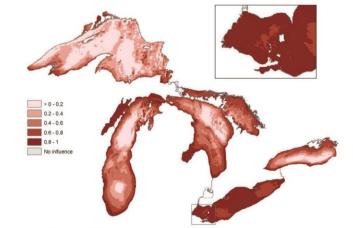
SE SHEET **2B-7**







4.3.2 Invasive SpeciesDigital game in which visitors guess if a species is native, introduced, or invasive or, augmented reality interactive identifying and quizzing marine life based on AR overlay on graphic panels.



4.3.2 Invasive Species

Narrated animation exploring the introduction of invasive species (shown here, the introduction of Round Gogy to the Great Lakes)

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Lake Superior NMCA Visitor Centre

Renderings and Exhibit Precedents -Option2 (Geological Formations) Layout 2-B NTS

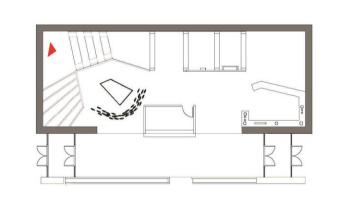
2018.10.12

CD

2B-8











3.1 The First Inhabitants

Cultural objects showcased in archways, content could include people capsules, first person oral histories with an Indigenous representative sharing stories about early life in the region, ceremonies, teachings along with a representational object.

originstudios 976

Lake Superior NMCA Visitor Centre

Renderings and Exhibit Precedents -Option2 (Geological Formations) Layout 2-B NTS

Stantec

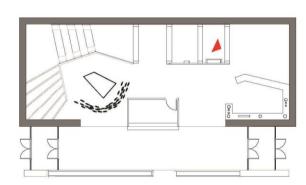
2018.10.12

CD

2B-10









3.1 The First Inhabitants

People capsules – first person oral histories with an Indigenous representative sharing stories about early life in the region, ceremonies, teachings.



3.1 The First InhabitantsMulti-lingual key-phrase dictionary with audio capacity alongside cultural objects.

originstudios 976

Lake Superior NMCA Visitor Centre

Renderings and Exhibit Precedents -Option2 (Geological Formations) Layout 2-B NTS

Stantec

2018.10.12

CD

2B-12



PERKINS+WILL

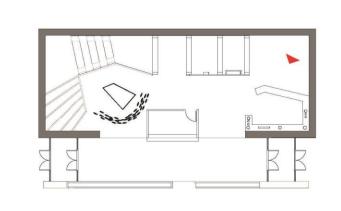




Exhibit Design Precedent
Combining playful graphics, specimens and physical or digital interactives creates hubs of activity and hands-on learning opportunities.

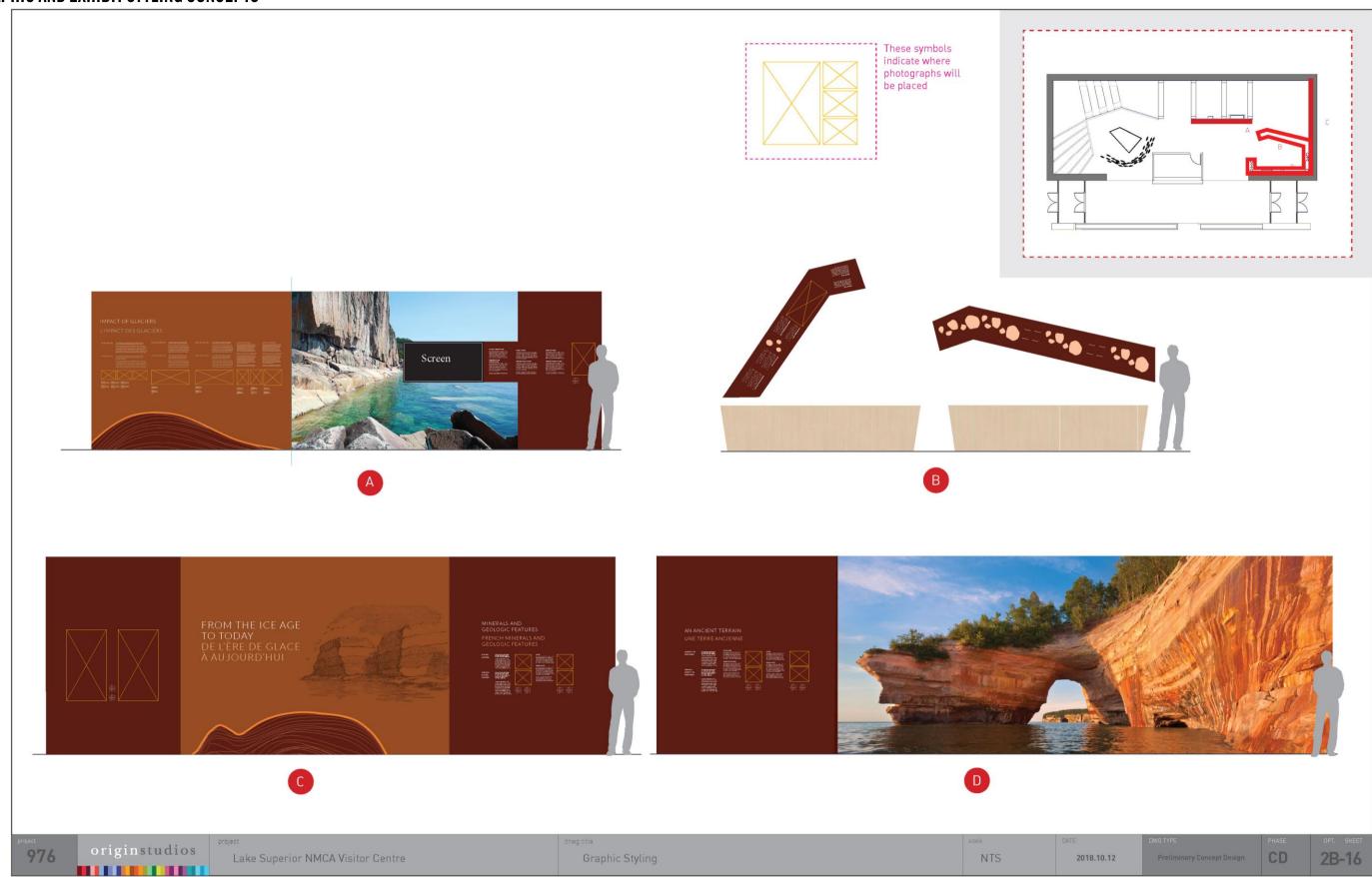


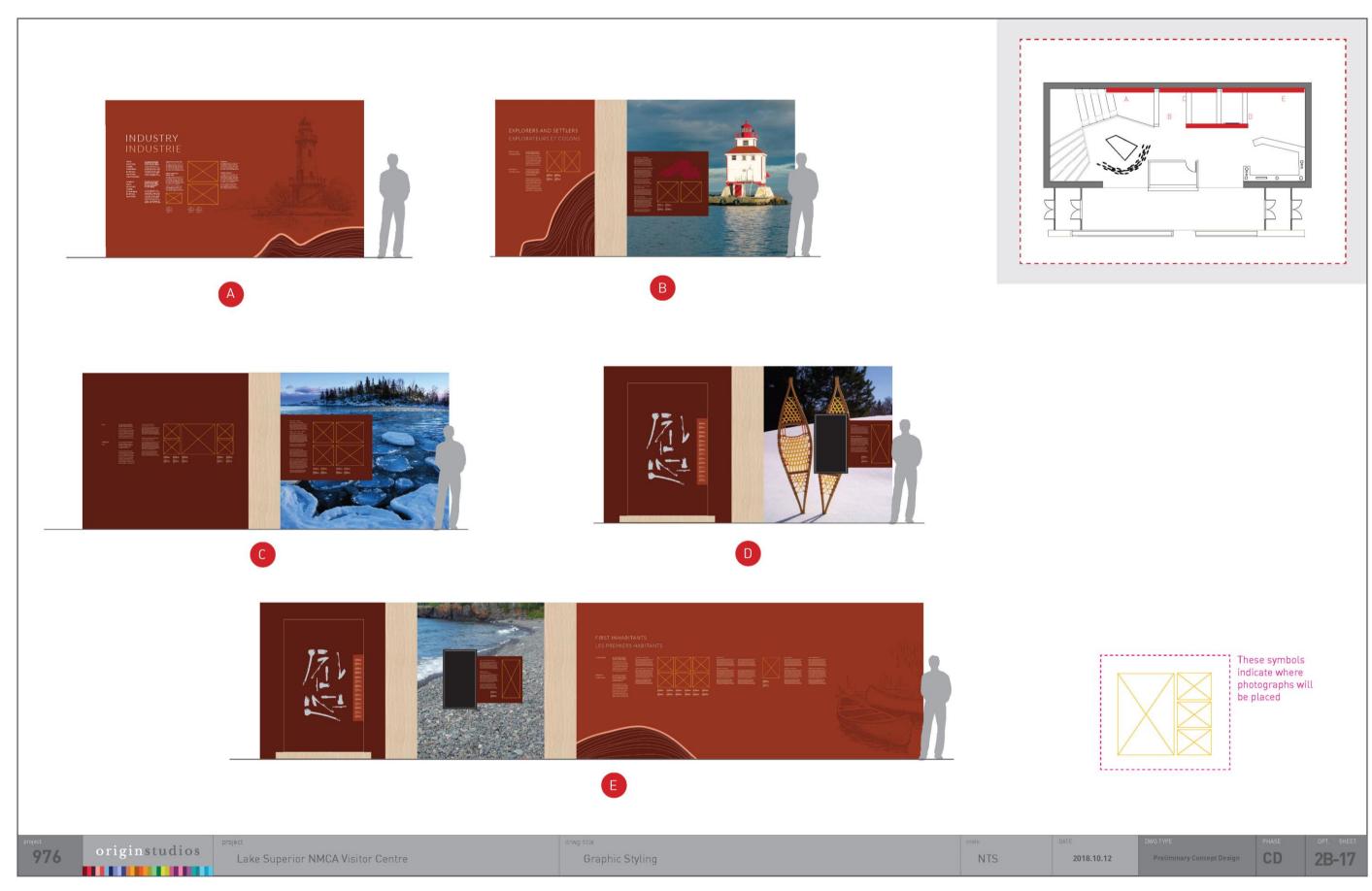
2.1.1 Early geologic formationsFlip panels for additional information and physical interactive game.

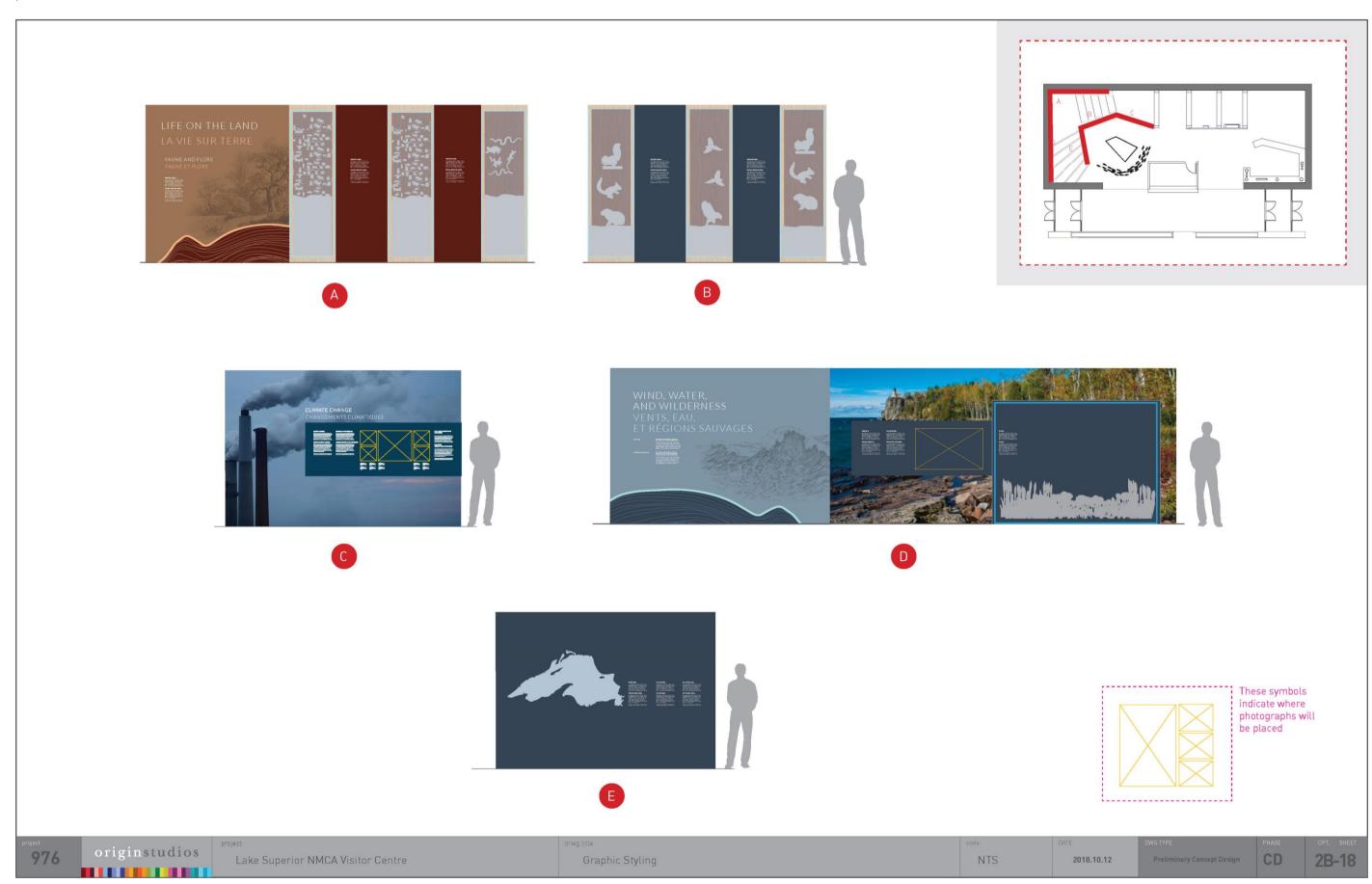
originstudios CD 2B-13 Lake Superior NMCA Visitor Centre Renderings and Exhibit Precedents -Option2 (Geological Formations) Layout 2-B NTS 2018.10.12



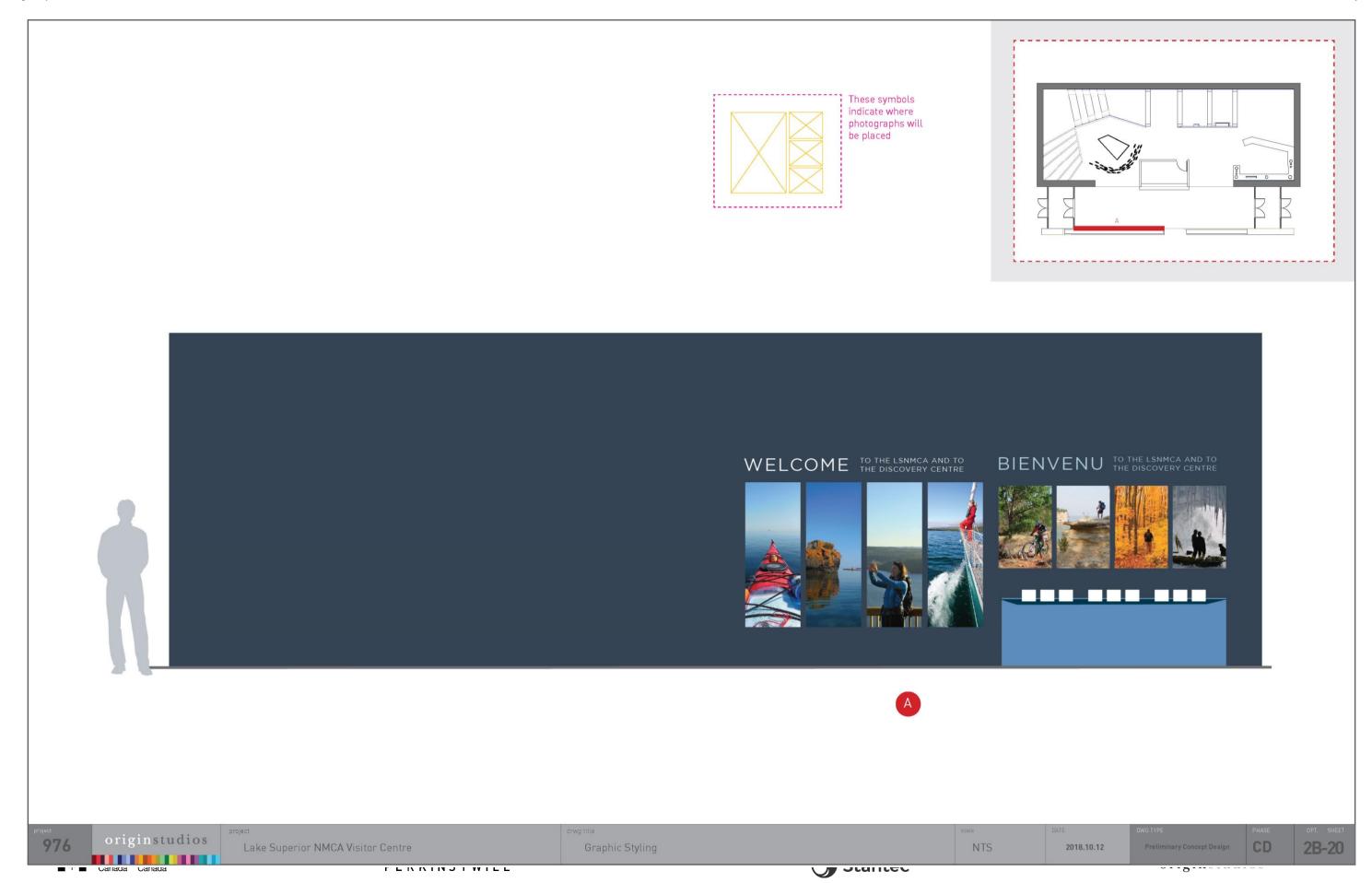
06.4.3 GRAPHIC AND EXHIBIT STYLING CONCEPTS











Typography Approach

TITLE STYLING EXAMPLE

SUBTITLE STYLING EXAMPLE

This could be your introduction text style. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nunc pulvinar ante eget arcu commodo condimentum.

This could be your main content styling. Mauris commodo turpis ac massa hendrerit blandit. Proin viverra magna non tellus feugiat imperdiet. Sed vitae lacus cursus, dapibus velit malesuada, venenatis tortor. Cum sociis natoque penatibus et magnis dis parturient montes,

nascetur ridiculus mus. Proin eros dolor, pretium id sollicitudin vitae, dapibus id massa. In ullamcorper luctus augue, ac maximus risus euismod et. Nunc eu mauris vestibulum, Sed vel gravida magna. In hac habitasse platea dictumst. Nullam tincidunt dui quis ex finibus, sed

"This would be the font of a quote sed vel gravida magna. In hac habitasse platea dictumst. Nullam tincidunt dui quis ex finibus, sed porta lectus convallis. Curabitur consectetur felis diam, et tincidunt augue condimentum non."

- Proin eros dolor, preti. Cum sociis natoque penatibus et magnis dis parturient montes,

Lato - Light

ABCDEFGHIJKLM NOPQRSTUVWXYZ abcdefghijklmn opgrst uvwxyz 1234567890

(Title text)

Lato - Regular

ABCDEFGHIJKLM NOPQRSTUVWXYZ abcdefghijklmnop qrst uvwxyz 1234567890

(Subtitles and Quotes)

Open Sans Regular

ABCDEFGHIJKLM NOPQRSTUVWXYZ abcdefghijklmnop qrst uvwxyz 1234567890

Stantec

(Label text)

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1234567890

(Intro text)

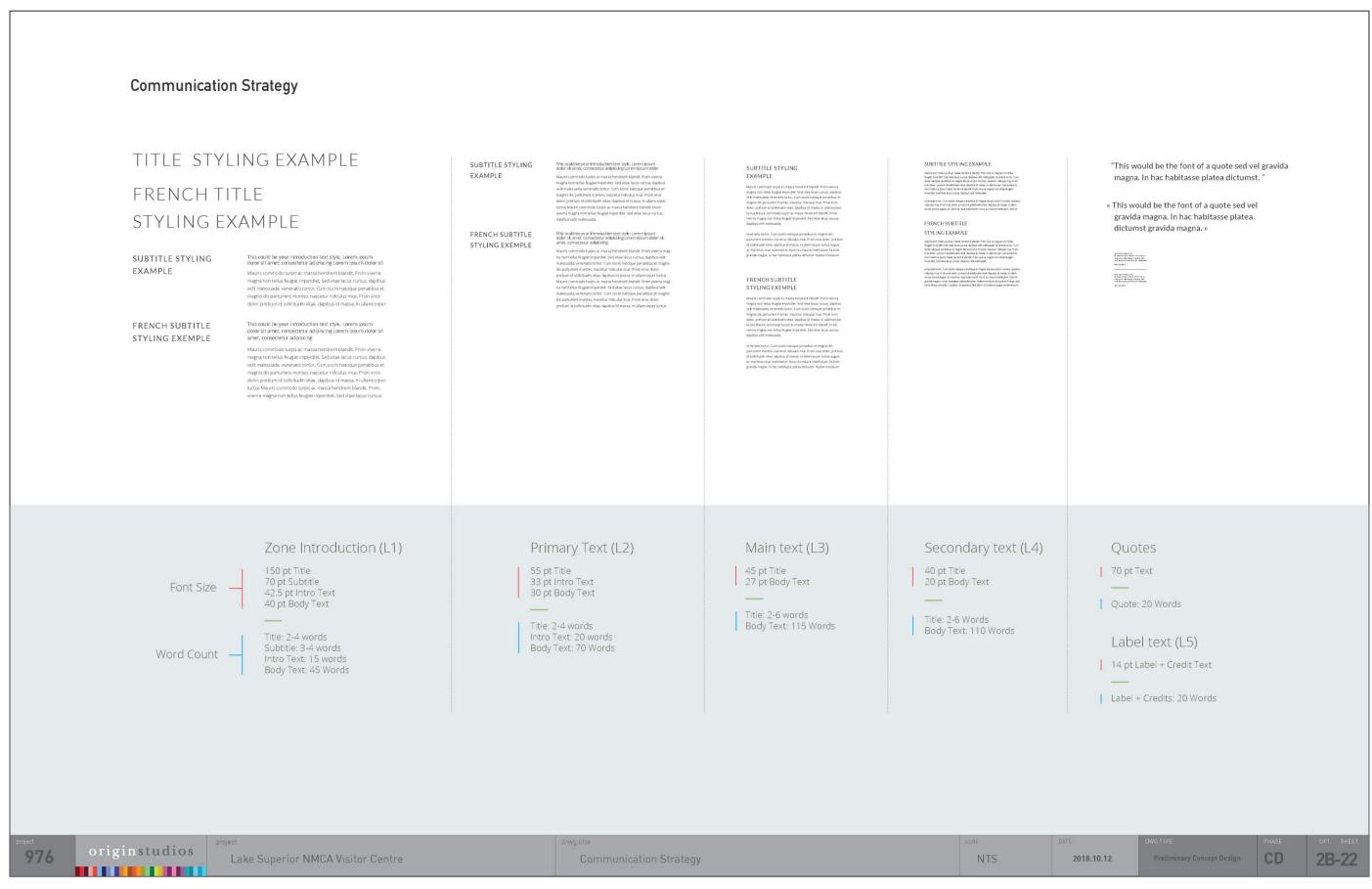
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(Body text)





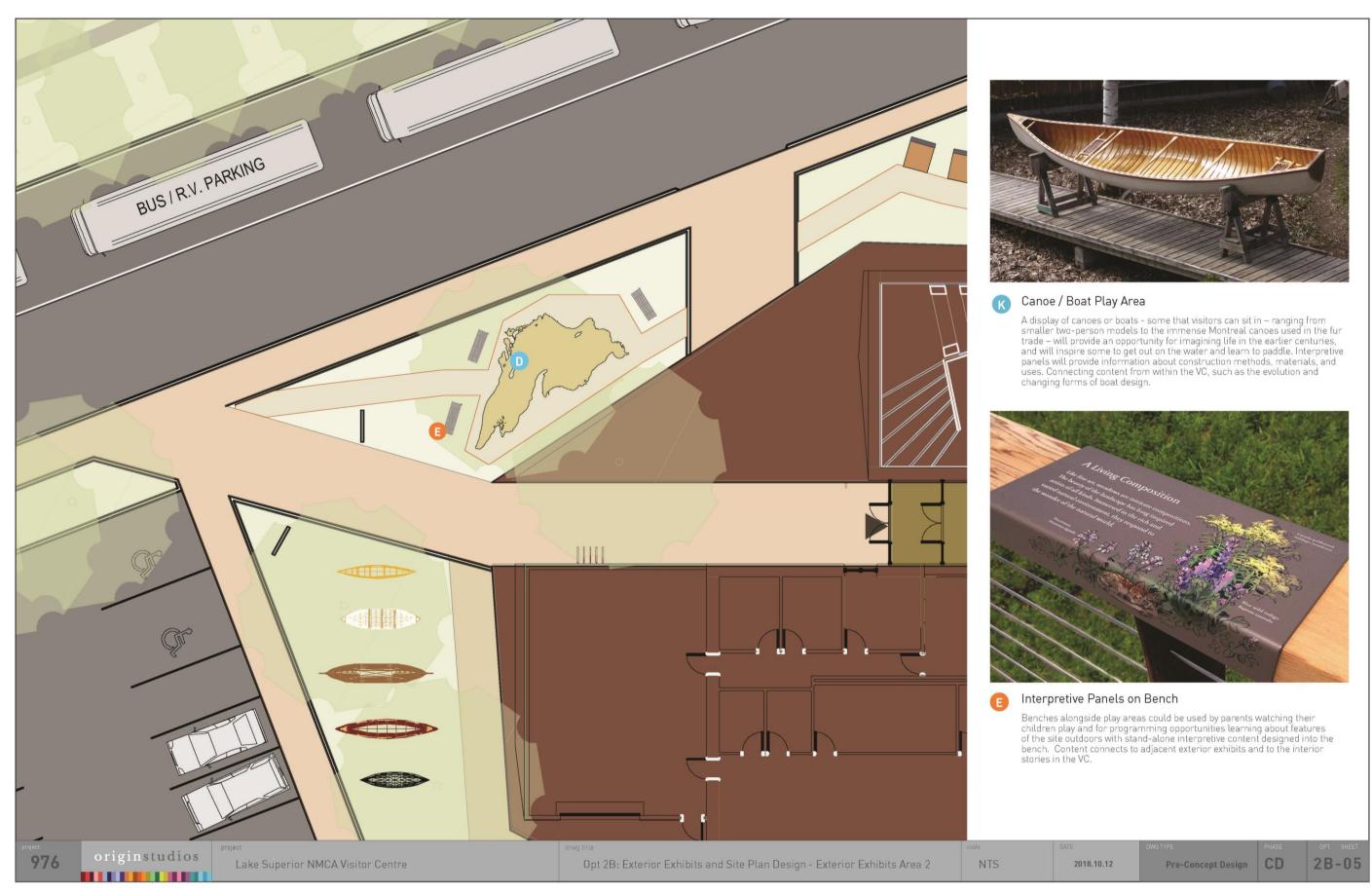


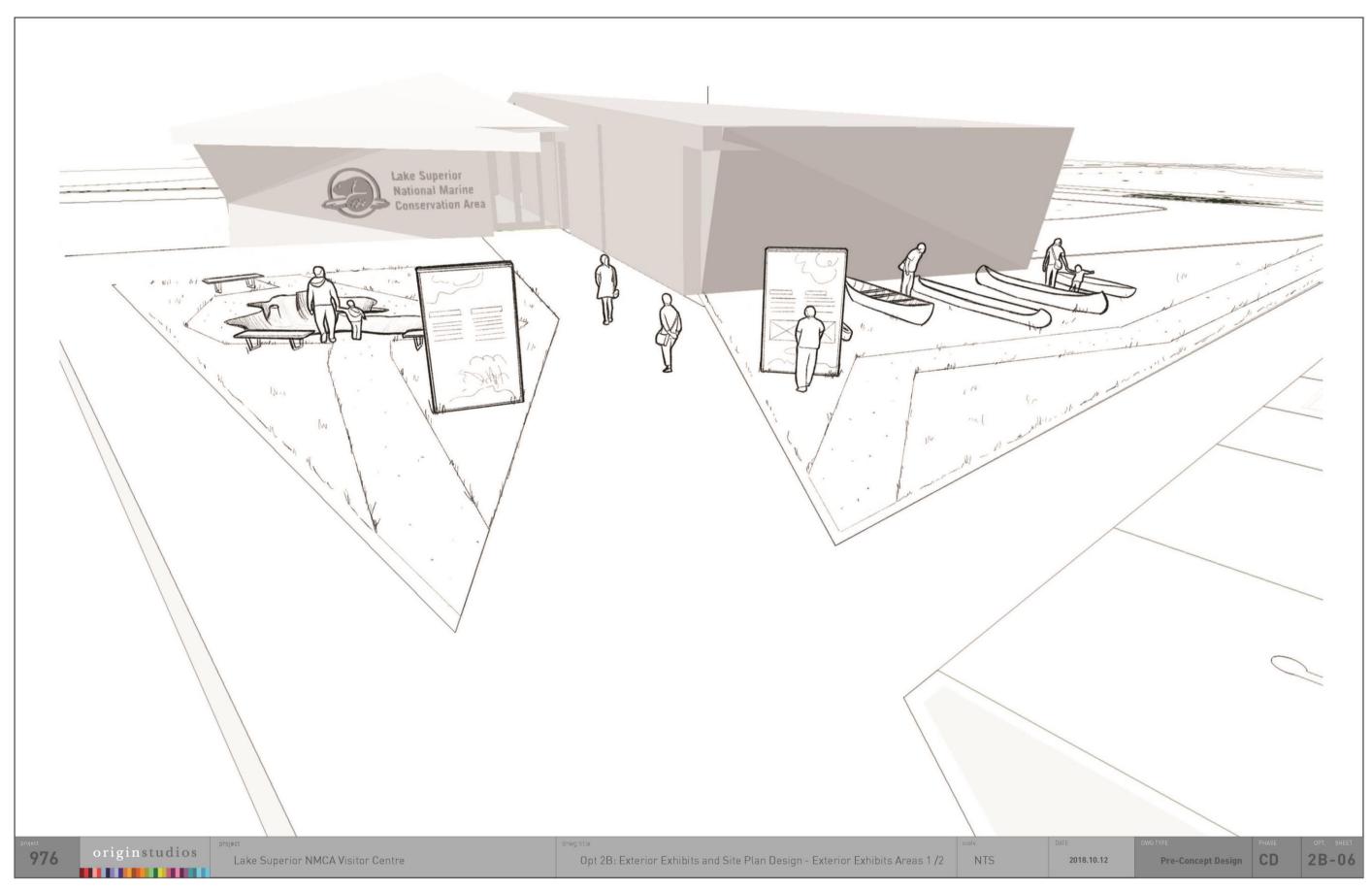


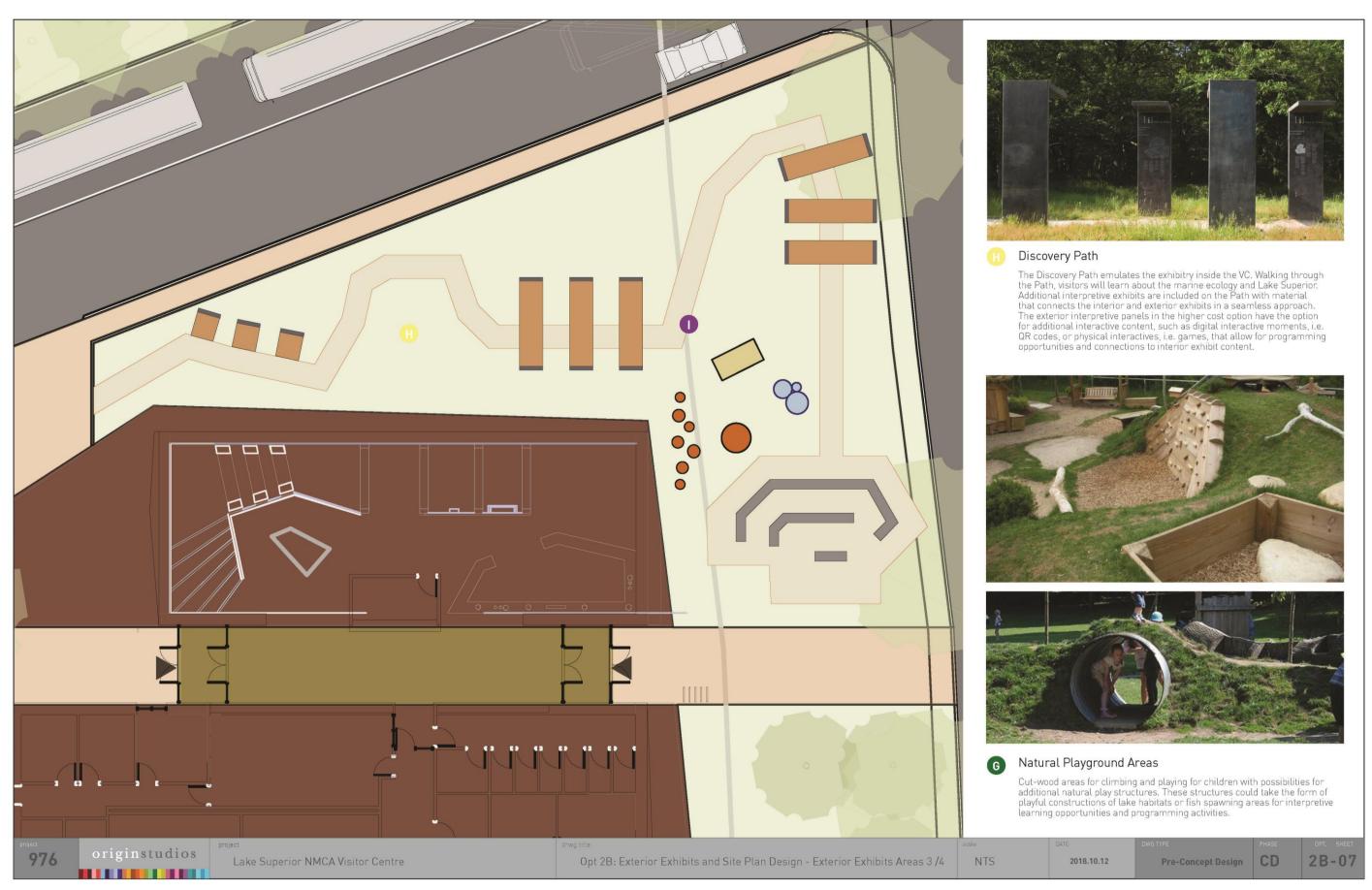
06.4.4 EXTERIOR EXHIBITS AND SITE PLAN

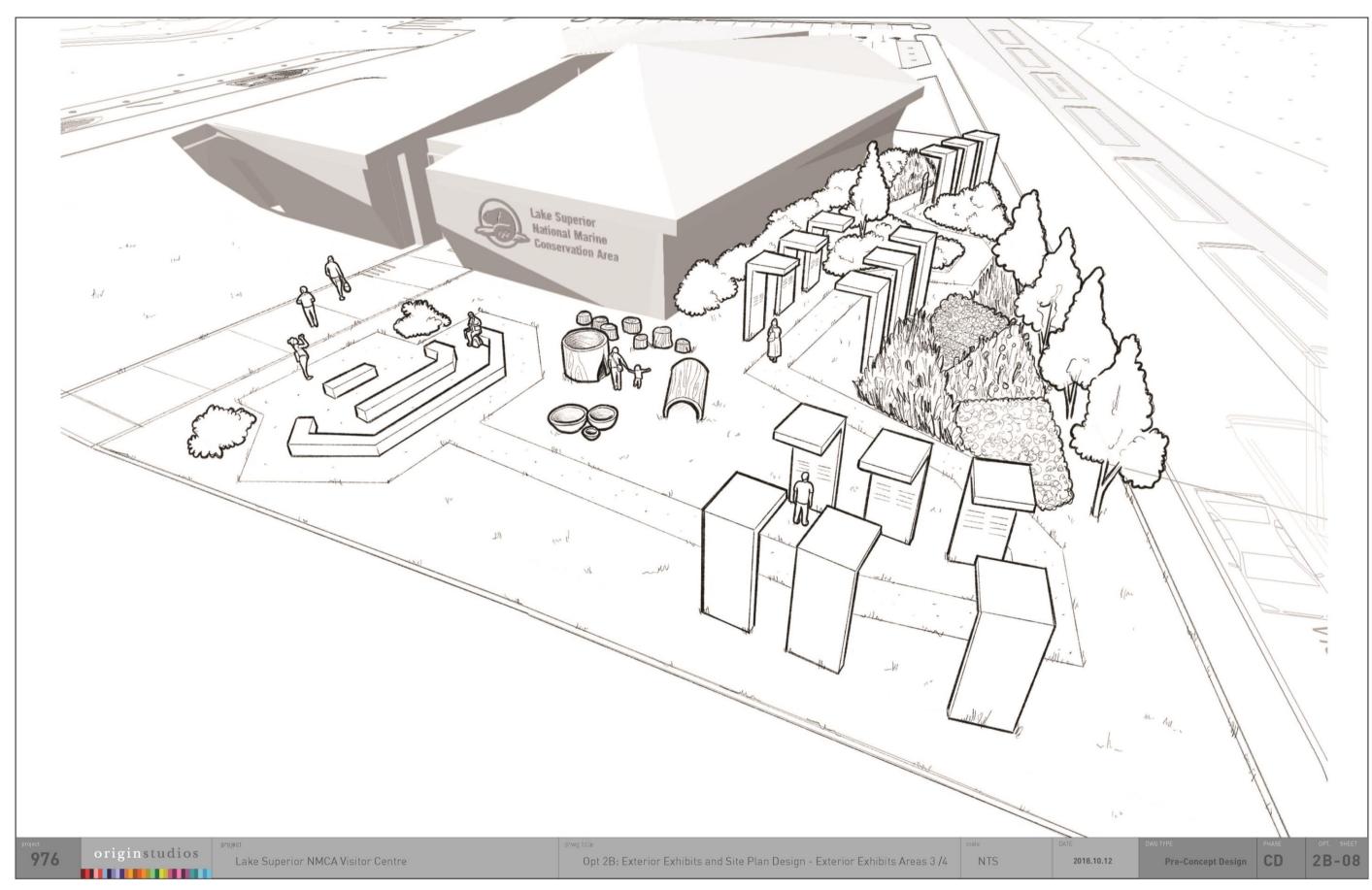


Stantec









06.5 CLASS D BUDGET OPTIONS

originstudios

date: May 24, 2018

project: LS NMCA Discovery Centre client: Perkins & Will / Parks Canada

Cost Breakdown: Option 1A

(Log/Paddle Lower Cost with Central Community Space)

Budgets	Estimates			
Exhibit Furniture & Fixtures Budget	Budget Assignment	Area	Rate	Cost
Main Gallery Exhibit Furniture and Fixtures	Exhibit	1731.69	\$350.00	\$606,091.50
A mostly graphic installation with some small display cases and physical interactives. Ceiling displays could include projection on walls as well as hanging sculptural elements. Some simple floor treatments could be included as well.				
Community Space	Exhibit	388.8	\$60.00	\$23,328.00
Hallway Graphics	Exhibit			\$4,000.00
	×		: 2 :	\$633,419.50

Lighting	Exhibit	2120.49	\$60.00	\$127,229.40
Electrical & Data	Architectural		(Maj)/1922.342	n/a
Base Building Floor Finish	Architectural			n/a
Peripheral Walls & Finish	Architectural			n/a

Exterior Budget Allowances			Allowance
Native Pollinator Gardens - with minimal interpretive signage	Exhibit		
Children's Play Area - Scaled Lake Superior - Simplest Option	Exhibit		
Life on the Lake - wave representation	Exhibit		See Total
Natural landscaping additions	Exhibit		
Outdoor Performance Area - minimal, natural installations	Exhibit		
All allowances are preliminary and based on the lowest cost versions of the optio presented.	ns	•	
			\$91,000.00

Class D Estimate (before taxes) \$851,648.90

Stantec



originstudios

date: May 24, 2018

project: LS NMCA Discovery Centre client: Perkins & Will / Parks Canada

Cost Breakdown: Option 1B

(Log/Paddle Higher Cost with Round Pods and No Community Space)

Budgets	Estimates			
Exhibit Furniture & Fixtures Budget	Budget Assignment	Area	Rate	Cost
Main Gallery Exhibit Furniture and Fixtures	Exhibit	2120.49	\$650.00	\$1,378,318.5
A more elaborate installation is proposed for this option, including curved walls, digital nteractive tables and projection 'lanterns' in several spaces. This concept shows a central area with lowered ceiling and small aquariums. The main visitor pathway is marked by hardwood flooring.				
Community Space	n/a	4,		
Hallway Graphics	Exhibit		2	\$7,500.0
		- 1		\$1,385,818.5
Exhibit Infrastructure				
Lighting	Exhibit	2120.49	\$120.00	\$254,458.8
Electrical & Data	Architectural			n/
Base Building Floor Finish	Architectural			n/
Peripheral Walls & Finish	Architectural			n/
				\$254,458.8
Exterior Budget Allowances				Allowance
Themed Gardens	Exhibit			
Children's Play Area - Scaled Lake Superior Map & Lighthouse	Exhibit	1		
Outdoor Performance Area - with seating and stage area	Exhibit			See Total
nterpretive Panels - with interactives and 3D elements	Exhibit			
Exterior Sculptural Elements	Exhibit	0		
All allowances are preliminary and based on the medium to high cost versions of the options presented.				
				\$510,000.0





originstudios

date: May 24, 2018

project: LS NMCA Discovery Centre client: Perkins & Will / Parks Canada

Cost Breakdown: Option 2A

(Amethyst Lower Cost with Corner Community Space)

Budgets		Estimates			
Exhibit Fumiture & Fixtures Budget	Budget Assignment	Area	Rate	Cost	
Main Gallery Exhibit Furniture and Fixtures	Exhibit	1825	\$350.00	\$638,750.00	
A high contrast, graphic installation with many tables and archways to make the space look open and dynamic. The displays would be marked with many small display/specimen cases on walls and table tops. Some physical interactives would be integrated throughout the exhibit. Proposed flooring in this option is a high gloss epoxy.					
Community Space		365	\$60.00	\$21,900.00	
Hallway Graphics	Exhibit			\$4,000.00	
	-			\$638,750.00	

Exhibit Infrastructure				
Lighting	Exhibit	2190	\$50.00	\$109,500.00
Electrical & Data	Architectural			n/a
Base Building Floor Finish	Architectural			n/a
Peripheral Walls & Finish	Architectural		75	n/a
				\$109,500.00

Exterior Budget Allowances		Allowance
Native Pollinator Gardens - with minimal interpretive signage	Exhibit	
Children's Play Area - Lake Superior Pit & Geological Features Panels	Exhibit	
Life on the Lake - wave representation	Exhibit	See Total
Outdoor Performance Area - minimal, natural installations	Exhibit	333 1344
All allowances are preliminary and based on the lowest cost versions of the options presented.		
		\$81,000.

Class D Estimate (before taxes) \$829,250.00

originstudios

date: May 24, 2018

project: LS NMCA Discovery Centre client: Perkins & Will / Parks Canada

Cost Breakdown: Option 2B

(Amethyst Higher Cost with no Community Space)

Budgets	Estimates			
Exhibit Furniture & Fixtures Budget	Budget Assignment	Area	Rate	Cost
Main Gallery Exhibit Furniture and Fixtures	Exhibit	2190	\$550.00	\$1,204,500.00
This exhibit concept proposes to clad the central reception desk structure with stone panels (or similar) to emphasize the terrain and geology of the area. A large aquarium is also proposed in this option, as well as many medium to large size display cases. Digital and physical interactives would be integrated throughout and exhibit and exhibit-specific flooring would be added (gloss epoxy or polished marmoleum shown).				
Community Space	n/a			\$0.00
Hallway Graphics	Exhibit			\$7,500.00
				\$1,204,500.00

Exhibit Infrastructure				
Lighting	Exhibit	2190	\$110.00	\$240,900.00
Electrical & Data	Architectural			n/a
Base Building Floor Finish	Architectural			n/a
Peripheral Walls & Finish	Architectural			n/a

Exterior Budget Allowances		Allowance
Themed Gardens	Exhibit	
Children's Play Area - Scaled Lake Superior Map & Canoe Interactive	Exhibit	
Outdoor Performance Area - with seating and stage area	Exhibit	See Total
Picnic and Rest Area with Customized Seating	Exhibit	See rotal
Il allowances are preliminary and based on the medium to high cost versions of he options presented.		

Class D Estimate (before taxes) \$1,920,400.00

CONCLUSION 07

The Lake Superior National Marine Conservation Area is a rich and diverse region with distinct geographic features, unique to the Great Lakes Region. The architecture of the new administrative building and Discovery center takes inspiration from the surrounding beauty. The building will establish a dedicated place for marine conservation education.

The requirement for Passive House is elemental to both the architectural program and design concept. The design options outlined in this report have been developed to achieve a level that can be verified and validated by a third party Passive House reviewer.

Two exhibit design options have been prepared for both the Paddle and Geological Formation architectural design concepts. The exhibit design options represent a range of design solutions at a variety of price points within a low to medium budget range. The design options are intended to provide Parks Canada with the opportunity to select an exhibit solution that will meet the needs of the LSNMCA.

This report documents the programmatic requirements and architectural design concepts for the new Discovery Centre at the Lake Superior National Marine Conservation Area. Two distinct architectural design concepts have been prepared. Each one a programmatically and technically viable solution. Further development in the coming stages of the project will refine the selected option and aid Parks Canada in realizing a significant project for the community and the Lake Superior National Marine Conservation Area.





80 **APPENDIX**

08.00 STANDING OFFER AGREEMENT AND TERMS OF REFERENCE

- 08.00.1 STANDING OFFER AGREEMENT
 - The Standing Offer Agreement has been provided as a .pdf document and can be found as an attached file: 08.00.1 LSNMCA SOA.pdf
- 08.00.2 TERMS OF REFERENCE
 - The Terms of Reference document has been provided as a .pdf document and can be found as an attached file: 08.00.2 LSNMCA TOR.pdf

08.01 DRAFT SURVEY

A draft site survey has been provided as a .pdf document and can be found as an attached file: 08.01 LSNMCA Draft Survey.pdf

08.02 PRELIMINARY BUILDING CODE DATA MATRIX

A preliminary Building Code Data Matrix has been provided as a .pdf document and can be found as an attached file: 08.02_LSNMCA_Prelim. Building Code Data Matrix.pdf

08.03 ROOM DATA SHEETS

- 08.03.1 LSNMCA PADDLE RDS
 - Room Data Sheets for Paddle option have been provided as a .docx document and can be found as an attached file: 08.03.1 LSNMCA Paddle RDS.docx
- 08.03.2 LSNMCA GEOLOGICAL FORMATION OPTION RDS
 - Room Data Sheets for Geological Formation Option have been provided as a .docx document and can be found as an attached file: 08.03.2 LSNMCA Paddle RDS.docx

08.04 CLASS D COSTING

Turner & Townsend Class D Cost Report for both options has been provided as a .PDF document and can be found as an attached file: 08.04_LSNMCA_ARCH CLASS D.PDF

08.05 RISK AND OPPORTUNITY REGISTER

PERKINS+WILL

A Risk Register Document prepared by Turner & Townsend has been provided as a .xlsx document and can be found as an attached file: 08.05_LSNMCA - Risk and Opportunity Register.xlsx





08.06 COST REDUCTION STRATEGIES

A summary of the architectural value engineering exercise, a Cost Reduction Strategies Document can be found as an attached .pdf file: 08.06_LSNMCA_Cost Reduction Strategies.pdf

08.07 SUSTAINABILITY WORKSHOP

Meeting Minutes from the sustainability workshop conducted 2018-02-06 has been provided as a .pdf document and can be found as an attached file:

08.07_LSNMCA_Sustainabiliy Workshop.pdf

08.08 COMMUNITY CONSULTATION COMMENTS

Comments from the community consultation open house conducted 2018-02-06 has been provided as a .pdf document and can be found as an attached file:

08.08_LSNMCA_Community Feedback.pdf

08.09 ARCHITECTURAL DRAWINGS

A set of architectural plans, elevations, and sections have been provided as an attached .pdf file: 08.09_LSNMCA_Arch Full Size

08.10 VIDEO WALKTHROUGH

A Virtual tour of the interior and exterior of both options has been provided as an attached .MP4 file: 08.10_LSNMCA_Video Walkthrough.MP4

08.11 CONCEPT FRAMEWORK

- 08.11.1 PADDLE CONCEPT DIAGRAMS
 - A document illustrating the architectural concept framework for the Paddle Option has been provided as an attached .pdf file: 08.11.1_Paddle Concept Framework
- 08.11.2 GEOLOGICAL FORMATION CONCEPT DIAGRAMS

PERKINS+WILL

A document illustrating the architectural concept framework for the Geological Formation Option has been provided as an attached .pdf file: 08.11.2_Geological Formation Concept Framework



08.12 PRELIMINARY EXHIBIT DESIGN DOCUMENTS

8.12.1 PRELIMINARY EXHIBIT DESIGN COSTING

As prepared by Origin Studios, an Exhibit design Class D cost breakdown for all design options has been provided as an attached .PDF file: 08.12.1 LSNMCA Exhibit Class D.pdf

8.12.2 DESIGNOPTION 1A

As prepared by Origin Studios, an exhibit design package containing preliminary concept renderings, preliminary graphic styling and preliminary exterior exhibit concepts for option 1A has been provided as an attached .PDF file:

08.12.2 LSNMCA Option1A.pdf

8.12.3 DESIGNOPTION 1B

As prepared by Origin Studios, an exhibit design package containing preliminary concept renderings, preliminary graphic styling and preliminary exterior exhibit concepts for option 1B has been provided as an attached .PDF file:

08.12.3 LSNMCA Option1B.pdf

8.12.4. DESIGNOPTION 2A

As prepared by Origin Studios, an exhibit design package containing preliminary concept renderings, preliminary graphic styling and preliminary exterior exhibit concepts for option 2A has been provided as an attached .PDF file:

08.12.4 LSNMCA Option2A.pdf

8.12.5 DESIGN OPTION 2B

As prepared by Origin Studios, an exhibit design package containing preliminary concept renderings, preliminary graphic styling and preliminary exterior exhibit concepts for option 2A has been provided as an attached .PDF file:

08.12.5_LSNMCA_Option2B.pdf

08.13 PASSIVE HOUSE FEASIBILITY

This document entitled Lake Superior National Marine Conservation Area Discovery Center (LSNMCA DC) Feasibility Study on Passive House Compliance was prepared by Stantec Inc. ("Stantec") for the account of Parks Canada. The feasibility study has been provided as an attached .PDF file:

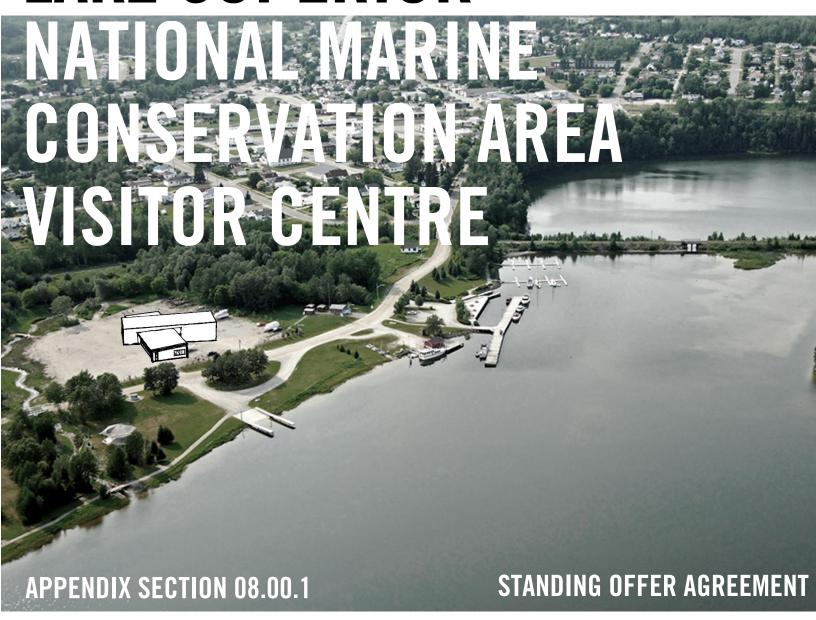
08.13 LSNMCA Passive House Feasibility

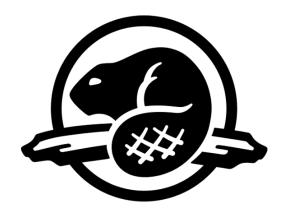
PERKINS+WILL





LAKE SUPERIOR





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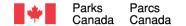
Parks Canada

Parcs Canada PERKINS+WILL



Stantec

originstudios



Purchasing Office - Bureau des achats

Parks Canada Agency Ontario Service Centre 111 Water St. Cornwall, ON K6H 6S3

Standing Offer & Call-up Authority
Autorisation de passer une offre à commandes et des commandes subséquentes

This is not a contract La présente n'est pas un contrat

Canada, as represented by the Chief Executive Officer of the Parks Canada Agency, hereby authorizes the identified users listed herein to make call-ups against this Standing Offer.

Le Canada, réprésenté par le Directeur général de l'Agence Parcs Canada, autorise par la présente, les utilisateurs identifiés énumérés ci-après, à passer des commandes subséquentes à cette offre à commandes.

The Offeror hereby acknowledges that the attached document contains its Standing offer. Name and Title of person authorized to sign on behalf of Offeror (Type or print).
Le Proponent constate, par la présente, que le document ci- joint comprend son offer à commandes. Nom et titre de la personne autorisée àsigner au nom du Proponent (Taper ou imprimer).
Signature : Date:

Comments - Commentaires

Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/ de l'entrepeneur

Perkins + Will Canada Inc. 485 Bank Street, Suite 204 Ottawa, ON K2P 1Z2 Jay.lim@perkinswill.com 832909055PG0002 (613) 564-1165

Standing Offer (SO) / Offre à Comma Contemporary Architecture – N in the Province of Ontario.	• •	and Historic Sites
Standing Offer No. – No de l'offre à comr 5P301-16-0003-001		ate 016-09-16
File No. – No de dossier 5P301-16-0003	Amendment No. –	No modification
Period of Standing Offer Start/début: 2016-09-16	End/fin: 2018-0	09-15
Individual Call-up Limitation – Limite des	commandes individ	duelles
Detailed herein.		
Financial Code(s) - Code(s) financier(s)		
As per details of the Call Up.		
If marked "X", please see box to left S'il y a un "X" ici, svp voir la boit à la gauche	Acknowledge Accusé de réc	ment copy required eption requis
Destination - of Goods, Services and Cons Destination - des biens, services et const		

Invoices – Original and two copies to be sent to: Facteurs – Envoyer l'original et deux copies à:

Parks Canada Agency As per details of the Call Up.

Allelelals

Parks Canada Agency As per details of the Call Up.

Address Enquiries to: - Adresser toutes questions à:

Sheldon Lalonde (sheldon.lalonde@pc.gc.ca)

Telephone No. – No de telephone (861) 938-5948

Total Estimated Cost—Côut total estimative \$8,000,000.00 (tax incl.)

For the Minister – Pour le Ministre



STANDING OFFER (SO)

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Standing Offer Particulars (SP)

Terms and Conditions
General Conditions (GC)
Supplementary Conditions (SC)
Terms of Payment (TP)
Consultant Services (CS)
Calculation of Fees (CF)

Standing Offer Brief - Required Services (RS)

Appendix A – Basis of Payment Appendix B - Doing Business

Appendix C- Compliance with Occupational Health and Safety

GENERAL INSTRUCTIONS TO PROPONENTS (GI)

INTRODUCTION

1. Purpose

This Standing Offer is for the provision of architecture services, Prime Consultant services with full engineering services. The selected consultants shall provide a full range of professional services in Design, Construction and Post Construction stages for projects in the province of Ontario.

Projects may include renovation, demolition, rehabilitation and/or new construction of the various types of architecture indicated in the Required Services (RS).

2. Standing Offer – Financial Limitation

The total cost to Canada resulting from call-ups against this Standing Offer is estimated at the sum of \$8,000,000.00 (GST/HST included).

3. All references to the Minister of Public Works and Government Services Canada (or Public Services and Procurement Canada) shall be deleted and replaced with the Minister of the Environment for the purposes of the Parks Canada Agency (PCA). All references to the Department of Public Works and Government Services Canada (or Public Services and Procurement Canada) shall be deleted and replaced with the Parks Canada Agency (PCA).

4. Contracting Authority

The Contracting Authority for this Standing Offer is:

Sheldon Lalonde

Contracting Officer, National Contracting Services
Chief Financial Officer Directorate
Parks Canada Agency
111 Water Street East
Cornwall, Ontario K6H 6S3
sheldon.lalonde@pc.gc.ca
Telephone 613-938-5948
Facsimile 1-866-246-6893

The Contracting Authority is responsible for the establishment of the Standing Offer, its administration, and any contractual issues relating to individual call-ups.

5. Authorized User

Parks Canada Agency

Departmental Representative

A Departmental Representative will be identified at time of each individual Call-Up. The Departmental Representative will be responsible for all matters concerning the technical content of the work under the Call-Up.

STANDING OFFER PARTICULARS (SP)

SP 1	General
SP 2	Withdrawal/Revision
SP 3	Period of the Standing Offer
SP 4	Call-Up Limitation
SP 5	Call-Up Procedure
SP 6	Invoicing

STANDING OFFER PARTICULARS

SP 1 GENERAL

- The Consultant acknowledges that a standing offer is not a contract and that the issuance of a Standing Offer and Call-up Authority does not oblige or commit Canada to procure or contract for any services listed in the Standing Offer.
- 2. The Consultant offers to provide and deliver to Canada the services described in the Standing Offer, in accordance with the pricing set out in the Standing Offer if, and when the Contracting Authority may request such services, in accordance with the conditions listed at subsection 3 below.
- 3. The Consultant understands and agrees that:
 - a) a call-up against the Standing Offer will form a contract only for those services which have been called-up, provided that such call-up is made in accordance with the provisions of the Standing Offer;
 - b) Canada's liability is limited to that which arises from call-ups against the Standing Offer made within the period specified in the Standing Offer;
 - c) Canada has the right to procure the services specified in the Standing Offer by means of any other contract, standing offer or contracting method;
 - d) the Standing Offer cannot be assigned or transferred in whole or in part;
 - e) the Standing Offer may be set aside by Canada at any time.

SP 2 WITHDRAWAL/REVISION

In the event that the Consultant wishes to withdraw the Standing Offer after authority to call-up against the Standing Offer has been given, the Consultant must provide no less than thirty (30) days' written notice to the Contracting Authority, unless specified otherwise in the Standing Offer. The thirty (30) days' period will start upon receipt of the notification by the Contracting Authority and the withdrawal will be effective at the expiry of that period. The Consultant must fulfill any and all call-ups which are made before the expiry of that period.

The period of the Standing Offer may only be extended, or its usage increased, by the Contracting Authority issuing a revision to the Standing Offer in writing.

SP 3 PERIOD OF THE STANDING OFFER

The period for placing call-ups against the Standing Offer shall be for two (2) years commencing from the start date identified on the Standing Offer.

If the Standing Offer is authorized for use beyond the initial period, the Consultant offers to extend its proposal for an additional three (3), one year periods under the same conditions and at the rates or prices specified in the Standing Offer.

The Consultant will be advised of the decision to authorize the use of the Standing Offer for an extended period by the Contracting Authority thirty (30) days before the expiry of the Standing Offer. A revision to the Standing Offer will be issued by the Contracting Authority.

SP 4 CALL-UP LIMITATION

Each call-up against the Standing Offer will have a maximum limitation of expenditure of \$400,000.00 (including all fees, taxes and amendments).

For all projects funded under the Federal Infrastructure Program of work the maximum call-up limitation will be in accordance with the Parks Canada approved special authorities, and will have a maximum call-up limitation of \$2,500,000.00 (including all applicable fees, taxes and amendments).

SP 5 CALL-UP PROCEDURE

- 1. Services will be called-up as follows:
 - a) The Departmental Representative will establish the scope of services to be performed. For each individual Call-Up, consultants will be considered using a computerized distribution system. This system will track all call-ups assigned to each consultant and will maintain a running total of the dollar value of business distributed. The system will contain for each consultant an ideal business distribution percentage which has been established as follows; [40] % of the business for the top ranked consultant, [25] % for the 2nd ranked consultant, [20] % for the 3rd ranked consultant, [10] % for the 4th ranked consultant and [5] % for the 5th ranked consultant. In the event fewer than five (5) consultants are successful, the undistributed % of business will be redistributed amongst the offerors being recommended using the following formula:

The Consultant who is furthest under their respective ideal business distribution percentage in relation to the other consultants will be selected for the next call-up.

- b) The Consultant will be provided the scope of services and will submit a proposal to the Departmental Representative in accordance with the fixed hourly rates established under the Standing Offer. The Consultant's proposal shall include the category of personnel, name of personnel and the number of hours estimated/required to perform the services, as well as an estimate of proposed disbursements, if applicable. If the Consultant is unable to provide the services of an individual named in its proposal (submitted in response to the Request for Standing Offer), the Consultant may propose a substitute with at least the same qualifications and experience in the estimation of Canada. The Consultant must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement for Canada's approval in its sole discretion. If the Consultant is unable to provide a substitute with similar qualifications and experience, Canada may set aside the standing offer.
- c) For services from a Specialist Consultant that is not named or for which discipline is not identified in the Standing Offer, the Consultant's proposal shall include the category and name of personnel as well as their hourly rate(s) with the number of hours estimated/required by the Specialist Consultant to perform these services. A fixed fee or, where it is not possible or appropriate to agree upon a fixed fee, a time based fee to an upset limit will be established.
- d) For the preparation of bilingual documents, the Consultant shall estimate the required number of hours and multiply by the hourly rates established in the Standing Offer. If the services of a translation firm are required to produce bilingual documents, these costs shall be treated as a disbursement.

- e) A fixed fee or, where it is not possible or appropriate to agree upon a fixed fee, a time based fee to an upset limit will be established in accordance with the hourly rate(s) established in the Standing Offer.
- f) Standing Offer holders not possessing the required security clearance at time of call up, will be bypassed and PCA will proceed to the next consultant who possesses the required security clearance and it is furthest away from the ideal business distribution.
- 2. The Consultant will be authorized in writing by the Contracting Authority to proceed with the services by issuance of a Call-up against the Standing Offer.
- Any proposed changes to the scope of work are to be discussed with the Departmental Representative but any resulting changes can only be authorized by an amendment issued by the Contracting Authority.

SP 6 INVOICING

- 1. For prompt processing of invoices, include the following information on each invoice for payment:
 - a) PCA project number;
 - b) Invoicing period with dates;
 - c) Work done to justify invoice (short narrative) for services provided
 - d) Summary of costs as follows:

```
Amount this invoice
                                                Fees + Applicable Taxes = Total
                                (1)
Total previous invoices
                                                Fees + Applicable Taxes = Total
                                (2)
Total invoiced to date
                                (1+2) = (3)
                                                Fees + Applicable Taxes = Total
                                                Fees + Applicable Taxes = Total
Agreed fees
                                (4)
Amount to complete
                                                Fees + Applicable Taxes = Total
                                (4-3) = (5)
% Services completed this stage (6)
```

- e) Authorized signatures of the consultant and the date.
- 2. Include with each invoice for authorized disbursements, receipt of original invoices (or legible copies if originals cannot be supplied) for all items claimed.

TERMS AND CONDITIONS

0220DA	General Conditions (GC)
0000DA	Supplementary Conditions (SC)
9998DA	Terms of Payment (TP)
9999DA	Consultant Services (CS)
2000DA	Calculation of Fees (CF)

0220DA GENERAL CONDITIONS

GC 1	Definitions
GC 2	Interpretations
GC 3	Not applicable
GC 4	Assignment
GC 5	Indemnification
GC 6	Notices
GC 7	Suspension
GC 8	Termination
GC 9	Taking the Services Out of the Consultant's Hands
GC 10	Time and Cost Records to be Kept by the Consultant
GC 11	National or Departmental Security
GC 12	Rights to Intellectual Property
GC 13	Conflict of Interest and Values and Ethics Codes for the Public Service
GC 14	Status of Consultant
GC 15	Declaration by Consultant
GC 16	Insurance Requirements
GC 17	Resolution of Disagreements
GC 18	Amendments
GC 19	Entire Agreement
GC 20	Contingency Fees
GC 21	Harassment in the Workplace
GC 22	Taxes
GC 23	Changes in the Consultant Team
GC 24	Joint and Several Liability
GC 25	Not Applicable
GC 26	International Sanctions
GC 27	Integrity Provisions - Standing Offer and Contract

GC 1 Definitions

Administrative Agreement

is a negotiated agreement with the Minister of PWGS as provided for in the *Ineligibility and Suspension Policy* (http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-fra.html).

Affiliate

is a person, including, but not limited to, organizations, bodies corporate, societies, companies, firms, partnerships, associations of persons, parent companies or subsidiaries, whether partly or wholly-owned, as well as individuals, directors, officers and key employees if:

- i. one controls or has the power to control the other, or
- ii. a third party has the power to control both.

Applicable Taxes means the Goods and Services Tax (GST), the Harmonized Sales Tax (HST), and any provincial tax, by law, payable by *Canada* such as, the Quebec Sales Tax (QST) as of April 1, 2013;

Average Bank Rate means the simple arithmetic mean of the *Bank Rate* in effect at 4:00 p.m. Eastern Time each day during the calendar month which immediately precedes the calendar month in which payment is made;

Bank Rate means the rate of interest established from time to time by the Bank of Canada as the minimum rate at which it makes short term advances to members of the Canadian Payments Association;

Canada, Crown, Her Majesty or the Government

means Her Majesty the Queen in right of Canada as represented by the Minister of Public Works and Government Services and any other person duly authorized to act on behalf of that minister or, if applicable, an appropriate minister to whom the Minister of Public Works and Government Services has delegated his or her powers, duties or functions and any other person duly authorized to act on behalf of that minister;

Construction Contract means a contract entered into between *Canada* and a *Contractor* for the construction of the Project;

Construction Contract Award Price means the price at which a Construction Contract is awarded to a Contractor.

Construction Cost Estimate means an anticipated amount for which a *Contractor* will execute the construction of the Project;

Construction Cost Limit means that portion of the total amount of Project funds which shall not be exceeded on construction of the Project;

Consultant means the party identified in the Standing Offer to perform the *Consultant Services* under the Standing Offer and any subsequent Call-up, and includes the officer or employee of the *Consultant* identified in writing by the *Consultant*;

Contracting Authority means the party identified on the front cover page, responsible for the establishment of the Standing Offer, its amendments, administration, and any contractual issues relating to individual call-ups;

Contractor means a person, firm or corporation with whom *Canada* enters, or intends to enter, into a *Construction Contract*;

Contract Price means the amount stated in the Call-Up to be payable to the *Consultant* for the *Services*, exclusive of *Applicable Taxes*;

Control

means:

- a. direct control, such as where:
 - a person controls a body corporate if securities of the body corporate to which are attached more than 50 percent of the votes that may be cast to elect directors of the body corporate are beneficially owned by the person and the votes attached to those securities are sufficient, if exercised, to elect a majority of the directors of the body corporate;
 - ii. a person controls a corporation that is organized on a cooperative basis if the person and all of the entities controlled by the person have the right to exercise more than 50 percent of the votes that may be cast at an annual meeting or to elect the majority of the directors of the corporation;
 - iii. a person controls an unincorporated entity, other than a limited partnership, if more than 50 percent of the ownership interests, however designated, into which the entity is divided are beneficially owned by that person and the person is able to direct the business and affairs of the entity:
 - iv. the general partner of a limited partnership controls the limited partnership; and
 - v. a person controls an entity if the person has any direct or indirect influence that, if exercised, would result in control in fact of the entity.
- deemed control, such as where:
 a person who controls an entity is deemed to control any entity that is controlled, or deemed to be controlled, by the entity
- indirect control, such as where:
 a person is deemed to control, within the meaning of paragraph (a) or (b), an entity where the aggregate of:
 - i. any securities of the entity that are beneficially owned by that person, and
 - ii. any securities of the entity that are beneficially owned by any entity controlled by that person

is such that, if that person and all of the entities referred to in paragraph (c)(ii) that beneficially own securities of the entity were one person, that person would control the entity.

Cost Plan means the allocation of proposed costs among the various elements of the Project, as described in the *Project Brief or Terms of Reference*;

Days means continuous calendar days, including weekends and statutory public holidays;

"Departmental Representative"

means the officer or employee of Canada identified to the consultant in writing by a duly authorized departmental officer to perform the Departmental Representative's duties under the Agreement;

Ineligibility

means a person not eligible to contract with Canada;

Mediation is a process of dispute resolution in which a neutral third party assists the parties involved in a dispute to negotiate their own settlement;

Project Brief or Terms of Reference means a document describing in sufficient detail the *Services* to be provided by the *Consultant* to permit the *Consultant* to proceed with the *Services* and may include general project information, scope of the work, site and design data, and time plan, specifically related to the Project;

Project Schedule means a time plan, including the sequence of tasks, milestone dates and critical dates which must be met for the implementation of the planning, design and construction phases of the Project;

Services means the Services provided by the *Consultant* and the Services required for the project as set forth in the Standing Offer and subsequent Call-up documents;

Specialist Consultant means any Architect, Professional Engineer, or other specialist, other than the *Consultant*, engaged by *Canada* directly or, at the specific request of *Canada*, engaged by the *Consultant*;

Sub-Consultant means any Architect, Professional Engineer, or other specialist engaged by the Consultant for the Services included in the Standing Offer or any subsequent Call-up;

Suspension

means a determination of temporary ineligibility by the Minister of PWGS;

Technical Documentation includes designs, reports, photographs, physical models, surveys, drawings, specifications, computer software developed for the purpose of the Project, computer printouts, design notes, calculations, CADD (Computer-aided Design and Drafting) files, and other data, information and material, prepared, computed, drawn, or produced and operating and maintenance manuals either prepared or collected for the Project.

Total Estimated Cost, **Revised Estimated Cost**, **Increase (Decrease)** on Page 1 of the Contract or Contract Amendment means an amount used for internal administrative purposes only that comprises the *Contract Price*, or the revised *Contract Price*, or the amount that would increase or decrease the *Contract Price* and the *Applicable Taxes* as evaluated by the *Contracting Authority*, and does not constitute tax advice on the part of *Canada*.

GC 2 Interpretations

- 1. Words importing the singular only also include the plural, and vice versa, where the context requires;
- 2. Headings or notes in the Standing Offer shall not be deemed to be part thereof, or be taken into consideration in its interpretation;
- 3. "Herein", "hereby", "hereof", "hereunder" and similar expressions refer to the Standing Offer as a whole and not to any particular subdivision or part thereof.

GC 3 Not Applicable

GC 4 Assignment

- 1. The Call-Up shall not be assigned, in whole or in part, by the *Consultant* without the prior consent of Canada.
- 2. An assignment of the Call-Up without such consent shall not relieve the *Consultant* or the assignee from any obligation under the Call-up, or impose any liability upon *Canada*.

GC 5 Indemnification

- 1. The *Consultant* shall indemnify and save harmless *Canada*, its employees and agents, from losses arising out of the errors, omissions or negligent acts of the *Consultant*, its employees and agents, in the performance of the *Services* under the Call-up that may result from the Standing Offer.
- 2. The Consultant's liability to indemnify or reimburse Canada under the Standing Offer shall not affect or prejudice Canada from exercising any other rights under law.

GC 6 Notices

- 1. Any notice, request, direction, consent, decision, or other communication that is required to be given or made by either party pursuant to the Standing Offer, shall be in writing, and shall be deemed to have been effectively given when:
 - (a) served personally, on the day it is delivered;
 - (b) forwarded by registered mail, on the day the postal receipt is acknowledged by the other party; or
 - (c) forwarded by facsimile or other electronic means of transmission, one working day after it was transmitted.
- 2. The address of either party, or the person authorized to receive notices, may be changed by notice in the manner set out in this provision.

GC 7 Suspension

- 1. The *Departmental Representative* may require the *Consultant* to suspend the *Services* being provided, or any part thereof, for a specified or unspecified period.
- 2. If a period of suspension does not exceed sixty (60) days and when taken together with other periods of suspension does not exceed ninety (90) days, the Consultant will, upon the expiration of that period, resume the performance of the Services in accordance with the terms of the Standing Offer and the relevant Call-up, subject to any agreed adjustment of the time schedule as referred to in CS 3 of clause 9999DA. Consultant Services.
- 3. If a period of suspension exceeds sixty (60) *days* or when taken together with other periods of suspension, the total exceeds ninety (90) *days*, and:
 - (a) the *Departmental Representative* and the *Consultant* agree that the performance of the *Services* shall be continued, then the *Consultant* shall resume performance of the *Services*, subject to any terms and conditions agreed upon by the *Departmental Representative* and the *Consultant*, or
 - (b) the *Departmental Representative* and the *Consultant* do not agree that the performance of the *Services* shall be continued, then the Call-Up shall be terminated by notice given by Canada to the *Consultant*, in accordance with the terms of GC 8.
- 4. Suspension costs related to this clause are as outlined in TP 8 of clause 9998DA, Terms of Payment.

GC 8 Termination

Canada may terminate any Call-up at any time in its sole discretion, and the fees paid to the *Consultant* will be in accordance with the relevant provisions in TP 9 of clause 9998DA, Terms of Payment.

GC 9 Taking the Services Out of the Consultant's Hands

- 1. Canada may take all or any part of the *Services* out of the *Consultant's* hands and may employ reasonable means necessary to complete such *Services* in the event that:
 - (a) The *Consultant* has become insolvent or has committed an act of bankruptcy, and has neither made a proposal to the *Consultant's* creditors nor filed a notice of intention to make such a proposal, pursuant to the *Bankruptcy and Insolvency Act*, or
 - (b) the *Consultant* fails to perform any of the *Consultant*'s obligations under the Standing Offer or any of the Call-ups or, in Canada's opinion, so fails to make progress as to endanger performance of the Standing Offer or any of its call-ups, in accordance with its terms.
- 2. If the *Consultant* has become insolvent or has committed an act of bankruptcy, and has either made a proposal to the *Consultant*'s creditors or filed a notice of intention to make such a proposal, pursuant to the *Bankruptcy and Insolvency Act*, the *Consultant* shall immediately forward a copy of the proposal or the notice of intention to the *Contracting Authority*.
- 3. Before the Services or any part thereof are taken out of the Consultant's hands under GC 9.1(b), the Departmental Representative will provide notice to the Consultant, and may require such failure of performance or progress to be corrected. If within fourteen (14) days after receipt of notice the default is not corrected or corrective action is not initiated to correct such fault, Canada may, by notice, without limiting any other right or remedy, take all or any part of the Services out of the Consultant's hands.
- 4. If the Services or any part thereof have been taken out of the Consultant's hands, the Consultant will be liable for, and upon demand pay to Canada, an amount equal to all loss and damage suffered by Canada by reason of the non-completion of the Services by the Consultant.
- 5. If the *Consultant* fails to pay on demand for the loss or damage as a result of GC 9.4, *Canada* will be entitled to deduct and withhold the same from any payments due and payable to the *Consultant*.
- 6. If the Services or any part thereof are taken out of the Consultant's hands as a result of GC 9.1(b) and GC 9.3, the amount referred to in GC 9.5 shall remain in the Consolidated Revenue Fund until an agreement is reached or a decision of a court or tribunal is rendered. At that time the amount, or any part of it, which may become payable to the Consultant shall be paid together with interest from the due date referred to in TP 2 of clause 9998DA, Terms of Payment, and in accordance with the terms of the Standing Offer.
- 7. The taking of the *Services*, or any part thereof, out of the *Consultant's* hands does not relieve or discharge the *Consultant* from any obligation under the Standing Offer, the Call-up, or imposed upon the *Consultant* by law, in respect to the *Services* or any part thereof that the *Consultant* has performed.

GC 10 Time and Cost Records to be Kept by the Consultant

1. Time charged and the accuracy of the *Consultant*'s time recording system may be verified by the *Departmental Representative* before or after payment is made to the *Consultant* under the terms and conditions of the Call up.

- 2. The *Consultant* shall keep accurate time and cost records and, if required for the purposes of the Standing Offer, shall make these documents available to the *Departmental Representative* who may make copies and take extracts therefrom.
- 3. The *Consultant* shall afford facilities for audit and inspection upon request and shall provide the *Departmental Representative* with such information as may be required from time to time with reference to the documents referred to in GC 10.2.
- 4. The *Consultant* shall, unless otherwise specified, keep the time sheets and cost records available for audit and inspection for a period of at least six (6) years following completion of the *Services*.
- 5. If the verification is done after payment by Canada, the *Consultant* agrees to repay any overpayment immediately upon demand.

GC 11 National or Departmental Security

- 1. If the *Departmental Representative* is of the opinion that the Project is of a class or kind that involves national or departmental security, the *Consultant* may be required:
 - (a) to provide any information concerning persons employed for purposes of the Standing Offer unless prohibited by law;
 - (b) to remove any person from the Project and its site if that person cannot meet the prescribed security requirements; and
 - (c) to retain the Project *Technical Documentation* while in the *Consultant's* possession in a manner specified by the *Departmental Representative*.
- 2. Notwithstanding the provisions of GC 12, if the Project is of a class or kind that involves national or departmental security, the *Consultant* shall not issue, disclose, discard or use the Project *Technical Documentation* on another project without the written consent of the *Departmental Representative*.

GC 12 Rights to Intellectual Property

Definitions

"Background" means all Technical Output that is not Foreground and that is proprietary to or the confidential information of the *Consultant*, the *Consultant's Sub-Consultants*, or any other entity engaged by the *Consultant* in the performance of the *Services*;

"Foreground" means any Invention first conceived, developed or reduced to practice as part of the *Services* and all other Technical Output conceived, developed, produced or implemented as part of the *Services*;

"IP Rights" means any intellectual property rights recognized by law, including any intellectual property right protected through legislation (such as that governing copyright, patents, industrial design, or integrated circuit topography) or arising from protection of information as a trade secret or as confidential information:

"Invention" means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter, whether or not patentable and without limiting the foregoing the term includes any unique design and construction system;

"Technical Output" means: (i) all information of a scientific, technical, or artistic nature relating to the *Services*, whether oral or recorded in any form or medium and whether or not subject to

copyright, including but not limited to any Inventions, designs, methods, reports, photographs, physical models, surveys, drawings, specifications developed for the purpose of the Project; as

copyright, including but not limited to any Inventions, designs, methods, reports, photographs, physical models, surveys, drawings, specifications developed for the purpose of the Project; as well as (ii) computer printouts, design notes, calculations, CADD (Computer-aided Design and Drafting) files, and other data, information and material, prepared, computed, drawn, or produced for the purpose of the Project; and (iii) operating and maintenance manuals prepared or collected for the Project; and (iv) any buildings, built works, structures and facilities constructed as, or as part of, the Project. Technical Output does not include data concerned with the administration of the Standing Offer and/or Call-Up by Canada or the Consultant, such as internal financial or management information, unless it is a deliverable under the terms of the Standing Offer and/or Call-Up.

2. Identification and Disclosure of Foreground

The Consultant shall:

- (a) promptly report and fully disclose to Canada all Foreground that could be Inventions, and shall report and fully disclose to Canada all other Foreground not later than the time of completion of the Services or such earlier time as Canada or the Standing Offer and/or Call-Up may require, and
- (b) for each disclosure referred to in (a), indicate the names of all *Sub-Consultants* at any tier, if any, in which IP Rights to any Foreground have vested or will vest.

Before and after final payment to the *Consultant*, Canada shall have the right to examine all records and supporting data of the *Consultant* which Canada reasonably decides is pertinent to the identification of the Foreground.

3. IP Rights Vest with Consultant

Subject to articles GC 12.10 and GC 12.11 and the provisions of GC 11 National or Departmental Security, and without affecting any IP Rights or interests therein that have come into being prior to the Standing Offer and/or Call-Up or that relate to information or data supplied by *Canada* for the purposes of the Standing Offer and/or Call-Up, all IP Rights in the Foreground shall immediately, as soon as they come into existence, vest in and remain the property of the *Consultant*.

4. Ownership Rights in Deliverables

Notwithstanding the *Consultant's* ownership of the IP Rights in the Foreground that is a prototype, built work, building, structure, facility, model or custom or customized system or equipment together with associated manuals and other operating and maintenance documents and tools, *Canada* shall have unrestricted ownership rights in those deliverables, including the right to make them available for public use, whether for a fee or otherwise, and the right to sell them.

5. Licence to Foreground

Without limiting any implied licences that may otherwise vest in *Canada*, and in consideration of *Canada*'s contribution to the cost of development of the Foreground, the *Consultant* hereby grants to *Canada* a non-exclusive, perpetual, irrevocable, worldwide, fully-paid and royalty-free licence to exercise all IP Rights in the Foreground that vest in the *Consultant* pursuant to article GC 12.3, for the purpose of:

(a) the construction or implementation of any building, built works, structures and facilities, contemplated by the Project;

- (b) the further development or alteration or evolution of any part of the constructed or implemented Project, including procurement of materials and components for this purpose;
- (c) the further development, modification (including additions or deletions), completion, translation, or implementation of the Foreground and any addition to it as *Canada* may require for the purposes of the completion, utilization and subsequent evolution of the Project;
- (d) the use, occupancy, operation, exploitation, maintenance, repair or restoration of the constructed or implemented or subsequently modified Project, including the procurement of replacement materials and components required for any such purpose; and
- (e) the publishing and transmission of reproductions of the Project or any part thereof in the form of paintings, drawings, engravings, photographs or cinematographic works, to the public, in hard copy or by any electronic or other means, except for copies in the nature of architectural drawings or plans.

6. Licence to Foreground for Other Projects

The *Consultant* hereby grants to *Canada* a non-exclusive, perpetual, world-wide, irrevocable licence to exercise all IP Rights that vest in the *Consultant* pursuant to paragraph GC 12.3 for the purpose of planning, designing and constructing or otherwise implementing any project other than the Project, and for any purpose set out in paragraph GC 12.5 as it relates to such other project. In the event that *Canada* exercises such IP Rights in another project, and provided that *Canada* does not already have equivalent rights under a previous contract or otherwise, *Canada* agrees to pay to the *Consultant* reasonable compensation determined in accordance with current industry practice and having regard to *Canada's* contribution to the cost of development of the Foreground. The *Consultant* shall ensure that in any sale, assignment, transfer or licence of any of the IP Rights that vest in the *Consultant* under the Standing Offer and/or Call-Up, the purchaser, assignee, transferee or licensee agrees to be bound by the terms of this provision and to accept reasonable compensation as is contemplated herein. The *Consultant* shall also ensure that any such purchaser, assignee, transferee or licensee of the IP Rights is required to impose the same obligations on any subsequent purchaser, transferee, assignee or licensee.

7. Licence to Background

Without limiting any implied licences that may otherwise vest in *Canada*, the *Consultant* hereby grants to *Canada* a non-exclusive, perpetual, irrevocable, worldwide, fully-paid and royalty-free licence to exercise such of the IP Rights in any Background incorporated into the *Services* or necessary for the performance of the *Services* as may be required

- (a) for the purposes contemplated in article GC 12.5 and GC 12.6;
- (b) for disclosure to any contractor engaged by *Canada*, or bidder for such a contract, to be used solely for a purpose set out in article GC 12.5 and GC 12.6;

and the Consultant agrees to make any such Background available to Canada upon request.

8. Canada's Right to Disclose and Sub-license

The *Consultant* acknowledges that *Canada* may wish to award contracts, which may include a competitive process, for any of the purposes contemplated in article GC 12.5, GC 12.6 and GC 12.7. The *Consultant* agrees that *Canada's* licence in relation to the IP Rights in the Foreground and in the Background, includes the right to disclose that Foreground and Background to bidders for such contracts, and to sub-license or otherwise authorize the use of that Foreground and

Background by any contractor or consultant engaged by *Canada* for the purpose of carrying out such a contract.

9. Consultant's Right to Grant Licence

- (a) The Consultant represents and warrants that the Consultant has, or the Consultant shall obtain without delay, the right to grant to Canada the licence to exercise the IP Rights in the Foreground and the Background as required by the Standing Offer and/or Call-Up.
- (b) Where the IP Rights in any Background or Foreground are or will be owned by a Sub-Consultant, the Consultant shall either obtain a licence from that Sub-Consultant that permits compliance with articles GC 12.5, GC 12.6 and GC 12.7 or shall arrange for the Sub-Consultant to convey directly to Canada the same rights by execution of the form provided for that purpose by Canada no later than the time of disclosure to Canada of that Background and Foreground.

10. Trade Secrets and Confidential Information

The *Consultant* shall not use or incorporate any trade secrets or confidential information in any Foreground or Background used or created in performance of the Standing Offer and/or Call-Up.

11. Canada Supplied Information

- (a) Where performance of the *Services* involves the preparation of a compilation using information supplied by *Canada*, then the IP Rights that shall vest under paragraph GC 12.3 shall be restricted to the IP Rights in Foreground that are capable of being exploited without the use of the information supplied by *Canada*. All IP Rights in any compilation, the Foreground in which cannot be exploited without the use of such *Canada* supplied information shall vest in *Canada*. The *Consultant* agrees that the *Consultant* shall not use or disclose any *Canada* supplied information for any purpose other than completing the performance of the *Services*. The *Consultant* shall maintain the confidentiality of such information. Unless the Standing Offer and/or Call-Up otherwise expressly provides, the *Consultant* shall deliver to *Canada* all such information together with every copy, draft, working paper and note thereof that contains such information upon the completion or termination of the Standing Offer and/or Call-Up, or at such earlier time as Canada may require.
- (b) If the Consultant wishes to make use of any Canada supplied information that was supplied for purposes of the Standing Offer and/or Call-Up, for the commercial exploitation or further development of any of the Foreground, then the Consultant may make a written request for a licence to exercise the required IP Rights in that Canada supplied information, to Canada. The Consultant shall give Canada an explanation as to why such a licence is required. Should Canada agree to grant such a licence, it shall be on terms and conditions to be negotiated between the parties including payment of compensation to Canada.

12. Transfer of IP Rights

(a) If Canada takes the Services out of the Consultant's hands in accordance with GC 9 of the General Conditions, in whole or in part, or if the Consultant fails to disclose any Foreground in accordance with article GC 12.2, Canada may upon reasonable notice, require the Consultant to convey to Canada all of the IP Rights in the Foreground or in the case of a failure to disclose, all the IP Rights in the Foreground not provided. The IP Rights to be conveyed shall include the IP Rights in any Foreground that have vested or are to vest in a Sub-Consultant. In the case of IP Rights in Foreground which have been sold or assigned to a party other than a Sub-Consultant, the Consultant shall not be obligated to convey those IP Rights to Canada, but shall pay to Canada on demand an

amount equal to the consideration which the *Consultant* received from the sale or assignment of the IP Rights in that Foreground or, in the case of a sale or assignment was not at arm's length, the fair market value of the IP Rights in that Foreground, in each case including the value of future royalties or licence fees.

- (b) In the event of the issuance by Canada of a notice referred to in (a), the Consultant shall, at the Consultant's own expense and without delay, execute such conveyances or other documents relating to title to the IP Rights as Canada may require, and the Consultant shall, at Canada's expense, afford Canada all reasonable assistance in the preparation of applications and in the prosecution of any applications for, or any registration of, any IP Right in any jurisdiction, including without limitation the assistance of the inventor in the case of Inventions.
- (c) Until the Consultant completes the performance of the Services and discloses all of the Foreground in accordance with article GC 12.2, and subject to the provisions of GC 11 National or Departmental Security, the Consultant shall not, without the prior written permission of Canada, sell, assign or otherwise transfer title to the IP Rights in any of the Foreground, or license or otherwise authorize the use of the IP Rights in any of the Foreground by any person.
- (d) In any sale, assignment, transfer or licence of IP Rights in Foreground by the Consultant except a sale or licence for end use of a product based on Foreground, the Consultant shall impose on the other party all of its obligations to Canada in relation to the IP Rights in the Foreground and any restrictions set out in the Standing Offer and/or Call-Up on the use or disposition of the IP Rights in the Foreground (and, if applicable, the Foreground itself), including the obligation to impose the same obligations and restrictions on any subsequent transferee, assignee or licensee. The Consultant shall promptly notify Canada of the name, address and other pertinent information in regard to any transferee, assignee or licensee.

GC 13 Conflict of Interest and Values and Ethics Codes for the Public Service

- 1. The *Consultant* declares that the *Consultant* has no pecuniary interest in the business of any third party that would cause, or seem to cause, a conflict of interest in carrying out the *Services*, and should such an interest be acquired during the life of the Standing Offer, the *Consultant* shall declare it immediately to the *Departmental Representative*.
- 2. The *Consultant* shall not have any tests or investigations carried out by any persons, firms, or corporations, that may have a direct or indirect financial interest in the results of those tests or investigations.
- 3. The *Consultant* shall not submit, either directly or indirectly, a bid for any Construction Contract related to the Project.
- 4. The Consultant acknowledges that no individuals who are subject to the provisions of the Conflict of Interest Act, 2006, c. 9, s.2, the Conflict of Interest Code for Members of the House of Commons, the Values and Ethics Code for the Public Services, or all other codes of values and ethics applicable within specific organizations cannot derive any direct benefit resulting from the Standing Offer or subsequent Call-ups.
- 5. (a) The Consultant shall not be eligible to compete as a consultant or sub-consultant for a project which may result from the provision of the Services if the Consultant is involved in the development of a Project Brief or Terms of Reference, a Request for Proposal or similar documents for such project.
 - (b) The Consultant providing certain pre-design services (e.g. studies, analysis, schematic design) that do not involve the development of a Project Brief or Terms of Reference, a

Request for Proposal or similar documents for such project may be eligible to compete as a consultant or sub-consultant for a project which may result from the provision of these services. The experience acquired by a Consultant who has only provided pre-design services, where the information / documentation resulting from these services is made available to other proponents, will not be considered by Canada as conferring an unfair advantage or creating a conflict of interest.

GC 14 Status of Consultant

The Consultant is an independent contractor engaged by Canada to perform the Services. Nothing in the Standing Offer through a Call-up is intended to create a partnership, a joint venture or an agency between Canada and the other party or parties. The Consultant must not represent itself as an agent or representative of Canada to anyone. Neither the Consultant nor any of its personnel is engaged as an employee or agent of Canada. The Consultant is responsible for all deductions and remittances required by law in relation to its employees.

GC 15 Declaration by Consultant

The Consultant declares that:

- (a) based on the information provided pertaining to the *Services* required under the Standing Offer, the *Consultant* has been provided sufficient information by the *Departmental Representative* to enable the *Services* required under the Standing Offer to proceed and is competent to perform the *Services* and has the necessary licences and qualifications including the knowledge, skill and ability to perform the *Services*; and
- (b) the quality of *Services* to be provided by the *Consultant* shall be consistent with generally accepted professional standards and principles.

GC 16 Insurance Requirements

1. General

- a) The Consultant shall ensure that appropriate liability insurance coverage is in place to cover the consultant and the members of the consultant team and shall maintain all required insurance policies as specified herein.
- b) The Consultant shall, if requested by the Contracting Officer at any time, provide to the Contracting Officer an Insurer's Certificate of Insurance and/or the originals or certified true copies of all contracts of insurance maintained by the Consultant pursuant to the provisions contained herein.
- c) The payment of monies up to the deductible amount made in satisfaction of a claim shall be borne by the Consultant.
- d) Any insurance coverages additional to those required herein that the Consultant and the other members of the consultant team may deem necessary for their own protection or to fulfill their obligations shall be at their own discretion and expense.

2. Commercial General Liability

a) The insurance coverage provided shall not be less than that provided by IBC Form 2100, as amended from time to time, and shall have: a limit of liability of not less than \$5,000,000.00 per occurrence; an aggregate limit of not less than \$5,000,000.00 within any policy year.

b) The policy shall insure the Consultant and shall include Her Majesty the Queen in right of Canada, represented by the Minister of Public Works and Government Services as an Additional Insured, with respect to liability arising out of the performance of the Services.

3. Professional Liability

- a) The Professional Liability insurance coverage shall be in an amount usual for the nature and scope of the Services but, shall have a limit of liability of not less than \$1,000,000 per claim, and be continually maintained from the commencement of performance of the Services until five (5) years after their completion.
- b) The following provision must be incorporated into the conditions of the Consultant's Professional Liability insurance coverage: "Notice of Cancellation of Insurance Coverage: The Insurer agrees to give the Contracting Authority at least thirty (30) days' prior written notice of any policy cancellation and before making any reduction in coverage."

GC 17 Resolution of Disagreements

- 1. In the event of a disagreement regarding any aspect of the *Services* or any instructions given under the Standing Offer and subsequent Call-ups:
 - (a) The Consultant may give a notice of disagreement to the Departmental Representative. Such notice shall be promptly given and contain the particulars of the disagreement, any changes in time or amounts claimed, and reference to the relevant clauses of the Standing Offer and Call-up;
 - (b) The Consultant shall continue to perform the Services in accordance with the instructions of the Departmental Representative; and
 - (c) The Consultant and the Departmental Representative shall attempt to resolve the disagreement by negotiations conducted in good faith. The negotiations shall be conducted, first, at the level of the Consultant's project representative and the Departmental Representative and, secondly and if necessary, at the level of a principal of the Consultant firm and a senior departmental manager.
- 2. The Consultant's continued performance of the Services in accordance with the instructions of the Departmental Representative shall not jeopardize the legal position of the Consultant in any disagreement.
- 3. If it was subsequently agreed or determined that the instructions given were in error or contrary to the Standing Offer or Call-up, *Canada* shall pay the *Consultant* those fees the *Consultant* shall have earned as a result of the change(s) in the *Services* provided, together with those reasonable disbursements arising from the change(s) and which have been authorized by the *Departmental Representative*.
- 4. The fees mentioned in GC 17.3 shall be calculated in accordance with the Terms of Payment set out in the Standing Offer and the relevant Call-up.
- 5. If the disagreement is not settled, the *Consultant* may make a request to the *Departmental Representative* for a written departmental decision and the *Departmental Representative* shall give notice of the departmental decision within fourteen (14) *days* of receiving the request, setting out the particulars of the response and any relevant clauses of the Standing Offer or Call-up.
- 6. Within fourteen (14) days of receipt of the written departmental decision, the *Consultant* shall notify the *Departmental Representative* if the *Consultant* accepts or rejects the decision.

- 7. If the *Consultant* rejects the departmental decision, the *Consultant*, by notice may refer the disagreement to *Mediation*.
- 8. If the disagreement is referred to *Mediation*, the *Mediation* shall be conducted with the assistance of a skilled and experienced mediator chosen by the *Consultant* from a list of mediators proposed by Canada, and departmental *Mediation* procedures shall be used unless the parties agree otherwise.
- 9. Negotiations conducted under the Standing Offer and any resulting Call-up, including those conducted during *Mediation*, shall be without prejudice.

GC 18 Amendments

The Standing Offer or any resulting Call-up may not be amended, or modified, nor shall any of its terms and conditions be waived, except by agreement in writing executed by the Consultant and the Contracting Authority.

GC 19 Entire Agreement

The Standing Offer and Call-up constitutes the entire and only agreement between the parties and supersedes all previous negotiations, communications and other agreements, whether written or oral, unless they are incorporated by reference in the Standing Offer and/or Call-up. There are no terms, covenants, representations, statements or conditions binding on the parties other than those contained in the Standing Offer and Call-up.

GC 20 Contingency Fees

The Consultant certifies that it has not, directly or indirectly, paid or agreed to pay and agrees that it will not, directly or indirectly, pay a contingency fee for the solicitation, negotiation or obtaining of the Standing Offer to any person, other than an employee of the Consultant acting in the normal course of the employee's duties. In this section, "contingency fee" means any payment or other compensation that depends or is calculated based on a degree of success in soliciting, negotiating or obtaining the Standing Offer and "person" includes any individual who is required to file a return with the registrar pursuant to section 5 of the Lobbying Act, 1985, c. 44 (4th Supplement).

GC 21 Harassment in the Workplace

- 1. The Consultant acknowledges the responsibility of Canada to ensure, for its employees, a healthy work environment, free of harassment. A copy of the Treasury Board policy, the Policy on the Prevention and Resolution of Harassment in the Workplace, which is also applicable to the Consultant, is available on the Treasury Board Web site.
- 2. The Consultant must not, either as an individual, or as a corporate or unincorporated entity, through its employees or subconsultants, harass, abuse, threaten, discriminate against or intimidate any employee, consultant or other individual employed by, or under contract with Canada. The Consultant will be advised in writing of any complaint and will have the right to respond in writing. Upon receipt of the Consultant's response, the Contracting Authority will, at its entire discretion, determine if the complaint is founded and decide on any action to be taken.

GC 22 Taxes

- 1. Federal government departments and agencies are required to pay *Applicable Taxes*.
- 2. Applicable Taxes will be paid by Canada as provided in the invoice submission. Applicable Taxes must be specified on all invoices as a separate item along with corresponding registration numbers from the tax authorities. All items that are zero-rated, exempt or to which these Applicable Taxes do not apply must be identified as such on all invoices. It is the sole

responsibility of the Consultant to charge *Applicable Taxes* at the correct rate in accordance with applicable legislation. The Consultant agrees to remit to appropriate tax authorities any amounts of *Applicable Taxes* paid or due.

- 3. The Consultant is not entitled to use Canada's exemptions from any tax, such as provincial sales taxes, unless otherwise specified by law. The Consultant must pay applicable provincial sales tax, ancillary taxes, and any commodity tax, on taxable goods or services used or consumed in the performance of the contract (in accordance with applicable legislation), including for material incorporated into real property.
- 4. In those cases where Applicable Taxes, customs duties, and excise taxes are included in the Contract Price, the Contract Price will be adjusted to reflect any increase, or decrease, of Applicable Taxes, customs duties, and excise taxes that will have occurred between bid submission and contract award. However, there will be no adjustment for any change to increase the Contract Price if public notice of the change was given before bid submission date in sufficient detail to have permitted the Consultant to calculate the effect of the change.
- 5. Tax Withholding of 15 Percent Canada Revenue Agency

Pursuant to the Income Tax Act, 1985, c. 1 (5th Supp.) and the Income Tax Regulations, Canada must withhold 15 percent of the amount to be paid to the Consultant in respect of services provided in Canada if the Consultant is not a resident of Canada, unless the Consultant obtains a valid waiver from the Canada Revenue Agency. The amount withheld will be held on account for the Consultant in respect to any tax liability which may be owed to Canada.

GC 23 Changes in the Consultant team

- 1. Should an entity or person named in the Consultant's proposal as an entity or person who is to perform the Services or part of the Services be unable to perform or complete the Services, the Consultant shall obtain the concurrence of the Departmental Representative prior to performing or completing the Services, or entering into an agreement with another equally qualified entity or person to perform or complete the Services, such concurrence not to be unreasonably withheld.
- 2. In seeking to obtain the concurrence of the *Departmental Representative* referred to in paragraph 1, the *Consultant* shall provide notice in writing to the *Departmental Representative* containing:
 - (a) the reason for the inability of the entity or person to perform the Services;
 - (b) the name, qualifications and experience of the proposed replacement entity or person, and
 - (c) if applicable, proof that the entity or person has the required security clearance granted by *Canada*.
- 3. The *Consultant* shall not, in any event, allow performance of any part of the *Services* by unauthorized replacement entities or persons, and acceptance of a replacement entity or person by the *Departmental Representative* shall not relieve the *Consultant* from responsibility to perform the *Services*.
- 4. The *Departmental Representative*, with the authority of Canada, may order the removal from the *Consultant* team of any unauthorized replacement entity or person and the *Consultant* shall immediately remove the entity or person from the performance of the *Services* and shall, in accordance with paragraphs 1. and 2., secure a further replacement.
- 5. The fact that the *Departmental Representative* does not order the removal of a replacement entity or person from the performance of the *Services* shall not relieve the *Consultant* from the

Consultant's responsibility to meet all the Consultant's obligations in the performance of the *Services*.

GC 24 Joint and Several Liability

If at any time there is more than one legal entity constituting the *Consultant*, their covenants under the Standing Offer and/or Call-Up shall be considered to be joint and several and apply to each and every entity. If the *Consultant* is or becomes a partnership or joint venture, each legal entity who is a member or becomes a member of the partnership or joint venture or its successors is and continues to be jointly and severally liable for the performance of the work and all the covenants of the *Consultant* pursuant to the Standing Offer and/or Call-Up, whether or not that entity ceases to be a member of the partnership, joint venture or its successor.

GC 25 Not Applicable

GC 26 International Sanctions

- Persons in Canada, and Canadians outside of Canada, are bound by economic sanctions imposed by Canada. As a result, the Government of Canada cannot accept delivery of goods or services that originate, either directly or indirectly, from the countries or persons subject to <u>economic</u> <u>sanctions</u> (http://www.international.gc.ca/sanctions/index.aspx?lang=eng).
- 2. The Consultant must not supply to the Government of Canada any goods or services which are subject to economic sanctions.
- 3. The Consultant must comply with changes to the regulations imposed during the period of the Call-Up. The Consultant must immediately advise Canada if it is unable to perform the Services as a result of the imposition of economic sanctions against a country or person or the addition of a good or service to the list of sanctioned goods or services. If the parties cannot agree on a work around plan, the Call-Up will be terminated for the convenience of Canada in accordance with terms and conditions of the Standing Offer and/or Call-Up.

GC 27 Integrity Provisions - Standing Offer and Contract

1. Statement

- a. The Consultant must comply with the *Code of Conduct for Procurement* (http://www.tpsgc-pwgsc.gc.ca/app-acq/cndt-cndct/contexte-context-eng.html) and must comply with the terms set out in these Integrity Provisions.
- b. The Consultant confirms that it understands that convictions of certain offences, a false declaration in its bid, a false declaration under the Contract or failing to maintain up-to-date information requested may lead to the setting aside of the Standing Offer and a termination for default of any resulting contracts. If the Consultant or any of its Affiliates fail to remain free and clear of any convictions and any conditional or absolute discharges specified in these Integrity Provisions during the period of the Standing Offer and the period of any resulting contracts, Canada may, following a notice period, set aside the Standing Offer and terminate for default any resulting contracts. The Consultant understands that a termination for default will not restrict Canada's right to exercise any other remedies that may be available against the Consultant and agrees to immediately return any advance payments.

2. List of Names

The Consultant must immediately inform Canada in writing of any changes affecting the list of names of directors and owners during the period of the Standing Offer and the period of any resulting contracts.

3. Information Verification

The Consultant certifies that it is aware, and its Affiliates are aware, that Canada may verify at any time during the period of the Standing and any resulting contracts, the information provided by the Consultant, including the information relating to the acts or convictions and any conditional or absolute discharges specified in these Integrity Provisions. Canada may request additional information, validations from a qualified third party, consent forms and other evidentiary elements proving identity and eligibility to contract with Canada.

4. Lobbying Act

The Consultant certifies that neither it nor its Affiliates have directly or indirectly, paid or agreed to pay, and will not, directly or indirectly, pay a contingency fee to any individual for the solicitation, negotiation or obtaining of the Contract if the payment of the fee would require the individual to file a return under section 5 of the *Lobbying Act*. (http://laws-lois.justice.gc.ca/eng/acts/L-12.4/).

5. Canadian Offences Resulting in Legal Incapacity

- a. The Consultant has certified that neither it nor any of its Affiliates have been convicted of or have pleaded guilty to an offence under any of the following provisions, which result in legal incapacity under section 750(3) of the *Criminal Code*, and for which they have not been pardoned or received a record of discharge under the Canadian Pardons subsection:
 - i. paragraph 80(1)(d) (False entry, certificate or return), subsection 80(2) (Fraud against Her Majesty) or section 154.01 (Fraud against Her Majesty) of the Financial Administration Act (http://laws-lois.justice.gc.ca/eng/acts/f-11/), or
 - ii. section 121 (Frauds on the government and Consultant subscribing to election fund), section 124 (Selling or Purchasing Office), section 380 (Fraud) for fraud committed against Her Majesty or section 418 (Selling defective stores to Her Majesty) of the Criminal Code (http://laws-lois.justice.gc.ca/eng/acts/C-46/),or
- b. the Consultant has not been convicted of or pleaded guilty to the offences described in paragraph (a) and has certified that it has not directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of the acts or offences that would render that Affiliate ineligible to be awarded a contract under (a).

6. Canadian Offences

The Consultant has certified that:

- a. it and its Affiliates have not, in the last three years, from the standing offer issuance date, been convicted of or pleaded guilty to an offence under any of the following provisions for which it would be ineligible for contract award under these Integrity Provisions and for which they have not been pardoned or received a record of discharge under the Canadian Pardons subsection:
 - section 119 (Bribery of judicial officers, etc), section 120 (Bribery of officers), section 346 (Extortion), sections 366 to 368 (Forgery and other offences resembling forgery), section 382 (Fraudulent manipulation of stock exchange transactions), section 382.1 (Prohibited insider trading), section 397 (Falsification of books and documents), section 422 (Criminal breach of contract), section 426 (Secret commissions), section 462.31 (Laundering proceeds of crime) or sections 467.11 to 467.13 (Participation in activities of criminal organization) of the Criminal Code (http://laws-lois.justice.gc.ca/eng/acts/C-46/), or
 - ii. section 45 (Conspiracies, agreements or arrangements between competitors), section 46 (Foreign directives), section 47 (Bid rigging), section 49 (Agreements or arrangements of federal financial institutions), section 52 (False or misleading representation), section 53 (Deceptive notice of winning a prize) of the Competition Act (http://laws-lois.justice.gc.ca/eng/acts/C-34/), or
 - iii. section 239 (False or deceptive statements) of the Income Tax Act (http://laws-lois.justice.gc.ca/eng/acts/I-3.3/index.html), or
 - iv. section 327 (False or deceptive statements) of the Excise Tax Act (, or

- File Name Nom du dossier: Contemporary Architecture National Parks and Historic Sites in the Province of Ontario.
 - v. section 3 (*Bribing a foreign public official*), section 4 (*Accounting*), or section 5 (*Offence committed outside Canada*) of the *Corruption of Foreign Public Officials Act* (http://laws-lois.justice.gc.ca/eng/acts/C-45.2/), or
 - vi. section 5 (*Trafficking in substance*), section 6 (*Importing and exporting*), or section 7 (*Production of substance*) of the *Controlled Drugs and Substance Act* (http://laws-lois.justice.gc.ca/eng/acts/C-38.8/), or
 - b. the Consultant has not been convicted of or pleaded guilty to the offences described in paragraph (a) and has certified that it has not directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of the acts or offences that would make that Affiliate ineligible for to be issued a standing offer or to be awarded a contract.

7. Foreign Offences

The Consultant has certified that:

- a. it and its Affiliates have not, in the last three years, from the standing offer issuance date, been convicted of or pleaded guilty to an offence in a jurisdiction other than Canada of having committed an act or omission that would, in Canada's opinion, be similar to an offence referenced in the Canadian Offences Resulting in Legal Incapacity and the Canadian Offences subsections and for which it would be ineligible to be issued a standing offer or to be awarded a contract under these Integrity Provisions and for which they have not been pardoned or received a record of discharge under the Foreign Pardons subsection:
 - i. the court before which the Consultant or the Affiliate of the Consultant appeared acted within the court's jurisdiction:
 - ii. the Consultant or the Affiliate of the Consultant appeared during the court's proceedings or submitted to the court's jurisdiction;
 - iii. the court's decision was not obtained by fraud; and
 - the Consultant or the Affiliate of the Consultant was entitled to present to the court every defence that the Consultant or the Affiliate of the Consultant would have been entitled to present had the proceeding been tried in Canada; or
- b. it has not been convicted of or pleaded guilty to the offences described in paragraph (a) and has certified that it has not directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of the acts or offences that would render that Affiliate ineligible to be awarded a contract under (a).

8. Ineligibility to Contract with Canada

- a. The Consultant confirms that it understands that if after the issuance of a standing offer they have been convicted of certain offences, as described in the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections, they will be ineligible to be issued a standing offer or to be awarded a contract with Canada. If, after issuance of the standing offer, a Consultant becomes ineligible to be issued a standing offer, Canada may, following a notice period, declare the Consultant to be ineligible and, to the extent that a standing offer has been issued:
 - i. Set-aside the Standing Offer; and
 - ii. Terminate any resulting contracts for default; or
 - iii. require the Consultant to enter into an Administrative Agreement with the Minister of PWGS on such terms and conditions as are necessary to safeguard the integrity of the procurement process.
- b. The Consultant confirms that it understands that where its Affiliate has been convicted of certain offences, as described in the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections, the Affiliate is ineligible to be issued a standing offer or to be awarded a contract with Canada. If, after the issuance of a standing offer, an Affiliate of a Consultant becomes ineligible to be issued a standing offer or to be awarded a contract with Canada, Canada may, following a notice period, declare the Consultant to be ineligible and, to the extent that a standing offer has been issued:
 - i. Set-aside the Standing Offer; and

- ii. terminate any resulting contrats for default if, in the opinion of Canada, there is evidence that the Consultant directed, influenced, authorized, assented to, acquiesced in or participated in the commission or omission of certain acts or offences that make that Affiliate ineligible; or
- iii. require the Consultant to enter into an Administrative Agreement with the Minister of PWGS on such terms and conditions as are necessary to safeguard the integrity of the procurement process.
- c. The Consultant confirms that it understands that where it has been declared to be ineligible to be issued a standing offer or to be awarded a contract with Canada under the *Ineligibility and Suspension Policy* (http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-fra.html), it is also ineligible to be issued a standing offer or to be awarded a contract with Canada under these Integrity Provisions for the duration of the period that has been determined by the Minister of PWGS. Where the Consultant has been declared to be ineligible under the *Ineligibility and Suspension Policy* after the issuance of the Standing Offer, Canada may, following a notice period:
 - i. set-aside the Standing Offer; and
 - ii. terminate any resulting contracts for default; or
 - iii. require the Consultant to enter into an Administrative Agreement with the Minister of PWGS on such terms and conditions as are necessary to safeguard the integrity of the procurement process.
- d. The Consultant confirms that it understands that where it or its Affiliates have been held responsible for breaches under the Lobbying Act subsection, it is ineligible to be issued a standing offer or to be awarded a contract with Canada under these Integrity Provisions for the duration of the period that has been determined by the Minister of PWGS. Where the Consultant has been declared to be ineligible under the *Ineligibility and Suspension Policy* after issuance of the Standing Offer, Canada may, following a notice period:
 - i. set-aside the Standing Offer; and
 - ii. terminate any resulting contracts for default; or
 - iii. require the Consultant to enter into an Administrative Agreement with the Minister of PWGS on such terms and conditions as are necessary to safeguard the integrity of the procurement process.

9. Declaration of Offences Committed

The Consultant understands that it has a continuing obligation to immediately declare all convictions to Canada under the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections.

10. Period of Ineligibility

The following rules determine the period for which a Consultant or its Affiliate that has been convicted of certain offences is, ineligible to contract with Canada:

- a. for all offences referenced under the Canadian Offences Resulting in Legal Incapacity subsection for which a Consultant or its Affiliate has pleaded guilty to or has been convicted of, the period of ineligibility to be awarded a contract is indefinite, subject to the Canadian Pardons subsection;
- subject to an Administrative Agreement, for all offences referenced under the Canadian Offences and Foreign Offences subsections for which a Consultant or its Affiliate has pleaded guilty to or been convicted of, as the case may be, in the last three years, the period of ineligibility to contract with Canada is ten years from the date of determination by the Minister of PWGS, subject to the Canadian Pardons and Foreign Pardons subsections;
- c. subject to an Administrative Agreement, for all breaches under the Lobbying Act subsection for which a Consultant or its Affiliate has been found responsible, in the last three years, the period of ineligibility to contract with Canada is ten years from the date of determination by the Minister of PWGS.

11. Canadian Pardons

A determination of ineligibility to contract with Canada will not be made or maintained by the

Minister of PWGS under these Integrity Provisions, in respect of an offence or act that gave rise or that could give rise to a determination of ineligibility, if the Consultant or its Affiliate has:

- a. been granted an absolute discharge in respect of the offence, or has been granted a conditional discharge in respect of the offence and those conditions have been satisfied;
- b. been granted a pardon under Her Majesty's royal prerogative of mercy;
- c. been granted a pardon under section 748 of the *Criminal Code* (http://lawslois.justice.gc.ca/eng/acts/C-46/);
- d. received a record of suspension ordered under the *Criminal Records Act* (http://lawslois.justice.gc.ca/eng/acts/c-47/); and
- e. been granted a pardon under the *Criminal Records Act*, as that Act read immediately before the day section 165 of the *Safe Streets and Communities Act* (http://laws-lois.justice.gc.ca/eng/annualstatutes/2012_1/) comes into force.

12. Foreign Pardons

A determination of ineligibility for the issuance of a standing offer or for award of government contracts will not be made or maintained, as the case may be, by the Minister of PWGS in respect of matters referenced in the Foreign Offences subsection and with respect to an offence or act that gave rise or will give rise to a determination of ineligibility, if the Consultant or its Affiliate, has at any time, benefited from foreign measures that are similar to Canadian pardons at the sole discretion of Canada, conditional discharges, absolute discharges, record of suspensions, or restoration of legal capacities by the Governor in Council.

13. Period of Ineligibility for Breaching Administrative Agreements

The Consultant confirms that it understands that where it has concluded an Administrative

Agreement and that it has breached any of its terms and conditions, the Minister of PWGS will
lengthen the period of ineligibility for a period to be determined by the Minister of PWGS.

14. Obligations on Sub-consultants

The Consultant confirms that it understands that to the extent that it relies on a sub-consultant(s) to perform the Contract, the Consultant will not enter into a subcontract with a company that has been convicted of or pleaded guilty or an Affiliate of the company has been convicted of or pleaded guilty, as the case may be, to any of the offences referenced in the Canadian Offences Resulting in Legal Incapacity, the Canadian Offences and the Foreign Offences subsections for which no pardon or equivalent has been received under the Canadian Pardons and Foreign Pardons subsections, without the prior written approval of the Minister of PWGS. Where the Consultant has entered into a contract with an ineligible sub-consultant and for which no prior written approval has been received by Canada, the Minister of PWGS will declare the Consultant to be ineligible to contract with Canada for a period of five years.

0000DA SUPPLEMENTARY CONDITIONS

SC1 Federal Contractors Program for Employment Equity - Setting aside and Default by the Consultant

The Consultant understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Consultant and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Standing Offer and contract. If the AIEE becomes invalid, the name of the Consultant will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC may result in the setting aside of the Standing Offer and will constitute the Consultant in default as per the terms of the contract.

9998DA TERMS OF PAYMENT

TP1 Fees

- 1. Subject to the terms and conditions of the Standing Offer, and in consideration for the performance of the *Services*, Canada shall pay to the Consultant a sum of money calculated in accordance with the fee arrangements identified herein and in 2000DA.
- 2. The Consultant's fees are only payable when the Consultant has performed the Services as determined by the Departmental Representative. Payment in respect of a Service, or part of a Service, is not to be deemed a waiver of Canada's rights of set-off at law or under this Standing Offer for costs or expenses arising from default or negligence of the Consultant.
- 3. The maximum amount payable under a Call-Up, including fees and disbursements, shall not be exceeded, without the prior written authorization of the Contracting Authority.

TP 2 Payments to the Consultant

- 1. The *Consultant* shall be entitled to receive progress payments at monthly or other agreed intervals, subject to the limitations of the Call-up, if applicable. Such payments shall be made not later than the due date. The due date shall be the 30th day following receipt of an acceptable invoice.
- 2. An acceptable invoice shall be an invoice delivered to the *Departmental Representative* in the agreed format with sufficient detail and information to permit verification. The invoice shall also identify, as separate items:
 - (a) the amount of the progress payment being claimed for Services satisfactorily performed,
 - (b) the amount for any tax calculated in accordance with the applicable federal legislation, and
 - (c) the total amount which shall be the sum of the amounts referred to in TP 2.2(a) and TP 2.2(b).
- 3. The amount of the tax shown on the invoice shall be paid by *Canada* to the *Consultant* in addition to the amount of the progress payment for *Services* satisfactorily performed.
- 4. The *Departmental Representative* shall notify the *Consultant* within fifteen (15) *days* after the receipt of an invoice of any error or missing information therein. Payment shall be made not later than thirty (30) *days* after acceptance of the corrected invoice or the required information.
- 5. Upon completion of each Call-up, the *Consultant* shall provide a Statutory Declaration evidencing that all the *Consultant*'s financial obligations for *Services* rendered to the *Consultant* or on the *Consultant*'s account, in connection with the Call-up, have been satisfied.
- 6. Upon written notice by a *Sub-Consultant*, with whom the *Consultant* has a direct contract, of an alleged non-payment to the *Sub-Consultant*, the *Departmental Representative* may provide the *Sub-Consultant* with a copy of the latest approved progress payment made to the *Consultant* for the *Services*.
- 7. Upon the satisfactory completion of all *Services*, the amount due, less any payments already made, shall be paid to the *Consultant* not later than thirty (30) *days* after receipt of an acceptable invoice, together with the Statutory Declaration in accordance with TP 2.5.

TP 3 Delayed Payment

- 1. If Canada delays in making a payment that is due in accordance with TP 2, the Consultant will be entitled to receive interest on the amount that is overdue for the period of time as defined in TP 3.2 including the day previous to the date of payment. Such date of payment shall be deemed to be the date on the cheque given for payment of the overdue amount. An amount is overdue when it is unpaid on the first day following the due date described in TP 2.1.
- 2. Interest shall be paid automatically on all amounts that are not paid by the due date or fifteen (15) *days* after the *Consultant* has delivered a Statutory Declaration in accordance with TP 2.5 or TP 2.7, whichever is the later.
- 3. The rate of interest shall be the *Average Bank Rate* plus 3 percent per year on any amount which is overdue pursuant to TP 3.1.

TP 4 Claims Against, and Obligations of, the Consultant

- 1. Canada may, in order to discharge lawful obligations of and satisfy lawful claims against the Consultant by a Sub-Consultant, with whom the Consultant has a direct contract, for Services rendered to, or on behalf of, the Consultant, pay an amount from money that is due and payable to the Consultant directly to the claimant Sub-Consultant.
- 2. For the purposes of TP 4.1 a claim shall be considered lawful when it is so determined:
 - (a) by a court of legal jurisdiction, or
 - (b) by an arbitrator duly appointed to arbitrate the said claim, or
 - (c) by a written notice delivered to the *Departmental Representative* and signed by the *Consultant* authorizing payment of the said claim or claims.
- 3. A payment made pursuant to TP 4.1 is, to the extent of the payment, a discharge of *Canada*'s liability to the *Consultant* under a specific Call-up and will be deducted from any amount payable to the *Consultant* under any active Call-up.
- 4. TP 4.1 shall only apply to claims and obligations
 - (a) The notification of which has set forth the amount claimed to be owing and a full description of the *Services* or a part of the *Services* for which the claimant has not been paid. The notification must be received by the *Departmental Representative* in writing before the final payment is made to the *Consultant* and within one hundred twenty (120) days of the date on which the claimant
 - (1) should have been paid in full under the claimant's agreement with the *Consultant* where the claim is for an amount that was lawfully required to be held back from the claimant: or
 - (2) performed the last of the *Services* pursuant to the claimant's agreement with the *Consultant* where the claim is not for an amount referred to in TP 4.4(a)(1), and
 - (b) the proceedings to determine the right to payment of which shall have commenced within one year from the date that the notification referred to in TP 4.4(a) was received by the *Departmental Representative*.
- 5. Canada may, upon receipt of a notification of claim referred to in TP 4.4(a), withhold from any amount that is due and payable to the *Consultant* pursuant to a Call-up the full amount of the claim or any portion thereof.

- 6. The Departmental Representative shall notify the Consultant in writing of receipt of any notification of claim and of the intention of Canada to withhold funds pursuant to TP 4.5. The Consultant may, at any time thereafter and until payment is made to the claimant, post with Canada, security in a form acceptable to Canada in an amount equal to the value of the said claim. Upon receipt of such security Canada shall release to the Consultant any funds which would be otherwise payable to the Consultant, that were withheld pursuant to the provision of TP 4.5.
- 7. The Consultant shall discharge all lawful obligations and shall satisfy all lawful claims against the Consultant for Services rendered to, or on behalf of, the Consultant in respect of this Standing Offer at least as often as this Standing Offer requires Canada to discharge its obligations to the Consultant.

TP 5 No Payment for Errors and Omissions

The *Consultant* shall not be entitled to payment in respect of costs incurred by the *Consultant* in remedying errors and omissions in the *Services* that are attributable to the *Consultant*, the *Consultant*'s employees, or persons for whom the *Consultant* had assumed responsibility in performing the *Services*.

TP 6 Payment for Changes and Revisions

- 1. Payment for any additional or reduced *Services* authorized by the Departmental Representative, prior to their performance, and for which a basis of payment has not been established at the time of execution of the Call-up, shall be in an amount or amounts to be determined by the Departmental Representative, acting reasonably, subject to these Terms of Payment.
- 2. Payment for additional *Services* not identified at the time of execution of the Call-up shall be made only to the extent that
 - (a) the additional Services are Services that are not included in stated Services in the Call-Up; and
 - (b) The additional *Services* are required for reasons beyond the control of the Consultant.

TP 7 Extension of Time

If, and to the extent that, the time for completion of the *Construction Contract* is exceeded or extended through no fault of the *Consultant* in the opinion of *Canada*, payment for the *Services* required for such extended period of the contract administration shall be subject to review and equitable adjustment by Canada.

TP 8 Suspension Costs

- 1. During a period of suspension of the *Services* pursuant to GC 7 of clause 0220DA, General Conditions, the *Consultant* shall minimize all costs and expenses relating to the *Services* that may occur during the suspension period.
- 2. Within fourteen (14) *days* of notice of such suspension, the *Consultant* shall submit to the *Departmental Representative* a schedule of costs and expenses, if any, that the *Consultant* expects to incur during the period of suspension, and for which the *Consultant* will request reimbursement.
- 3. Payment shall be made to the *Consultant* for those costs and expenses that, in the opinion of *Canada*, are substantiated as having been reasonably incurred during the suspension period.

TP 9 Termination Costs

1. In the event of termination of any Call-up pursuant to GC 8 of clause 0220DA, General Conditions, *Canada* shall pay, and the *Consultant* shall accept in full settlement, an amount

based on these Terms of Payment, for *Services* satisfactorily performed and any reasonable costs and expenses incurred to terminate the Call-Up.

- 2. Within fourteen (14) *days* of notice of such termination, the *Consultant* shall submit to the *Departmental Representative* a schedule of costs and expenses reasonably incurred. The Consultant must ensure that it has mitigated its costs to the best of its ability.
- 3. Payment shall be made to the *Consultant* for those costs and expenses that in the opinion of *Canada* are substantiated as having been reasonably incurred after the date of termination.
- 4. The Consultant has no claim for damages, compensation, loss of profit, loss of opportunity, allowance or otherwise by reason of, or directly or indirectly arising out of, any action taken or termination notice given by Canada under GC8 Termination.

TP 10 Disbursements

- 1. Subject to any provisions specifically to the contrary in the Supplementary Conditions, the following costs shall be included in the fees required to deliver the consultant services and shall not be reimbursed separately;
 - (a) reproduction and delivery costs of drawings, CADD files, specifications and other Technical Documentation specified in the Standing Offer Brief;
 - (b) standard office expenses such as any photocopying, computer costs, Internet, cellular phone costs, long distance telephone and fax costs, including that between the Consultant's main office and branch offices or between the Consultant's offices and other team members offices;
 - (c) courier and delivery charges for deliverables specified in the Standing Offer Brief;
 - (d) plotting;
 - (e) presentation material;
 - (f) parking fees;
 - (g) taxi charges;
 - (h) travel time;
 - (i) travel expenses; and
 - (j) local project office.
- 2. Subject to any provisions specifically to the contrary in the Supplementary Conditions, the following disbursements reasonably incurred by the Consultant, that are related to the Services and approved by the Departmental Representative, shall be reimbursed to the Consultant at actual cost:
 - (a) reproduction and delivery costs of drawings, CADD files, specifications and other Technical Documentation additional to that specified in the Standing Offer Brief;
 - (b) transportation costs for material samples and models additional to that specified in the Standing Offer Brief;
 - (c) project related travel and accommodation additional to that specified in the Standing Offer Brief shall be reimbursed in accordance with current National Joint Council (NJC)

Travel Directive (http://www.njc-cnm.gc.ca/directive/index.php?dlabel=travel-voyage&lang=eng&did=10&merge=2);

- (d) Travel and Living expenses must have the prior authorization of the Project Authority and comply with government's related allowance amount, rules and regulations, and are subject to government audit.
 - a. Firms are advised that any travel time and travel-related expenses associated with the delivery of services within a 300 km radius of each major city located in each Zone as detailed herein are to be calculated as an integral part of the hourly rates. For delivery of services outside of this 300 km radius, travel-related expenses will be paid (with prior approval of the Departmental Representative) as specified in Appendices B, C and D of the Treasury Board Travel Directive.
 - b. Major city in each zone as follow:
 - i. Ottawa, (Ontario);
 - ii. Toronto, (Ontario).

; and

- (e) other disbursements made with the prior approval and authorization of the Departmental Representative.
- 3. Disbursements shall be Project related and shall not include expenses that are related to the normal operation of the Consultant's business. The amounts payable, shall not exceed the amount entered in the Call-up, without the prior authorization of the Departmental Representative.

9999DA CONSULTANT SERVICES

CS 1 Services

The *Consultant* shall perform the *Services* described herein and in any subsequent Call-up, in accordance with the terms and conditions of this Standing Offer.

CS 2 Standard of Care

In performing the services, the Consultant shall provide and exercise the standard of care, skill and diligence required by customarily accepted professional practices and procedures developed by professional bodies (ex. Association of Landscape Architects Ontario (ALAO), Canadian Society of Landscape Architects (CSLA)) in the performance of the services at the time when and the location in which the *Services* are provided.

CS 3 Time Schedule

The Consultant shall:

- (a) submit in a timely manner to the *Departmental Representative*, for approval, a time schedule for the *Services* to be performed, in detail appropriate to the size and complexity of the Project, and in a format as requested by the *Departmental Representative*;
- (b) adhere to the approved time schedule and, if changes in the approved time schedule become necessary, indicate the extent of, and the reasons for such changes, and obtain the approval of the *Departmental Representative*.

CS 4 Project Information, Decisions, Acceptances, Approvals

- The Departmental Representative shall provide, in a timely manner, project information, written decisions and instructions, including acceptances and approvals relating to the Services provided by the Consultant.
- 2. No acceptance or approval by the *Departmental Representative*, whether expressed or implied, shall be deemed to relieve the *Consultant* of the professional or technical responsibility for the *Services* provided by the *Consultant*.

CS 5 Changes in Services

The Consultant shall:

- (a) make changes in the *Services* to be provided for the Project, including changes which may increase or decrease the original scope of *Services*, when requested in writing by the *Departmental Representative*; and
- (b) prior to commencing such changes, advise the *Departmental Representative* of any known and anticipated effects of the changes on the *Construction Cost Estimate*, *Consultant* fees, *Project Schedule*, and other matters concerning the Project.

CS 6 Codes, By-Laws, Licences, Permits

The *Consultant* shall comply with all statutes, codes, regulations and by-laws applicable to the design and where necessary, shall review the design with those public authorities having jurisdiction in order that the consents, approvals, licences and permits required for the project may be applied for and obtained.

CS 7 Provision of Staff

The *Consultant* shall, on request, submit to the *Departmental Representative* for approval, the names, addresses, qualifications, experience and proposed roles of all persons, including principals, to be employed by the *Consultant* to provide the *Services* identified in the Call-up and, on request, submit any subsequent changes to the *Departmental Representative* for approval.

CS 8 Sub-Consultants

- 1. The Consultant shall:
 - (a) prior to any Call-up notify the *Departmental Representative* of any other sub-consultants with whom the *Consultant* intends to enter into agreements for part of the *Services* and, on request, provide details of the terms, and *Services* to be performed under the said agreements and the qualifications and names of the personnel of the *Sub-Consultants* proposed to be employed on any Call-up;
 - (b) include in any agreements entered into with sub-consultants such provisions of this Standing Offer as they apply to the *Sub-Consultants*' responsibilities; and
 - (c) upon written notice by a *Sub-Consultant*, with whom the *Consultant* has a direct contract, inform the *Sub-Consultant* of the *Consultant*'s obligations to the *Sub-Consultant* under this Standing Offer.
- 2. The *Departmental Representative* may object to any *Sub-Consultant* within six (6) *days* of receipt of notification given in accordance with CS 8.1(a) and, on notification of such objection, the *Consultant* shall not enter into the intended agreement with the *Sub-Consultant*.
- 3. Neither an agreement with a *Sub-Consultant* nor the *Departmental Representative*'s consent to such an agreement by the *Consultant* shall be construed as relieving the *Consultant* from any obligation under this Standing Offer or subsequent Call-ups, or as imposing any liability upon *Canada*.

CS 9 Cost Control

If the services required under a call-up are for a construction project, the following will apply:

- 1. Throughout Project development, the *Construction Cost Estimate* prepared by the *Consultant* shall not exceed the *Construction Cost Limit*.
- 2. In the event that the Consultant considers that the Construction Cost Estimate will exceed the Construction Cost Limit, the Consultant shall notify the Departmental Representative and
 - (a) if the excess is due to factors under the control of, or reasonably foreseeable by the Consultant, the Consultant shall, if requested by the Departmental Representative, and at no additional cost to Canada, make such changes or revisions to the design as may be necessary to bring the Construction Cost Estimate within the Construction Cost Limit; or
 - (b) if the excess is due to factors that are not under the control of the *Consultant*, changes or revisions may be requested by the *Departmental Representative*. Such changes or revisions shall be undertaken by the *Consultant* at *Canada's* expense, and the cost involved shall become an amount to be mutually agreed, prior to performance of the said changes or revisions.

3. If the lowest price obtained by bid process or negotiation exceeds the *Construction Cost Limit*, and if the excess is due to reasons within the control of, or reasonably foreseeable by the *Consultant*, the *Consultant* shall, if requested by the *Departmental Representative*, and without additional charge, be fully responsible for revising the Project scope and quality as required to reduce the construction cost and shall modify the construction documents as necessary to comply with the *Construction Cost Limit*.

2000DA CALCULATION OF FEES

CF 1 Fee Arrangement(s) for Services

- 1. The fee to be paid to the *Consultant* for the *Services* pursuant to any Call-up, shall be determined by one or more of the following methods:
 - (a) Fixed Fee:
 The fixed fee will be established by multiplying the applicable hourly rate(s) by the number of hours, negotiated and agreed to by the *Departmental Representative* and the *Consultant*.
 - (b) Time Based Fee to an Upset Limit: An upset limit will be established by the *Departmental Representative*, and the *Consultant* will be paid for actual work performed using the applicable hourly rate(s) for such work.
- 2. Maximum Amount(s) Payable
 The maximum amount(s) that applies (apply) to the Services to be carried out at the fixed hourly
 rates shall be as specified in the Call-up, which amount(s) shall not be exceeded without the prior
 authorization of the Departmental Representative with the approval of Canada.

CF 2 Payments for Services

- 1. Payments in respect of the fixed fee shall be made upon satisfactory performance of the *Services* but such payments shall not exceed the amount(s) as specified in the Call-up, for each *Service*.
- 2. Payments in respect of the time based fee arrangement shall be made upon satisfactory performance of the *Services* but such payments shall not exceed the amount(s) as specified in the Call-up, for each *Service*.
- 3. Progress payments, in respect of all fee arrangements, shall be made in accordance with TP 2 in clause 9998DA, Terms of Payment, of the Standing Offer, but such payments shall not exceed the value of the fee indicated for each *Service* under consideration.
- 4. If, for reasons attributable to the *Consultant*, a price cannot be obtained by a tender or negotiation within the *Construction Cost Limit*, or acceptable to the *Departmental Representative* for the award of the *Construction Contract*, the *Consultant* shall be entitled to receive payment for the tender call, bid evaluation and construction contract award *Services*, only when the requirements of CS 9.3, in clause 9999DA, Consultant Services and Departmental Responsibilities, have been met.

Required Services (RS) / Project Brief

SO - 5P301-16-0003

Contemporary Architecture – National Parks and Historic Sites in the Province of Ontario.

Required Services (RS) / Project Brief

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1. INTRODUCTION

- 1.1. Parks Canada Agency (PCA) is advising Architecture consulting firms that proposals for Standing Offer for the provision of architecture services, Prime Consultant services with full engineering services have been awarded. This procurement followed a one-phase submission process. The selected consultants shall provide a full range of professional services in Design, Construction and Post Construction stages for projects in the province of Ontario.
- 1.2. Projects may include renovation, demolition, rehabilitation and/or new construction of the following types of architecture, including but not limited to:
 - Administration Buildings: office, warden office, administrative kiosk,
 - Residential: staff housing, bunkhouse, cabins etc.,
 - General Works and Utilities: compound, office, garage, trade shop, ancillary building/structure for maintenance, service, storage etc.,
 - Public Buildings: washroom, change/shower building, visitor centre, Interpretation or recreation space, canteen, amphitheatre, clubhouse, boathouse, etc.,
 - Day Use Areas facilities: washroom, picnic shelter, kitchen/cook shelter, information centre/kiosk, wayside exhibit, interpretation nodes etc.,
 - Light house, fire tower, observation tower, etc.
- 1.3. Consultants are required to assist PCA to provide a full range of professional services, including, but not limited to: investigation, planning, design, construction and post construction administration professional services.
- 1.4. The scope of work will vary from project to project as per each Call-up, but may include any combination of the services identified as basic services and/or additional services, including Sub-Consultants: landscaping architecture, hazardous material specialist, architecture, conservation architecture, civil engineering, surveying, environmental engineering, archaeological services, geotechnical engineering, structural engineering, conservation structural enaineerina. mechanical engineering. electrical engineering. exhibit/signage/interpretive elements planning/design and/or fabrication, code and life safety consultant, cost management, scheduling management, and any other specialty professionals' services.
- 1.5. Where exhibits, signage and other interpretive elements are involved, it should be anticipated that the scope of work will vary from project to project as per each Call-up and may include but is not limited to any combination of planning, concept design, drawings, detailed design, schematic design, research and content development, interactive, audio-visual components, interpretive writing, translations, illustration, graphics, photography, fabrication/construction, shipping/delivery, installation, training, etc.
- 1.6. This Request for Standing Offers (RFSO) does not apply to cultural resource structures of national historical importance and/or other heritage value, including (but not limited to) buildings designated by the Federal Heritage Buildings Review Office.

2. PROJECT OBJECTIVES

2.1. **GENERAL OBJECTIVES:**

- .1 Deliver the project utilizing best practices in support of PCA needs, respecting the approved scope, quality, budget and schedule.
- .2 Keep an open communication with all members of the project delivery team and stakeholders throughout all phases of the project life as identified by the Project Manager. All decisions that impact scope, quality, cost and schedule must be discussed with the Project Manager.

- .3 Provide rigorous quality assurance reviews during the design and construction administration stages, including the application of Value Architecture/Engineering reviews in the design. Timely response to correct problems as they occur.
- .4 Satisfy and where possible exceed the expectations and needs of PCA and stakeholders.
- .5 Maintain continuity of key personnel working in a dedicated effort for the project life.

2.2. Project delivery approach:

- .1 Traditional Design-Bid-Build approach.
- .2 PCA will tender contracts through several contracting authorities. All tenders will be managed through PCA.

2.3. Official languages:

- .1 Final products of the Interpretive and Exhibit services, and signage will be in both official languages.
- .2 Under this offer, services must be provided in English, unless otherwise specified.

3. CONSULTANT SERVICE REQUIREMENTS

- 3.0.1 In general, the Departmental Representative will act as the Project Manager, unless otherwise requested as Additional Service in the Call-up for the Consultant to provide Project Manager Service as the role of PCA Project Manager during Construction Administration stage.
- 3.0.2 The Consultant must adhere to the General Procedures & Standards established by Public Works and Government Services Canada (PWGSC) outlined in Appendix "C" of this Request for Standing Offers (RFSO), as may be applicable to each project (Include the Standard see procurement). All reference to the Department of Public Works and Government Services should be deleted and replaced with Parks Canada Agency.
- 3.0.3 The selected consultants shall be expected to provide a full range of relevant architecture and engineering services including, but not limited to, planning, design, construction administration and post construction services for construction projects in Ontario.
- 3.0.4 For Interpretive Exhibit services, Parks Canada, through its Exhibit Design, Fabrication and Installation Supply Arrangement, has prequalified firms specializing in exhibit development. These firms have expertise and extensive recent relevant experience providing exhibit services as required in this RFSO. A list of these pre-qualified firms is included in Annex "A" should the proponent wish to invite any of these specialized firms to be part of the proponent's team. Ensure their submission complies with this RFSO submission requirements.

3.1. **CONSULTANT RESPONSIBILITIES**

3.1.1. Prime Consultant

- .1 The Prime Consultant must provide Architectural Services.
- .2 The Prime Consultant is completely responsible for providing and coordinating the work of all professional disciplines required in the scope of the project Call-up, from the Project Planning, Design, Construction Administration, to the Post Construction Stages.
- .3 The Prime Consultant service is also responsible for coordinating projects with PCA's and stakeholders' needs, including but not limited to: furniture, exhibits, signage and other interpretive elements, graphic design, and temporary alternative solutions during the construction period.

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- .4 The Prime Consultant team must be comprised of qualified registered professionals, and technical experts licensed to practise. The members of the team must also have extensive recent relevant experience in order to be capable of providing the services identified in the Standing Offer (RFSO) and Call-up for services.
- .5 The Prime Consultant Company must be licensed and permitted to practise by the professional association in the province of Ontario.
- .6 The Prime Consultant and their key personnel are identified in the completed Team Identification Form. Key personnel will be involved and be responsible for every stage of the project.

3.1.2. Sub-Consultant

- .1 The Sub-Consultant will be required to maintain its team's expertise for the duration of the Standing Offer Agreement as identified in the bid offer.
- The Sub-Consultant will be required to comply with and adhere to:
 - .1 all the requirements in the Standing Offer (RFSO) and Call-up for services,
 - .2 all commitments made and included in the Consultant's RFSO submission and in the completed Declaration Form.
- .3 The Sub-Consultant team must be comprised of qualified registered professionals, and technical experts licensed to practise. The members of the team must also have extensive recent relevant experience in order to be capable of providing the services identified in the Standing Offer (RFSO) and Call-up for services.
- .4 The Sub-Consultant company must be licensed and permitted to practise by the professional association in the province of Ontario.
- .5 The Sub-Consultant and their key personnel are identified in the completed Team Identification Form. Key personnel will be involved and be responsible for every stage of the project.

3.2. **CONSULTANT SERVICE REQUIREMENTS**

3.2.1. Overview

- .1 The Consultant must adhere to all the General Procedures and Standards outlined in the Standing Offer, as may be applicable to the projects and scope of work described herein.
- .2 The Consultant shall deliver integrated professional services, in distinct stages, as follows:
 - Project Planning/Interpretive Planning
 - Design:
 - o Pre-Design/Concept Design
 - o Schematic Design
 - o Design Development
 - Construction Documentation
 - Construction Administration:
 - Tender Call and Bid Evaluation
 - Construction and Contract Administration
 - As-built record documents
 - Post Construction
- .3 The outline of deliverables and process, as presented in each stage, are intended as a general outline only. It is not exhaustive and does not preclude alternative or supplementary approaches as may be suggested by the Consultant for consideration by the Departmental Representative.
- .4 Consultant shall perform the Services described herein, in accordance with the terms and conditions of the Agreement.
- .5 Consultant shall grant the right to PCA for the use of the record drawing files for maintenance, repair and modify the building in the future.

3.2.2. Standard of Care

.1 In performing the services, provide and exercise the standard of care, skill and diligence required by customarily accepted professional practices and procedures developed by professional bodies for the performance of similar services at the time when and the location in which the services are provided.

3.2.3. Interpretive/Exhibit Planning & Design Services scope and requirements:

- .1 The Consultant is to undertake the following work in the development of the Interpretive and exhibit component of this project.
 - .1 Interpretive Plan (minimum three versions)
 - .2 Exhibit Concept (propose three concepts, PCA chooses one, then up to three versions)
 - .3 Content Development-including writing of interpretive elements-can be included in concept or separate-two to three options, one style, direction approved, then up to three versions)
 - .4 Detailed Graphic Design (minimum three versions)
 - .5 Exhibit Schematic Design (minimum three versions)
 - .6 Final Design (include fabrication budget)
- .2 The Consultant is to engage the respective professional disciplines to ensure the work outlined is in the Interpretive and exhibit programming, includes but is not limited to: Creative Consultation, Concept Research and Development, Project Management, Art Direction and Graphic Design for exhibits and electronic media, Layout and Design Production, Writing, Editing and Proof-reading for exhibit and electronic media, Language Adaptation and Design rendering and Creative Illustration.
- .3 Creative Consultation, Research and Concept Development
 - .1 The Consultant must provide consultation, advice, brain storming and research services related to concept development.

.4 Project Management

- .1 the Consultant will provide project management services covering all aspects of project management required to coordinate and oversee the creative design, including but not limited to:
- .2 design management including schematic and detailed design (traditional/multimedia) and related support infrastructure,
- .3 manage the workflow and budget during the complete planning and design process,
- .4 prepare accurate design and installation schedules,
- .5 provide quality assurance of all work completed by the Interpretive and exhibit designer and/or work completed by Subcontractors,
- .6 ensure Client and Sub-Consultant liaison and meetings, including seeking input and approvals of Client at key milestones,
- .7 provide presentations as required,
- .8 troubleshooting,
- .9 supervise aspects of project management for writing, translation, editing and proof-reading, and
- .10 provide communication updates and information management throughout project design process.
- .5 Art Direction and Graphic Design for exhibit and electronic media
 - .1 The Consultant will be required to provide the following as required by the PCA representative:
 - .1 develop the design and provide three (3) acceptable graphic design concepts based on consultation with the PCA Representative. The chosen graphic designs will become the property of the Crown.

- .2 provide art direction to designers to ensure a high-quality product in keeping with the approved concept and design.
- .3 the Consultant must develop and submit a Creative Design Brief for the project.

.6 Layout and Design Production

- .1 The Consultant will be required to complete the final layout, including but not limited to the following:
 - .1 translate electronic text files between programs;
 - .2 remove or correct formatting errors in the Supplier's own work;
 - .3 convert/format supplied text;
 - .4 remove or correct formatting errors in Client-supplied text as required by the Parks Canada representative:
 - .5 prepare typographical elements as part of the design and layout of text as required. All text will be of a suitable resolution according to current industry standards for the media and the trade:
 - .6 layout copy/text and/or images to final format;
 - .7 import charts, graphs and tables for inclusion in the layout as required;
 - .8 import images (illustrative, photographic etc.) for inclusion in the layout;
 - .9 problem-solve design issues as they arise during the layout and production;
 - .10 prepare final electronic artwork for production; and
 - .11 provide other related production support related to the project-specific media.

.7 Writing, Editing and Proof-reading for exhibit and electronic media

- .1 as required by the Parks Canada Representative, the Consultant will research, write and edit texts in English for a wide range of media;
- .2 the Consultant will provide proof-reading services for copy supplied by the Parks Canada Representative;
- .3 providing proof-reading of text/copy created or revised by any of its Subcontractors is considered quality assurance steps that are the responsibility of the Consultant for all requirements.

.8 Language Adaptation

- .1 the Consultant will provide language adaptation of copy written by the Consultant.
- .2 the Consultant will provide language adaptation of text supplied by the PCA representative as a part of the creative graphic design, communication and marketing services.
- .3 the Consultant will provide language adaptation services which are normally required for English/French requirements for the project.

.9 Design rendering and Creative Illustration

- .1 the Consultant will create visual recordings of the concept development and the design interpretations resulting from the creative consultation.
- .2 the Consultant will be required to (but not limited to) provide the following as required by the Parks Canada Representative:
 - .1 design preliminary design thumbnails (electronic and/or hard copy) for approval;
 - .2 design black & white sketches, if required;
 - .3 create full creative illustrations in the size indicated by the Parks Canada Representative;
 - .4 create graphs, tables and/or charts;
 - .5 create images for print or Web;
 - .6 scan supplied photos for print or Web using Web-safe colour palettes and formats;
 - .7 retouch supplied photographs and/or images as required;
 - .8 revise the selected concept to produce a final design for approval;
 - .9 prepare and provide comprehensive colour mock-ups of all design proposals and their subsequent revisions in hard copy and PDF, as per instructions from the Project Authority;

- .10 design, create and/or modify PDF files;
- .11 convert documents to HTML or from HTML to text format as required;
- .12 produce animation and flash for Web and multimedia projects.

3.2.4. Cost Management Services

- .1 Prepare and update work breakdown structure throughout the project.
- .2 Throughout all project development stages, the Construction Cost Estimate prepared by the Consultant shall not exceed the Construction Cost Limit.
- .3 Budget Management Services are required to provide Class D, C, B and A level estimates at different stages.
- .4 Cost estimating and budget management shall be provided by an experienced professional architect and/or quantity surveyor.
- .5 The Class C and Class B cost estimates shall be submitted in Elemental Cost Analysis format. The standard of acceptance for this format is the current issue of the Elemental Cost Analysis format issued by the Canadian Institute of Quantity Surveyors. The Class A cost estimate shall be submitted in trade cost breakdown format.
- .6 Cost estimates shall include a summary, plus full back-up documents showing items of work, quantities, unit prices and amounts.
- .7 Cost estimates shall also include Life Cycle Cost and Life Cycle Analysis to ensure sustainable design objectives are met.
- .8 In the event that the Consultant considers that the Construction Cost Estimate will exceed the Construction Cost Limit, the Consultant shall immediately notify the Departmental Representative, and
 - .1 if the excess is due to factors under the control of, or reasonably foreseeable by the Consultant, the Consultant shall, if requested by the Departmental Representative, and at no additional cost to Canada, make such changes or revisions to the design as may be necessary to bring the Construction Cost Estimate within the Construction Cost Limit; or
 - .2 if the excess is due to factors that are not under the control of the Consultant, changes or revisions may be requested by the Departmental Representative. Such changes or revisions shall be undertaken by the Consultant at Canada's expense, and the cost involved shall become an amount to be mutually agreed, prior to performance of the said changes or revisions.
- .9 Evaluate bids and assist in negotiation. If the lowest price obtained by bid process or negotiation exceeds the Construction Cost Limit, and if the excess is due to reasons within the control of, or reasonably foreseeable by the Consultant, the Consultant shall, if requested by the Departmental Representative, and without additional charge, be fully responsible for revising the project scope and quality as required to reduce the construction cost. The Consultant shall modify the construction documents as necessary to comply with the Construction Cost Limit.
- .10 During the construction stage, provide assistance and advice to evaluate Contemplated Change Notice value and recommend Contemplated Change Notice.
- .11 During the construction stage, provide assistance to assess progress claims.

3.2.5. Schedule Management Services

- .1 Schedule Management Services are required to prepare and monitor the project schedule through to the completion of the design process and to monitor construction progress. Schedule Management shall generally be provided using industry accepted software to provide detailed bar charts and/or critical path schedules.
- .2 Submit in a timely manner to the Departmental Representative, for review, a time schedule for the consultant services to be performed, in detail appropriate to the size and complexity of the project, and in a format acceptable to the Departmental Representative.

- .3 Cooperate and coordinate all schedule information with the General Contractor for incorporation into the master schedule during construction.
- .4 Adhere to the approved time schedules and, if changes in the approved time schedule become necessary, indicate the extent of, and the reasons for such changes, and submit to the Departmental Representative for approval.
- .5 Coordinate project schedule with project cash flow to assist Departmental Representative to manage funding through multiple government financial years.

3.2.6. Project Information, Decisions, Acceptances & Approvals

- .1 The Departmental Representative will provide, in a timely manner, project information, written decisions and requests, including acceptances and approvals relating to the Services provided by the Consultant.
- .2 No acceptance nor approval by the Departmental Representative, whether expressed or implied, shall be deemed to relieve the Consultant of the professional, technical or financial responsibility for the Services provided by the Consultant.

3.2.7. Changes in Services

- .1 Make changes in the Services to be provided for the Project, including changes which may increase or decrease the original scope of Services, when requested in writing by the Departmental Representative.
- .2 Prior to commencing such changes, advise the Departmental Representative of any known and anticipated effects of the changes on the Construction Cost Estimate, Consultant fees, Project Schedule, and other matters concerning the Project.

3.2.8. Codes, Regulations, Bylaws, Licences, Permits and PCA Directives

- .1 Comply with the latest versions of laws, codes, governmental regulations and municipal bylaws that apply to the design and, as necessary, review the design with the competent public authorities to obtain the necessary consents, approvals, licences and permits for the project. The permits to be obtained include but are not limited to Development Permit, Demolition Permit, Building Permit and Occupancy Permit.
- .2 Compliance with National Codes, Acts and Regulations are mandatory requirements. PCA will also voluntarily comply with the applicable provincial/territorial Codes, Acts and Regulations. Where there is a conflict among the requirements, the most stringent requirements shall apply.
- .3 PCA will also voluntarily comply with the Local Provincial and Municipal Codes, Standards Bylaws and Regulations. Where there is a conflict among the requirements, the most stringent requirements shall apply.
- .4 Comply with all PCA directives, regulations, guidelines, policies, standards, process and other related requirements. Where there is a conflict among the requirements, Consultant shall clarify with Department Representative to determine which requirements will take precedence.
- .5 The Code and Life Safety Consultant will provide reports at project milestones to ensure the project conforms to the codes, regulations and bylaws.

3.2.9. Provision of Staff and Sub-Consultant Services

- .1 For proposed changes to the roles of any and all persons, including principals and key personnel, to be employed by the Consultant or Sub-Consultant to provide the Services for the Project, submit in writing, to the Departmental Representative for approval, the names, addresses, qualifications and experience of the proposed individual(s).
- .2 When fees are on a Payroll Cost basis, submit to the Departmental Representative, for approval, a statement of Payroll Costs, and any amendments thereof, for all persons to be employed by the Consultant or Sub-Consultant to provide the Services for the Project.

3.2.10. Project Monitoring Reporting

- .1 Provide a system for documentation and project monitoring and reporting through each stage of project delivery, for approval by the Departmental Representative.
- .2 Prepare and submit monthly progress reports in a format agreed to with the Departmental Representative. The purpose of the report will be to review and monitor the progress of the work by the Consultant. The report shall:
 - .1 identify the progress of all deliverables,
 - .2 identify all instances where the schedule or cost plan is not being met,
 - .3 outline remedial measure being taken, and
 - .4 identify any anticipated or potential problems and provide solutions to address them.

3.2.11. Value Architecture/Engineering Analysis

- .1 During Design stage, the Consultants shall:
 - .1 Conduct studies that provide a well-balanced emphasis on total determination of investment value that not only reduce capital and operating costs, but also provide a better overall product.
 - .2 Provide the best alternatives in terms of a value-added quality performance, operating costs, environmental issues, etc.
 - .3 Provide these alternatives in addition to the three (3) alternative solutions to be presented for review at the Schematic Design stage of work required in the Standing Offer.
 - .4 Conduct Value Architecture/Engineering and Analysis studies during the early design stage to allow sufficient time for adoption of recommended alternatives without having any adverse effect on project schedule.
 - .5 Conduct Value Architecture/Engineering and Analysis studies using the following or similar acceptable methodology:
 - Approach issues in terms of OUTPUTS, rather than INPUTS, i.e., what is to be achieved rather than what needs to be done.
 - .b Create new ideas through brainstorming at the IntegratedDdesign sessions with PCA staff, PCA Field Unit maintenance staff, stakeholders, Consultant members including Sub / Specialist Consultants, and industry specialists.
 - .c Evaluate ideas and obtain consensus with all concerned on a short list of preferred value-added alternatives.
 - .d Estimate Life Cycle costs of suggested alternatives.
 - .e Rate each idea against advantages and disadvantages.
 - .f Prepare with the PCA Field Unit and other interested parties, a Risk Assessment list of consequences if individual ideas are adopted or rejected.
 - .g Develop ideas into practical alternative concepts which suit current conditions.
 - .h Prepare final report of recommendations to the Departmental Representative for consideration and approval.
 - .6 Incorporate approved ideas into design and construction documents in a timely manner.
 - .7 Monitor and report on implementation during the construction stage of work.

3.2.12. Final Artwork and Source Files for all Exhibit, Signage and Interpretive Elements

- .1 The Supplier will provide all final artwork and source files in native, fully editable, platform-independent, backward compatible format. In addition, all files must be supplied in EPS format with fonts converted to outlines on all vector artwork.
- .2 Parks Canada Agency will own all designs, drawings and files once projects are completed. This will ensure PCA can recreate any of the products if and when needed to ensure a cohesive look and to ensure maintenance, and or future modifications can be done.

3.2.13 Additional Services:

- .1 Project Management Services during construction
 - .1 Provide Project Management Service for the construction contract at the request of the Departmental Representative in the Call-up.
 - .2 When requested to do so, provide all services to manage the Contract on behalf of the Departmental Representative (who is also the PCA Project Manager), taking on the role of the PCA Project Manager and all the activities and responsibilities associated with that role, at the construction stage of the project.
- .2 Other additional Services, if required, shall be determined in the manner set out in each Standing Offer Call-Up.

BASIC SERVICES (BS)

BS1 PROJECT PLANNING SERVICES

GENERAL REQUIREMENTS

- The purpose of this stage is to ensure the Consultant has reviewed and integrated all the project requirements, identified and evaluated conflicts or problems, provided alternative strategies, presented and received approval on a Project scope, delivery process, schedule and estimate required to deliver a cohesive quality project. This approved deliverable will become the Project Scope of Services and will be utilized throughout the project to guide the delivery.
- 1. The following list identifies those reports which are required for the project and must be produced/provided by the Consultant.
 - .1 Preliminary Project Reports
 - .1 Feasibility Studies;
 - .2 Options;
 - Analysis or Assessment (including, but not limited to FHBRO review process, Environmental Impact Analysis etc.);
 - .4 Interpretive Exhibit Plan includes; Objectives, Target Audience, Interpretive Themes, Messages, Story lines.
 - .2 Building Audit Report
 - .1 Conditions Report
 - .2 Detailed Investigation Report
 - .3 Investigation and Report (I&R)
 - .3 Cost and Scheduling Reports
 - .1 Implementation Strategy and Schedule Report
 - .2 Order of Magnitude (Class D) Cost Report
 - .4 Environmental and Sustainable Design Reports (including, but not limited to: Environmental Impact Assessment, Environmental Impact Analysis etc.).

BS2 PRE-DESIGN SERVICES

1. GENERAL REQUIREMENTS

- 1.1. Based on the Call-up prepared by the PCA Departmental Representative, the scope of services including analysis of project requirements and review of deliverables.
- 1.2. Obtain written authorization from the Departmental Representative before proceeding with Pre-Design Services (Analysis of project requirements).
- 1.3. Review and report on all aspects of the project requirements. The Consultant will further review and analyze all available program information, consult with PCA and Authorities having Jurisdiction, and deliver a comprehensive and integrated Pre-Design Report. This report will form the basis for the scope of work for the remainder of the project and will be utilized throughout the project to guide the project delivery.

2. RESPONSIBILITIES OF THE CONSULTANT

- .1 The scope and activities shall include, but are not limited to the following: Administrative:
 - .1 Provide information and advice during the Project Start-up meetings, workshops;
- .2 Outline the quality management process for the Consultant;

- .3 Confirm that all necessary pre-design documentation required for this project are available and confirm that all information is still current and up-to-date. Notify the Departmental Representative of any missing and /or out-of-date reports.
- .2 Code and Regulatory Analysis:
 - .1 Identify and verify all Authorities Having Jurisdiction over the project;
 - .2 Identify applicable codes, acts, regulations and standards; and
 - 3 Prepare the "Codes and Regulatory Analysis" section of the "Pre-Design Report".
- .3 Program Analysis:
 - .1 Review and analyze all available reports, studies and data provided by PCA or others.
 - .2 Prepare the "Codes and Regulatory Analysis" section of the "Pre-Design Report"
- .4 Site Analysis:
 - .1 Review and analyze all available reports, studies and data provided by PCA
 - .1 Existing site conditions;
 - .2 Existing site plans;
 - .3 Subsurface reports (geotechnical);
 - .4 Surface reports (survey);
 - .5 Municipal infrastructure: Note any field investigations that will be required to verify and / or confirm existing site utilities and their capacities;
 - .6 Historical site features and National Historic Site cultural resources;
 - .7 Archaeological features;
 - .8 Environmental features, including Sustainable Design strategy (e.g., storm water), wildlife and Environmental Impact Analysis;
 - .2 Prepare Site Analysis section of the "Pre-Design Report".
- .5 Building Analysis:
 - 1 including all functional considerations and future uses for interior and exterior of building/project
 - .2 floor plans, elevations
 - .3 construction zone
 - .4 building massing
- .6 Budget, Schedule and Risk Analysis:
 - .1 Review and analyze the project budget and schedule data, constraints and opportunities;
 - .2 Advise and recommend budget and schedule modifications, and outline risk implications and mitigation strategies;
 - .3 Prepare Class "D" estimate;
 - .4 Prepare risk implications and mitigation strategies; and
 - .5 Prepare "Budget, Schedule and Risk Analysis" section of the "Pre-Design Report".

3. DELIVERABLES

- .1 Pre-Design Report:
 - 1 Prepare and submit an integrated Pre-Design Report which includes all functional considerations for review and approval by the Departmental Representative.
 - .2 Revise as required by the Departmental Representative and resubmit for acceptance.
 - .3 The Report will consolidate the "Service Requirements" identified above and will be utilized as the benchmark project control document to monitor progress of the project.
 - .4 The Report will be used as a basis for monthly reporting of progress and will require supplements and modifications to reflect changes in project parameters as may be identified and approved throughout the project life cycle.
- .2 Pre-Design Report Content The Pre-Design Report shall include but is not limited to the following:

- .1 Executive Summary, which is intended to provide a précis of the Pre-Design Report and outline any recommendations requiring PCA approval
- .2 Codes and Regulatory Analysis
- .3 Program Analysis
- .4 Site Analysis, including Environmental Analysis, and criteria provided by Parks Canada for FHBRO considerations in the case of a heritage building/structure
- .5 Building Analysis, including all functional considerations and future uses for interior and exterior of building/project and applicable Standards
- .6 Interpretive/Exhibit program analysis
- .7 Budget, Schedule and Risk Analysis
- .8 Rebuttal to PCA Quality Assurance Report
- .9 Prepare and submit a written response to all comments provided by PCA

BS3 SCHEMATIC DESIGN SERVICES

1. GENERAL REQUIREMENTS

- 1 The Consultant must obtain written authorization from the Departmental Representative before proceeding with Schematic Design.
 - The objective of the Schematic Design stage is to explore three distinctly different design schemes, to allow comparison, analysis against project requirements and selection of a design direction for preparation of a final design concept.
 - .2 Schematic Design is to be presented in sketch format (single line, to scale), fully integrated and supported by three distinctly different architectural solutions, along with massing models, site photographs and narrative description.
 - .3 The Departmental Representative will choose one option to be further developed. Although the Consultant is required to identify a preferred option, the Departmental Representative will determine and advise the Consultant on the most appropriate option.

2. RESPONSIBILITIES OF THE CONSULTANT

- .1 The Consultant scope and activities shall include but are not limited to the following:
- .1 Architectural:
 - .2 Administrative:
 - a. Run the integrative design workshops and give them information and advice;
 - b. Confirm the quality management process for the Consultant.
 - .3 Regulatory:
 - a. Prepare Preliminary code analysis and regulations analysis.
 - .4 Site analysis and design options: Prepare site plans including:
 - a. Site features and restrictions, based on recent survey drawings;
 - b. Influences, and existing structures;
 - c. Subsoil characteristics;
 - d. Historical site and building features;
 - e. Archaeological characteristics of the site;
 - f. Environmental features including sustainable design strategies (e.g., storm water management, hard and soft landscaping, including parking, waste management [garbage bin location and ease of access for maintenance staff], Environmental Impact Assessment etc.).
 - .5 Prepare 3 Design Options:
 - a. Provide detailed functional considerations for the various designs created;
 - b. Schematic building floor plans showing main entrance, reception, and information space including spatial linkages, office space for staff, washroom locations, theatre and Exhibit/Interpretive space, links between interior and exterior spaces:

- c. Sketch elevations and sections indicating basic design approach and aesthetic philosophy;
- d. Sketch perspectives and massing studies;
- e. Gross building areas and summary of main accommodation areas required and proposed.
- .6 Budget, Schedule and Risk Analysis: prepare the following elements and keep them updated:
 - a. Updated budget (and provide Class "C" estimate for each design option);
 - b. Milestone the project schedule including allowances for reviews and approvals for each stage of the project life cycle; and
 - c. Risk implications and mitigation strategies.
- .7 Design considerations, including but not limited to:
 - a. Incorporate visitor safety in the design (e.g., location of garbage cans in relation to kitchen shelters to minimize animal/visitor conflicts, lighting, dark corners, no back doors in washroom buildings);
 - b. Look for all opportunities for PCA to incorporate and reflect branding and/or interpretive elements and theme decor into its products (generic look and feel):
 - c. Design for CPTED crime prevention through environmental design;
 - d. d. Incorporate sustainable material, technology and approaches into designs;
 - e. All design concepts must consider and minimize ongoing maintenance, consider ease of cleaning and costs and consider replacement cost of materials.

.2 Interpretive and exhibit:

- 1 For exhibit, signage and interpretive elements, conduct creative consultation, research and prepare an interpretive plan, 3D design brief and graphic design brief.
 - In general, the designer will be required to develop and submit three acceptable concept options, each including 3D and graphic design concepts, based on consultation with the Project Manager unless otherwise requested by the Project Manager. The chosen concept and design will become property of the Crown.

.3 Structural:

- .1 Proposed or alternative structural systems including foundation methods, explanatory sketches, etc. and a copy of the site investigation report on which the design is based:
- .2 Initial seismic and loading analysis based on site specific features and climatic conditions.

.4 Mechanical:

- The schematic design submission shall include a description of specific mechanical requirements and function for each area (room) in the project. Identify any unique or specialized equipment required by the subject facility. Incorporate in the submission a schedule of requirements listing all rooms and identify the mechanical building services to be provided.
- .2 Explain in the concept submission the manner in which the proposed mechanical systems correlate with user requirements.
- .3 Identify the volume of outdoor air to be supplied per person.
- .4 Identify the delivery rate of supply air to occupied spaces.
- .5 Identify whether full-time operating staff will be needed for operating any of the mechanical equipment. Differentiate between staff that is needed by code requirements versus that staff which is needed because of the nature and size of the facility.
- .6 Identify size, capacity and location of existing and proposed entry points into the building for each mechanical service.

File Name - Nom du dossier: Contemporary Architecture – National Parks and Historic Sites in the Province of Ontario.

- .7 Identify in square metres the area to be provided for mechanical rooms, and then identify what percentage of total building area this represents. Identify location of mechanical horizontal and vertical spaces in the building.
- .8 Present an analysis of alternative mechanical schemes at the schematic design stage to reveal energy consumption of building systems, operating and maintenance costs on a month by month basis for a time span of one year. Accordingly the estimated energy, operating and maintenance costs shall be used in life cycle cost analyses in order to determine the most beneficial mechanical systems alternative. Life-cycle cost analyses shall be based on a projected building life of 50 years.
- .9 Carry out energy analysis on mechanical system alternatives.
- .10 Establish an energy budget for the building and compare it to energy consumption of other similar buildings. Total energy consumed in the building shall be expressed in kWh/m².
- .11 Submit a complete energy analysis using a Canadian recognized energy analysis tool
- .12 Identify the type of boilers to be used (i.e. cast iron sectional, fire tube, etc.) and provide an economic and technical explanation of the reason for the type of boiler to be used.
- .13 Prepare and estimate of water consumption and waste water amounts for the design of the building systems and describe tie-in with available utility lines.
- .14 Propose radon gas mitigation design.

.5 Electrical:

- Describe existing and proposed basic electrical systems of significance to the preliminary design, including but not limited to: life safety, power (regular/emergency), lighting, communications (radio/voice/data), TV cable/satellite, and security.
- .2 Site plan showing existing location of equipment and service entrances.
- .3 Proposed site plan showing location of proposed equipment and service entrances.
- .4 Distribution diagram showing single line diagrams to distribution centres.
- .5 Floor plans complete with locations of major electrical equipment and distribution centres.
- .6 Communication systems: identify existing communication systems including radio, emergency, phone, data and cable systems. Proposed systems description.
- .7 Propose Communication Rooms, conduits, radio and telecommunication cable systems, layout and requirements.
- .8 Provide an electrical design synopsis, describing the electrical work in sufficient detail for assessment and approval by the Department Representative. Include feasibility and economic studies of proposed systems complete with cost figures and loads; power consumption, systems protection and energy management.

.6 Commissioning:

- .1 Define Commissioning Requirements and Commissioning Team.
- .2 Provide preliminary Commissioning Plan.
- .3 Identify in square metres the area and locations to be provided to maintenance personnel, including storage and workshops for mechanical, electrical and housekeeping.
- .4 Define project verification archives (data storage and retrieval system).

.7 Environmental:

- .1 Update an Environmental Assessment (Environmental Impact Analysis), if required under and a Canadian Environmental Assessment Act 2012 (CEAA 2012) Screening Report; or incorporate the requirements as set out in the Evaluation of Environmental Effects (EEE) letter or report produced by PCA.
- .2 Prepare a Waste Management Plan.
- .3 Confirm site-specific requirements with the Departmental Representative.

3. DELIVERABLES

- .1 Schematic Design Report:
 - .1 Schematic Design documents illustrate the functional relationships of the project elements as well as the project's scale and character, based on the final version of the functional program, the schedule and the budget.
 - .2 The Consultant shall prepare and submit a Draft Schematic Design Report including a minimum of three options for review and acceptance by the Departmental Representative.
 - .3 Revise as requested by the Departmental Representative and resubmit for formal acceptance.
 - .4 The Report will update the "Pre-Design Report", consolidate the "Service Requirements" identified above and will continue to be utilized as the benchmark project control document to monitor progress of the project. The Schematic Design Report shall be "Web-enabled".
 - .5 The Consultant shall deliver presentations at sessions arranged by the Departmental Representative.
- .2 Schematic Design Report Content The Schematic Design Report shall include but is not limited to the following:
 - .1 Executive Summary: it is intended to provide an outline of any recommendations requiring Departmental Representative approval,
 - .2 Codes and Regulatory Analysis,
 - a. Prepare Preliminary code analysis and regulations analysis,
 - b. Identify Authorities having Jurisdiction,
- .3 Program Analysis and Options,
- .4 Exhibits, signage and interpretive elements: Interpretive plan, Concept Design including 3D Design brief and Design brief,
- .5 Analysis and Schematic Design Drawings:
 - a. Site Analysis and Design Options,
 - b. Building Analysis and Design Options,
- .6 Budget, Schedule and Risk Analysis and Class C estimate
- .7 Rebuttal to PCA Quality Assurance Report
- .8 Prepare and submit a written response to the Departmental Representative, to all comments provided by PCA,
- .9 Environmental Impact Analysis,
- .10 Commissioning Plan.

BS4 DESIGN DEVELOPMENT SERVICES

1. GENERAL REQUIREMENTS

- .1 The objective of the Design Development stage is to further refine and develop the design option selected at the Schematic Design stage.
- .2 The Consultant must obtain written authorization from the Departmental Representative before proceeding with Design Development.

2. RESPONSIBILITIES OF THE CONSULTANT

The Consultant scope and activities shall include but are not limited to the following:

- .1 Architectural:
 - a. Administrative:
 - .1 Manage and provide information and advice during integrated Design Workshops and meetings;

- .2 Confirm quality management process for the Consultant; and
- .3 Update quality management process for the Consultant.
- b. Regulatory prepare, develop and refine:
 - .1 Detailed code analysis.
 - .2 Detailed regulations analysis.
 - .3 Present design to the authorities having jurisdiction and obtain their preliminary review comments.
- c. Building Design:
 - .1 The Consultant is responsible for all design activities including but not limited to:
 - .1 Site and Landscape plan:
 - .1 Site features and restrictions (topographical features, climatic influences, setback requirements, servitudes or easements, right-of-ways, existing buildings and/or structures, parking layout, wayside exhibits, exterior signage, interpretation panels/nodes, etc.);
 - .2 Subsurface features, and above grade and subsurface infrastructure/services, including type, capacities and limitations (storm water drainage, fire protection, domestic water, sewer, power, telecommunications etc.);
 - .3 Archaeological features;
 - .4 Environmental features including sustainable design strategies (surface water management, garbage removal management, storm water management, landscaping etc.);
 - .2 Floor Plans of each floor showing all spaces required with room names and calculated areas, including all necessary circulation areas, stairs, elevators, etc., and ancillary spaces anticipated for service use. Indicate building grids, modules, etc., and key dimensions:
 - .3 Fixture, Furniture and Equipment plans which include, but are not limited to: a report detailing the functional considerations for the space/building how those would look, where they would be situated, recommendations for best material;
 - .4 Exhibit, signage and/or interpretation element design;
 - .5 Roof Plan showing slope, drainage, roof top equipment;
 - .6 Cross Sections through the building(s) to show floor levels, room heights, exterior grade elevations and roof height;
 - .7 Detail Sections of walls, building envelope design features or other special design features requiring illustration and explanation at this stage, including fireproofing methods;
 - .8 Demolition plans, partition plans, reflected ceiling plans, finish schedules, door/window schedules;
 - .9 Elevations showing proportion/massing, material types and sizes, colours, textures, finishes, floor levels, exterior quality;
 - .10 Standard details and special details;
 - .11 Summary of sustainable design strategies;
 - .12 Provide NMS specifications, including identification of all components and finishes, and sustainable procurement strategies.
- d. Budget, Schedule and Risk Analysis Prepare and update the following:
 - .1 Budget and Class "B" estimate;
 - .2 Project schedule modifications, including allowances for reviews and approvals for each stage of the project life cycle;
 - .3 Risk implications and mitigation strategies.

Details of other Required Services to be determined at the time of each individual Call-up.

.2 Geotechnical:

a. If required, Consultant will be responsible to advise Departmental Representative of the scope of work for procuring geotechnical engineering services required for the specific project identified at the time of each individual Call-up.

- .1 Provide advice on scope of services required for geotechnical engineering expertise to respond to project objectives;
- .2 Review and coordinate the Geotechnical Engineering expert's services required within the project parameters.
- b. The following are some examples of the type of projects where the geotechnical engineering specialist would be required:
 - .1 Prepare scope of work for geotechnical engineering services on a particular project;
 - .2 Recommend location of bore holes for the proposed building;
 - .3 Review soil testing results and provide recommendations to the Departmental Representative.

Details of other Required Services to be determined at the time of each individual Call-up.

.3 Civil:

- .1 Provide advice on the requirements for the type of services required to engage the civil engineering professional to meet the project objectives;
- .2 The Architect must engage a Civil Engineer as a Sub-Consultant;
- .3 The Architect must review and coordinate the civil engineering services required within the project parameters.

.4 Structural:

- a. Drawings indicating the proposed structural framing system, structural materials, and standard, significant or unusual details proposed. Provide separate structural drawings. Include a copy of the structural load/data analysis on which the design is based:
- b. Update seismic and loading analysis based on site specific soil conditions and climatic conditions.

.5 Mechanical:

- Site Plan showing service entrances for water supply, sanitary and storm drains and connections to utility services, including all key invert elevations;
- b. Drawings showing preliminary sizing of ventilation, cooling and heating installations, and all major equipment arrangements in mechanical rooms;
- Drawings of plumbing system, showing routing and sizing of major lines and location of pumping and other equipment where required;
- d. Drawings of the fire protection systems showing major components;
- e. Produce preliminary designs based on the approved schematic design. Update the energy analysis and energy budget established at the schematic design stage;
- f. Update the schedule of requirements;
- g. Provide information on all internal and external energy loads in sufficient detail to determine the compatibility of the proposal with existing services, approved concept and energy budget;
- h. Analyze selected equipment and installations with schematics and calculations sufficient to justify the economic benefits of the selected systems;
- i. Describe the mechanical systems needed and the components of each system. Describe the planned operation of the mechanical systems;
- j. Explain what competencies the operating staff will need to operate the building systems and the expected functions of the operation staff;
- k. Describe the building systems control architecture. Provide preliminary EMCS network architecture, mechanical control schematics, and sequence of operation;
- I. Explain what acoustical and sound control measures are to be included in the design.

.6 Electrical:

a. Provide drawings showing advanced development of all the systems.

- b. Provide the following data:
 - 1 Total connected load.
 - .2 Maximum demand and diversity factors.
 - .3 Sizing of standby load.
 - .4 Short-circuit requirements and calculations showing the ratings of equipment used.
- c. Electrical drawings showing the following elements:
 - .1 Floor elevations and room identification.
 - .2 Legend of all symbols used.
 - 3 Single line diagram of the power circuits with their metering and protection, including:
 - .1 Complete rating of equipment.
 - .2 Ratios and connections of CT's and PT's.
 - .3 Description of relays when used.
 - .4 Maximum short-circuit levels on which design is based.
 - .5 Identification and size of services.
 - .6 Connected load and estimated maximum demand on each load centre.
 - 4 Circuit numbers at outlets and control switching identified.
 - .5 All conduit and wire sizes except for minimum sizes which should be given in the specification.
 - .6 A panel schedule with loadings for each panel.
 - .7 Telephone conduits system layout for ceiling/floor distribution.
 - .8 Riser diagrams for lighting, power, telephone and telecommunication cable systems, fire alarm and other systems.
 - .9 Elementary control diagrams for each system.
 - .10 Schedule for motor and controls.
 - .11 Complete lighting layout and fixture schedule clearly indicating methods of circuiting, switching and fixture mounting.
 - .12 Electric heating layout and schedule.

.7 Commissioning:

- a. Define Commissioning and Operation Requirements and Commissioning Team.
- b. Provide preliminary Commissioning Plan.
- c. Prepare a Commissioning Brief describing major commissioning activities for mechanical, electrical and integrated system testing.
- d. Define and establish project-specific archives.

.8 Environmental:

- a. Update an Environmental Assessment (Environmental Impact Analysis), if required under the Canadian Environmental Assessment Act 2012 (CEAA 2012) and a Screening Report; or incorporate the requirements as set out in the Evaluation of Environmental Effects (EEE) letter or report produced by PCA.
- b. Update Waste Management Plan.
- c. Develop the design and explore positive environment strategies.

DELIVERABLES

- .1 Design Development Report:
 - .1 The Consultant shall prepare and submit a Draft Design Development Report for review by the Departmental Representative.
 - .2 Revise as requested by the Departmental Representative and resubmit for formal acceptance.
 - .3 The Report will update the "Schematic Design Report", consolidate the "Service Requirements" identified above and will continue to be utilized as the benchmark project control document to monitor progress of the project. The Design Development Report shall be "Web-enabled".

- .4 The Consultant shall attend presentation sessions arranged by the Departmental Representative.
- .2 Design Development Report Content The Design Development Report shall include but is not limited to the following:
 - .1 Executive Summary: intended to provide an outline of any recommendations requiring Departmental Representative approval.
 - .2 Codes and Regulatory Analysis update analysis of codes and regulations.
 - .3 Prepare and submit a written response to the Departmental Representative, to comments provided by PCA.
 - .4 Coordinate discipline drawings.
 - .5 Coordinate and update Exhibit, signage and interpretive elements.
 - .6 Update Budget, Schedule and Risk Analysis and Class B estimate.
 - .7 Rebuttal to PCA Quality Assurance Report
 - .8 Update Environmental Impact Analysis.
 - .9 Update Commissioning Plan.
 - .10 Prepare Development Permit submission package, including but not limited to: drawings, specifications, required reports and documents, in both digital copy and paper copies along with three (3) duplicate copies of the material finishes and colour board.
 - .11 Confirm with the Development Officer of the PCA development review process. If Advisory Development Board (ADB) review is required, prepare ADB Plans and all the required documents. Attend ADB and public meetings and assist by providing answers to equerries when requested.
 - .12 Assist Departmental Representative to apply for Development Permit, follow thru with the Permit process and provide assistance until the Permit is issued. Update approved Permit submission and resubmit as required.

BS5 EXHIBIT DESIGN SERVICES

Parks Canada, through its Exhibit Design, Fabrication and Installation Supply Arrangement, has prequalified firms specializing in exhibit development. These firms have expertise and extensive recent relevant experience providing exhibit services as required in this RFSO. A list of these pre-qualified firms is included in Annex "A" should the proponent wish to invite any of these specialized firms to be part of the proponent's team. Ensure their submission complies with this RFSO submission requirements.

Statement of Work

The Supplier shall offer Parks Canada project managers "turnkey" graphic design, production, communication and marketing services as and when needed. The work will focus mainly on the design, production and installation of traditional and multimedia exhibits (indoor and outdoor) intended for regular visitors as well as new audiences.

1. Deliverables

The Supplier shall offer a comprehensive range of one-stop services including graphic design, production, communication and marketing using a wide variety of autonomously operating media. As mentioned above, the work will focus mainly on the design, production and installation of traditional and multimedia exhibits. Additionally, the RFSO will be used to supply other deliverables including, but not limited to:

- Brochures / Leaflets
- Bookmarks
- Posters

- Maps, graphics, charts
- Illustrations and images (printed black & white, mixed custom colours and 4-colour)
- Interactive multimedia experiences incorporating various media including, but not limited to, audio recordings, videos, animations, images, etc.
- Electronic media, including the development and design of Web content and graphics, PDF documents, electronic newsletters, presentations, interactive content, Flash animations, html files, etc.
- Design for video (does not include video production).

Details of the specific requirements of each project will be communicated to the Supplier by Parks Canada project managers. Depending on the project, Parks Canada may also provide guidelines regarding the overall design in terms of theme, visuals and aesthetics.

2. Services

Some or all of the following services may be required:

- Creative Consultation, Research and Concept Development
- Project Management
- Exhibit Design, Development, Fabrication and Installation
- Art Direction and Graphic Design for print media, exhibits and electronic media
- Layout and Production
- Drafting, revision and correction of proofs for print media, exhibits and electronic media
- Language Adaptation
- Rendering and Creative Illustration
- Print Management and Production

2.1. Creative Consultation, Research and Concept Development

The Supplier shall offer creative consultation and research services, and provide advice and ideas to develop concepts for a wide range of autonomously operating media intended for regular visitors and new audiences at historic sites. Consultation services will be required on-site as needed, at the PCA Project Manager's discretion, including personal attendance at PCA or site offices or at the Contractor's premises, as well as participation in teleconferences to develop or present creative concepts based on guidelines and instructions provided by the Project Manager for the particular project.

In general, the Project Manager will require at least three (3) options.

2.2. Project Management (excluding printing)

The Supplier shall provide project management services covering all essential aspects for coordinating and overseeing graphic design, fabrication, communication and marketing work, and to ensure successful completion including but not limited to the following:

- Design Management, including the design and fabrication of exhibits (traditional and multimedia), construction work, associated installations, and supporting infrastructure.
- Workflow and budget management, from start to finish of a process, to ensure that the timeline and budget for each project is met.
- Preparation of detailed timelines for design and installation work.
- Quality Assurance for all work performed by the Supplier and its Subcontractors.

- Client-Supplier relationship management, including organizing necessary meetings, obtaining Client feedback, and obtaining Client approval at key project milestones.
- Presentations as required.
- Troubleshooting.
- Management of comprehensive writing, translation, revision and proof correction services.
- Information communication and management throughout the project.
- Web publishing and development of multimedia content.

2.2.1. Art Direction and Graphic Design for Print Media, Exhibits and Electronic Media

The Supplier must provide to the Parks Canada Project Manager, as needed, the following services including but not limited to:

- Prepare the design and submit three (3) acceptable graphic concepts after consulting the Project Manager for the particular project, unless otherwise instructed by the Project Manager. The graphic concept adopted shall become the property of the Crown.
- Provide artistic guidance for designers with the goal of producing high-quality deliverables that comply with the approved concepts and models.
- The Supplier must prepare and present a design brief for every design project.

2.2.2. Layout and Production

Assemble all elements so they are ready to be used by the Project Manager, printer, exhibit fabricator, and Webmaster to create the finished product.

The Supplier must produce the final page layout by carrying out work including but not limited to:

- Ensuring that text files are compatible with the various computer applications.
- Deleting or correcting formatting errors in the Supplier's own work.
- Converting/formatting text files provided.
- Deleting or correcting formatting errors in texts provided by the Client in accordance with the Project Manager's requirements.
- Preparing typographical elements as part of the design and layout of text as required. The resolution of all text must meet the industry standards applicable to media and commerce.
- Providing the definitive layout of text and images.
- Importing charts, graphs and tables for inclusion in the layout as required.
- Importing images (illustrative, photographic etc.) for inclusion in the layout.
- Solving design problems that arise during layout and production.
- Preparing the final electronic iconography for production.
- Ensuring the provision of other media production support services needed for each project.

2.2.3. Drafting, Revision and Correction of Proofs for Print Media, Exhibits and Electronic Media

As required by the Parks Canada Project Manager, the Supplier must research, write and edit texts in French and English for a wide range of media. The Supplier must also check and correct proofs provided by the Parks Canada Project Manager. The checking and correction of proofs drafted or revised by the Supplier or its Subcontractors are considered part of the Supplier's quality assurance responsibilities.

2.2.4. Language Adaptation

The Supplier must translate and localize into other language(s) the text that it drafts as well as text supplied by the PCA Project Manager as a part of the creative graphic design, communication and marketing services. In general, these are language adaptations into French and English but may also be into other languages.

2.2.5. Design rendering and Creative Illustration

The Supplier shall produce visual recordings of the concept development and design interpretations resulting from the creative consultation. The Supplier must provide to the Parks Canada Project Manager, as needed, the following services, including but not limited to:

- Designing preliminary thumbnails / storyboards (in electronic and printed form) for approval purposes.
- Designing black & white sketches.
- Producing final graphical illustrations adjusted to the dimensions indicated by the Parks Canada Project Manager.
- Creating diagrams, charts and graphics.
- Creating images for print media and the Web.
- Digitizing photos provided by the Project Manager for print and Web using Web-safe colour palettes and formats.
- Retouching photos and images provided by the Project Manager as needed.
- Refining the adopted concept to provide a final version for approval.
- Making and presenting full-size colour mock-ups of all proposals and later revised versions in print and PDF format in accordance with the Project Manager's instructions.
- Designing, creating and modifying PDF files.
- Converting text files to HTML or vice-versa.
- Producing Flash animations for Web and multimedia projects.
- Fulfilling other print requirements as needed.

2.2.6. Print Management and Production

The Supplier must provide prepress production services, including all proof-passing (detailed plans, PDF files, colour proofs) and print services management including quality-checking, troubleshooting and print-output inspection in accordance with the Parks Canada Project Manager's requirements. The Supplier must also provide print coordination services (for a design project) to ensure final delivery of a multi-component project (printing must be related to a graphic design project).

The Supplier must comply with the following procedure:

- To follow up a print services RFP that it coordinates and invoices, the Supplier must obtain at least three (3) print estimates from printers capable of doing the required work. The Supplier will then choose the lowest submitted price. Printers' prices must include the cost of printing, packaging, shipping, and delivery to destination (FOB).
- The Supplier's response to a request for a price or proposal must be accompanied by three (3) estimates issued by the printers approached.
- The Supplier is responsible for all matters relating to production, planning, delivery and quality assurance.
- The Supplier must invoice the work done by the printer at cost price. No surcharge or profit margin is permitted. The supporting documentation accompanying the Supplier's invoice must include one (1) copy of the printer's invoice.

2.3. Design, Development, Fabrication and Installation of Exhibits

The Supplier must ensure the graphic and technical design, as well as the fabrication and installation of traditional and multimedia exhibits (indoor and outdoor). This includes the fabrication, delivery and installation of all exhibit elements. All exhibits must be accompanied by a detailed information kit intended for Parks Canada personnel.

For all exhibit projects, the Supplier will receive a description of the intended exhibit space and the Supplier will have to assess it on-site. The Supplier will also receive a description of the target audience and will have to show how the Supplier will meet its requirements at all stages of the development of the exhibit.

The Supplier will have to prepare and present two acceptable concepts including a 3D concept and graphical concept, after consulting the Project Manager, unless indicated otherwise. The chosen concept becomes the property of the Crown.

2.3.1. Preparation of an Interpretive Plan and Design Brief

After the Project Manager approves the concept, the Supplier will draft the exhibit text, in accordance with requirements, as follows:

- Prepare a set design or interpretive plan of the exhibit, as well as the graphic and 3D design brief.
- In narrative form, describe the visitor experience and indicate how the exhibit will appeal to various segments of the target audience.
- Classify the content into topics.
- Offer supporting media, including artefacts, as well as other objects, images, videos and audio recordings.
- Offer new supporting media that will expand the space of the exhibit (i.e., elements that could be
 accessible over the Internet or that would permit Internet access from the exhibit area).
- Design the exhibit modules.
- Offer text content.
- Offer interactive content.
- Make a functional or virtual model of the exhibit which, without going into details, shows the layout of the site, exhibit route, location of the various exhibit units, communication means, and rest areas.
- Provide presentation documents that include the layout of the site, as well as elevation drawings (in colour), showing the ambience in the exhibit hall and in each of the areas, as well as the visitor experience.
- Submit for the Project Manager's approval a definitive scale map of the layout and elevation drawings, indicating the exhibit mounting principles, finishes and colours, location of communication systems and multimedia presentations, the exhibit route, the location of rest areas, as well as structural and acoustic details.
- Submit for the Project Manager's approval the design and graphic grids for each type of message.
- Submit for the Project Manager's approval the specifications of audio-visual/multimedia productions.
- Design and define the specifications for sound and lighting, and submit a plan and list of materials for the Project Manager's approval.
- Submit for the Project Manager's approval a scenario describing the treatment and communication methods proposed for using 3D designs based on themes, sub-themes, messages, as well as the recommended approach.
- Prepare the final scenario, interpretive plan and design brief.

Taking into account the physical and technical constraints of the exhibit space, the Supplier must ensure that:

- the exhibit offers an experience that will attract the target audience and meet its needs;
- the exhibit offers a memorable experience;
- the exhibit is novel, innovative and impressive and conducive to discovery and learning;
- the exhibit has areas and elements that make the most of the personal interpretive programs offered (places for groups and interpretive programs videoconferences, theatre, videos, etc.).
- the ambience must be appropriate and timeless;
- the space and the experience must reflect the Parks Canada brand image.

The Supplier must also ensure that the exhibit complies with the requirements regarding:

- visitor safety;
- accessibility for all visitors regardless of age or physical ability.

2.3.2. Final Design and Fabrication

Once the final design and interpretive plan are approved, the Supplier must manage all the exhibit production stages including but not limited to the following:

- Making the decorations, set, scenery and graphic presentation, including signage, illustrations and graphics.
- Making the visual elements, including the final page layout of the text, legends and illustrations.
- Providing the final detailed breakdown of project costs, including equipment, production and installation, as well as a work completion timeline.
- Preparing specifications that include maintenance instructions for material and equipment (including user guides for audio-visual equipment), cleaning instructions, a list of parts suppliers, as well as a parts replacement schedule.
- Preparing clear, accurate and detailed technical factsheets, as well as specifications for the construction of the supporting structure, the fabrication of furniture, set decoration and graphic elements necessary to build and install the exhibit.
- Submitting for the Project Manager's approval, before fabrication, the technical and electrical installation plans (including power requirements in start-up amps) for all exhibits.
- Submit for the Project Manager's approval, before fabrication, all samples for making final choices of materials and colours, as well as the corresponding technical requirements.
- Prepare the specifications for final installation.
- Execute and supervise the production and completion work.

2.3.3. Quality Criteria

All exhibits must meet or exceed the following quality criteria:

- Interactive units and exhibit modules must be robust and durable and able to withstand heavy use by various audiences for a period of five to ten years.
- All fabrication must be of excellent quality. Structures and their operation must comply with the Canadian Electrical Code and CSA requirements.
- Assembly and installation must be plumb, square and level, correctly aligned, precisely adjusted, and assembled solidly with strong joints. Surfaces must be smooth with no perceptible faults.
- Modules and interactive units must be easy to clean and use.

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- The sound output of each unit at full capacity must comply with applicable requirements and standards.
- The parts and components of modules must be easy to replace.
- As much as possible, materials and equipment must be chosen with due consideration to the environmental impact of the fabrication process, their recyclability and environmentally safe disposability at the end of the exhibit's life cycle.
- Structures must be warrantied against fabrication faults and premature collapse.

2.3.4. Installation

Under the supervision of the Project Manager, the Supplier shall carry out all stages of installation, including but not limited to the following:

- Planning all installation stages, recommending a timeline and coordinating the work of all Subcontractors so that the exhibit is installed in accordance with projected completion deadlines.
- Preparing site and equipment reports.
- Supervising the work during installation periods.
- Supplying all materials, equipment and items, as well as the labour and usual tools necessary to carry out the work.
- Applying finish coats, etc., as required.
- Transporting the fabricated exhibit items to the predetermined locations in accordance with the agreed timeline.
- Ensuring that Parks Canada personnel receive training in the design of the exhibit and how to use the equipment.
- During installation, ensuring that the exhibit space is kept clean and tidy, minimizing disruption for visitors, collecting and removing waste, etc.

2.3.5. Follow-up and Warranties

Three months after the exhibit opens, the Supplier must carry out a follow-up assessment to review all aspects of the exhibit and ensure that they are all working optimally. The Supplier must offer a 12-month construction and labour warranty, and all manufacturers' warranties must be assigned to Parks Canada.

In the event of a breakdown or malfunction attributable to inadequate materials or construction defects, Parks Canada shall immediately notify the Supplier. The Supplier shall immediately make the necessary repairs or changes, at its own cost, so that the exhibit is fully functional, or replace it as promptly as possible.

2.3.6. Final Original Illustrations and Documents

Final original illustrations and documents must be sent to Parks Canada in their original format, must be modifiable, platform-independent, and compatible with earlier versions. In addition, all files must be supplied in EPS format with fonts converted to outlines on all vector artwork.

BS6 CIVIL ENGINEERING SERVICES

If required, the Consultant will be responsible for the provision, management and coordination of a civil engineering professional to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage a civil engineering professional to meet the project objectives;
- 2. Engage a Civil Engineer as a Sub-Consultant;
- 3. Review and coordinate the civil engineering services required within the project parameters. The following are some examples of the type of services where the civil engineering specialist could be required:
 - .1 Provide advice and design, contract documents for a specific project.

Details of other Required Services to be determined at the time of each individual Call-up.

BS7 GEOTECHNICAL ENGINEERING SERVICES

If required, the Consultant will be responsible to advise the Departmental representative of the scope of work for procuring geotechnical engineering services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on scope of services required for geotechnical engineering expertise to meet project objectives;
- 2. Review and coordinate the Geotechnical Engineering expert's services required within the project parameters.

The following are some examples where the services of a geotechnical engineering specialist would be required:

- 1. Prepare scope of work for geotechnical engineering services required for a particular project;
- 2. Recommend location of bore holes for the proposed building;
- 3. Review soil testing results and provide recommendations to the Departmental Representative.

Details of other Required Services to be determined at the time of each individual Call-up.

BS8 CONSTRUCTION DOCUMENT SERVICES

1. GENERAL REQUIREMENTS

The Construction Document stage includes preparation of tender ready construction drawings and specifications, setting forth in detail all the requirements for the construction of the project along with a Class A cost estimate.

The Consultant must obtain written authorization from the Departmental Representative before proceeding with Construction Documents.

2. RESPONSIBILITIES OF THE CONSULTANT

The Consultant scope and activities shall include but are not limited to the following:

- .1 Administrative:
 - Manage and provide information and advice during integrated Design Review Sessions and meetings;
 - .b Update the quality management process for the Consultant.

.2 Regulatory:

- a complete detailed code and regulations analyses;
- .3 Scope and Activities:
 - a Submit drawings and specifications at 33%, 66%, 99% and 100% stages.
 - .b Obtain acceptance for each submission at 33%, 66%, 99% and 100%.
 - .c Provide a written response to all review comments and incorporate them into construction documents.
 - .d Confirm format of drawings and specifications.
 - .e Clarify special procedures (i.e. phased construction).
 - .f Advise as to the progress of cost estimates and submit updated cost estimates as the project develops.
 - .g Update the project schedule.
 - .h Prepare a final Class 'A' estimate.
 - Submit all architectural and engineering calculations. Calculations submitted might not be reviewed. They are required for record purposes and in certain instances to assist in the understanding and interpretation of designs. Calculations shall be submitted in a format that is legible, neat and easily understandable.
 - .j Review and approve materials, construction processes and specifications to meet sustainable development objectives.
- .4 Technical and Production Meetings:
 - a Production of construction documents will be reviewed during the meetings arranged by the Departmental Representative and the Consultant.
 - .b Representatives from PCA will be present as arranged by the Departmental Representative.
 - .c The Consultant shall ensure that its staff and the Sub-Consultant representatives attend the technical and production meetings.
 - .d The Consultant shall ensure all documents are coordinated with all Sub-Consultants and disciplines.
 - .e The Consultant shall arrange for all necessary progress prints, data, product information, etc.
 - .f The Consultant shall prepare minutes of the meetings and distribute copies to all participants.
 - g. Prepare and submit a written response to the Departmental Representative, to all comments provided by PCA.

3. GENERAL DELIVERABLES

Deliverables are similar at all three intermediate milestone work completion stages (33%, 66% and 99%).

Deliverables at 100% stage must be ready for tender and construction permit issuance requests...

4. 33%, 66%, 99% MILESTONE SUBMISSION DELIVERABLES

Completeness of the work must reflect the stage of each submission at 33%, 66% and 99%. Aspects to be included (but are not limited to) are identified below for each submission stage.

For 99% submission:

- .1 Submit written response to the Departmental Representative to review comments made at previous submission (66%).
- .2 Submit a final report on the application of Sustainable Development principles and strategies during the project.
- .3 Submit one copy of updated Cost Plan, draft Class "A" (±5%) cost estimate.
- .4 Submit one copy of updated project schedule.
- .5 Provide final code analysis. Information on drawings must fully comply with codes, Federal standards, PCA requirements and all other requirements in the Consultant Agreement.
- .6 Drawings and Specifications:

- .a All construction drawings and edited specifications, fully complete.
- .b Complete set of coordinated construction drawings and specifications, including all necessary details, suitable for final review and funding approval.
- .c Written contributions specific to the tender form and Invitation to Tender, as may be required.

5. 100% SUBMISSION STAGE - FINAL TENDER DOCUMENTS

Deliverables:

- .1 Written response to the Departmental Representative to review comments made at 99% stage.
- .2 All original reproducible drawings and specifications for tendering purposes, reviewed and coordinated to 100%, incorporating all PCA comments made at the 99% stage, either in the documents themselves, if time allows, or as addenda during the tendering period.
- .3 All specification sections and an index of specifications. The specifications shall consist of typed and edited NMS sections.
- .4 Updated project implementation schedule.
- .5 Final Class "A" cost estimate.
- .6 Two (2) duplicate copies of signed and stamped, digitized specifications and drawing files on CD or DVD disk(s), in original and PDF (Portable Document Format), bookmarked by section to Departmental Representative for tender and construction.
- .7 Plans and specifications required by Inspection/Safety Code Authorities for approval before tender call.
- .8 Assist the Departmental Representative to apply for Building Permit, follow through with the Permit process and provide assistance until the Permit is issued. Update approved Permit submission and resubmit as required.

BS9 TENDERING SERVICES

1. GENERAL REQUIREMENTS

PCA will undertake public tendering of the project.

.1 The Consultant's original construction documents (signed and stamped) will be displayed on the government's documents service Website (www.buyandsell.gc.ca/) as templates for drafting construction tender packages.

2. BIDDERS CONFERENCE

- .1 During the tender period, the Contracting Authority may, at the request of a potential offeror, arrange a Bidders Conference to clarify its requirements. The Consultant with its Sub-Consultants and Specialist Consultants, must attend any tender meeting, mandatory/optional site meeting.
- .2 Questions arising in such meetings will be answered by written addenda only, issued by the Contracting Authority.
- .3 All requests by bidders for information during the tender period must be sent immediately to the Contracting Authority identified on the tender cover page, otherwise no information can be sent to the requestors. The Contracting Authority will obtain technical answers through the Departmental Representative and will publish both questions and answers to all bidders at the same time, and will issue clarifications without publication.

3. DOCUMENT INTERPRETATION

.1 Provide the Departmental Representative with all information required by tenderers to fully interpret the construction documents, including sample boards, colour boards and other special reports.

4. ADDENDA

- .1 Addenda to Tender Documents are to be prepared, as required, by the Consultant and submitted to the Departmental Representative, who will forward them to the Contracting Authority.
- .2 Addenda to Tender Documents are to be issued through the Contracting Authority to all recipients of the Tender Documents.
- .3 The Contracting Authority will issue all addenda in writing (no information is to be issued orally), and may issue an addendum by facsimile.
- .4 Normally, addenda are issued no later than seven working days before the tenders close.

5. TENDER OPENING

Tenders are opened at the location stated in the advertisement.

6. PRICE NEGOTIATION

If the low bid exceeds the Consultant's final Construction Cost Estimate (Class 'A' estimate), PCA may negotiate with the lowest tenderer to reduce the price to an acceptable level without making fundamental changes to the scope of work.

If price reduction involves changes in the scope of work the Consultant shall:

- .1 Advise the Departmental Representative which items can be changed and the reduction in cost to be expected by negotiation.
- .2 Meet with the Contracting Officer, the Departmental Representative and the low tenderer, as required to provide information and advice during the negotiations.

7. RE-TENDERING

- .1 If no satisfactory reduction can be negotiated with the low tenderer or if the desired price reduction entails significant changes in the scope of work or the character of the design, PCA may re-tender the Project.
- .2 If the Project has to be re-tendered, the Consultant shall provide advice and information to the Departmental Representative as how the re-tender should be done.
- .3 Consultant is not entitled to an additional fee in this case.

8. RE-WORK

- .1 Consultant shall revise or amend the construction documents to bring the cost of the work within the limits stipulated.
- .2 Consultant is not entitled to an additional fee is this case.

BS10 CONSTRUCTION ADMINISTRATION SERVICES

1. GENERAL

- .1 Monitor the progress of the Consultant's work, compliance with all drawings and specifications, time schedules, quality standards and prepare progress reports, through site reviews during the construction period.
- .2 Review reports on Health and Safety strategies for the construction stage of work.
- .3 Notify the Departmental Representative immediately if Human Remains, Archaeological Remains or Items of Historical or Scientific Interest are discovered on the site and obtain further information on action to be taken.
- .4 Review and process shop drawings.
- .5 Prepare and provide to the Departmental Representative, detailed drawings, clarification advice, Site Instructions, Contemplated Change Notices and Change Notices and other related consultant input documents.
- .6 Reply to Requests for Information.

- .7 Observe quality assurance testing, review and accept test reports.
- .8 Report on contractors maintaining specified quality and schedules, ensuring that contractors are monitoring delivery of critical materials and equipment.
- .9 Review and make recommendations on progress claims.
- .10 Issue interim and final deficiency reports.
- .11 Finalize project documentation and accounts.
- .12 Ensure compliance with Commissioning Plan.
- .13 Recommend the release of holdback upon satisfactory completion.
- .14 Issue interim and final certifications.
- .15 Review and accept Operation and Maintenance Manuals.
- .16 Follow-up on any problems identified during the warranty period.
- .17 Provide Project Management Service at the request of the Departmental Representative.
- The Prime Consultant must refer to the various construction contracts for which Canada demands a controlling voice. In the case of a discrepancy between the construction clauses and this RFSO, the construction clauses shall take precedence.

2. CONSTRUCTION SAFETY

- .1 All construction projects that are occupied by federal employees during construction are subject to the Canada Occupational Safety and Health Act and Regulations and/or Provincial/Territorial Regulations, whichever is more restrictive.
- .2 Ensure the Contractor is mandated to provide all required coordination, isolation, protection and reinstatement of the fire protection and suppression systems throughout construction.
- .3 Notify the Property Manager each time the fire protection and suppression systems are bypassed and advise of estimated reinstatement time.
- .4 Ensure the Contractor is mandated to comply with FCC 301 and 302 and by the Fire Protection Engineer.

3. PROJECT MEETINGS

- .1 The Departmental Representative will arrange meetings every two weeks or as deemed suitable, throughout the entire construction period, for representatives from:
 - .1 Stakeholders
 - .2 PCA in-house staff
 - .3 Prime Consultant
 - .4 Prime Consultant's Sub-Consultants and Specialist Consultants as determined by Departmental Representative
 - .5 Contractor and their Consultants and Subcontractors
- .2 The Consultant shall include in the contract documents, for provision by the contractor, requirements for a heated meeting room of sufficient size, appropriate furniture and equipment, to hold Project Meetings.
- .3 The Consultant shall record the issues and decisions and prepare and distribute minutes to all attendees within two (2) working days of the meeting.
- .4 The Prime Consultant and their proposed Sub/Specialist Consultants, should be personally available to attend all construction meetings and respond to inquiries within one (1) working day of the Departmental Representative's request, in the locality of the place of the work, from the date of the award of the Consultant agreement, until final inspection and turnover.
- .5 Review minutes for errors in fact, omissions or other discrepancies and report to the Departmental Representative.

4. PROJECT SCHEDULE

- .1 Upon receipt of the project schedule from the Contractor, after Contract award, review and verify whether the schedule is reasonable and has all detailed components of work shown separately.
- .2 Provide review comments and advice to the Departmental Representative prior to the Consultant's approval of the project schedule.

- .3 Use the project schedule as the basis for monitoring and evaluating the progress of the work.
- .4 Assist the Contractor to avoid delays by providing timely reports and advice.
- .5 Keep accurate records of causes of delays.
- .6 Record all discrepancies and recommend remedial measures to the Departmental Representative.
- .7 Any request for Time Extensions shall be submitted to the Department Representative who will forward to the Contracting officer. Only the Contracting officer may approve requests for Time Extensions.

5. BUDGET/FORECAST/CASH FLOW

- .1 Review the value of progress of work against the approved cost breakdown. When each trade is regularly reviewed against the project schedule and the cost breakdown, it quickly becomes apparent whether the Contractor is on budget and providing the appropriate cash flow for the work.
- .2 Record all discrepancies and agreed remedial measures.
- .3 Provide project financial planning/advice to the Departmental Representative, including funding commitment for the government fiscal year.

6. SHOP DRAWINGS

- .1 Review and process shop drawings in a timely manner.
- .2 Monitor and record the progress of shop drawing review. Record parties designated for action and follow-up.
- .3 Verify the number of copies of shop drawings required. Print additional copies for others such as Fire Protection Engineer's office and Permit Officer.
- .4 Shop drawings shall be stamped: "Checked and Certified Correct for Construction" by the Contractor and stamped: "reviewed" by the Consultant before return to the Contractor.
- .5 On completion of project, include final shop drawings in the Operating and Maintenance Manuals. Verify that shop drawings include the project number and are filed in sequence.

7. CLARIFICATIONS DURING CONSTRUCTION

- .1 The Consultant must provide clarifications on Drawings and Specifications or site conditions, as required in order that the project not be delayed.
- .2 Record contractor's acknowledgement of receipt of all clarifications.
- .3 Verify and record whether an impact on cost or schedule may be expected and advise the Departmental Representative.
- .4 Provide to the Departmental Representative, any additional detail drawings, as and when required, to properly clarify or interpret the contract documents, in a timely manner.

8. WORK MEASUREMENT

- .1 If work is based on unit prices, measure and record the quantities for verification of monthly progress claims and the Final Certificate of Measurement.
- .2 When a Contemplated Change Notice is to be issued based on Unit Prices, keep accurate account of the work. Record dimensions and quantities.

9. INSPECTIONS AND SITE REVIEW

- .1 Provide construction inspection services by experienced and qualified personnel to verify compliance with contract documents. These personnel must be fully knowledgeable of the technical and administrative requirements of the project.
- .2 This construction review personnel must play a major role in the inspection and monitoring of the details of the Work.
- .3 Establish a written understanding with contractors as to what stages or aspect of the work are to be inspected prior to being covered up.

File Name - Nom du dossier: Contemporary Architecture - National Parks and Historic Sites in the Province of Ontario.

- .4 Immediately after awarding of the Construction contract and before Work begins on site, the Architect will attend and take minutes of the pre-construction meeting. The Consultant should also attend this meeting.
- .5 Assess quality of work and identify, in writing to the Departmental Representative, all defects and deficiencies observed at time of such inspections.
- .6 Inspect materials and prefabricated assemblies and components at their source or assembly plant, as necessary for the progress of the project.
- .7 Any recommendations, clarifications or deficiency lists shall be issued in writing to the Departmental Representative, with a copy to the Contractor.
- .8 Keep the Departmental Representative informed of the progress and quality of the work and report any defects or deficiencies in the work observed during the course of the site reviews.
- .9 The Contractor is responsible for recording any and all changes from the original Contract on a marked-up hard copy of drawings and then at the end of the project, check and verify the changes with the Subcontractors and after that forward to the Consultant. The Consultant is responsible for updating the drawing files and provides electronic version of the as-built Drawings and Specifications.
- In the case of an emergency where safety of persons or property is concerned, or Work is endangered by the actions of the Contractor or the elements, to safeguard the interests of PCA, the Architect shall give immediate written notice to the Departmental Representative and to the Contractor of the possible hazard. The Architect shall, if necessary, stop the work to protect the safety of the workers or Crown property or give orders for remedial work, and contact the Departmental Representative immediately for further instruction.
- The Architect shall not: Authorize deviations from the contract documents; enter into the area of the responsibility of the Contractor's Field Superintendent; stop the work unless convinced that an emergency exists as noted above; authorize any payments.

10. CONSTRUCTION CHANGES

- .1 The Consultant does NOT have authority to change the work or the price listed in the Contract. Approved Change Orders must be issued to cover all changes, including those NOT affecting the cost of the project (schedule, substitutions, etc.).
- .2 The Consultant must prepare Contemplated Change Notices (CCNs), review quotations associated with Change Orders (CO's). This must include monitoring and recording the progress of CCN's and CO's. Where Work must proceed pending issue of a Change Order, the Consultant must record time and materials expended.
- .3 Proposed changes that affect costs or design or otherwise alter the terms of the Contract must be accepted and approved by the Departmental Representative to process. Upon approval from the Departmental Representative, detailed quotations must be obtained from the Contractor. Prices are then reviewed and recommendations forwarded to the Departmental Representative.
- .4 The Departmental Representative will then forward the CCN to the Contracting Authority to issue the COs to the Contractor, with a copy to the Consultant.
- .5 The practice of "tradeoffs" is not allowed.

11. CONTRACTOR'S PROGRESS PAYMENTS

- .1 Each month, the Contractor will submit a progress claim for work and materials delivered to the site as required in the Contract. The claims are made by completing the following forms where applicable:
 - .1 Request for Construction Payment with supporting invoices/documents in government format;
 - .2 Cost Breakdown for Unit and/or combined Price Contract;
 - .3 Cost Breakdown for Fixed Price Contract;
 - .4 Statutory Declaration: Progress Claim, and
 - 5 Work accident compensation organization clearance letter.
- The Consultant must determine the amounts owing to the Contractor based on the progress of the work and certify payments to the Contractor.

- .3 The Consultant must review and sign designated government forms and promptly forward claims to the Departmental Representative for processing. Obtain the following information from the Contractor and submit with each progress claim:
 - .1 Updated schedule of the progress of work

12. PAYMENT FOR MATERIALS ON SITE

- .1 The Contractor may claim for payment of material on site, but not yet incorporated in work.
- .2 Material must be stored in a secure place and protected from weather as designated by the Departmental Representative.
- .3 A detailed list, checked and verified by the Consultant, of materials with Supplier's invoice showing price of each item must accompany each claim.
- .4 Items must be listed separately on the Detail Sheet showing the cost breakdown list and total.

13. TESTING

- .1 Prior to tender, the Consultant must provide the Departmental Representative with a recommended list of tests to be undertaken, including on site and factory testing. These tests are to be included in Contract specifications.
- .2 Prepare a list of allowances for the tests in the specifications, identify with a detailed breakdown of the types of testing and amount.
- .3 The Consultant shall propose a testing agency to Departmental Representative for approval prior to arrange for the testing agency's services. Arrange testing, distribute test reports, and coordinate with Contractor and others involved for the tests.
- .4 The Consultant must review all test reports and take necessary action with Contractor when work fails to comply with Contract requirements. The Departmental Representative must be immediately notified when tests fail to meet project requirements and when corrective work will affect the schedule.

14. PROTOTYPES, MOCK-UPS AND SAMPLE INSTALLATIONS

- .1 Specify explicitly the need for prototypes, mock-ups and sample installations where required to gain installation knowledge and specialized testing of technically advanced assemblies.
- .2 Ensure that specifications are very clear on full requirements for such prototype work including:
 - .1 Specify time frames and weather conditions under which this work will be carried out.
 - .2 Note area on site plan where this is to be done.
 - .3 Bring this item to the attention of the Contractor at construction start meeting, and approve his/her methodologies and time frames for such work.
 - .4 Involve all necessary consultant disciplines, trades, suppliers, product manufacturers, testing agencies, Authorities, for a comprehensive review of the requirements and installation time periods.
 - Note where necessary, requirements for submitting of shop drawings, product information and samples well in advance, so as not to disrupt project work schedule.
- .3 Ensure sufficient observation reports, photos or videos of work undertaken are available to avoid misunderstandings at a later stage.

15. INTERIM COMPLETION

- .1 The Contractor shall propose the site review when the project is at Interim Completion stage and provide a list of deficiencies prior to the site review. Commissioning must be completed. Commissioning Report must be reviewed and accepted by the Consultants and Departmental Representative.
- .2 The contractor shall arrange for an Interim Site Review with the Departmental Representative, PCA representatives, stakeholders, Consultants and major Subcontractors.
- .3 Consultants will prepare an Interim Completion report and a list of deficiencies. Upon reviewing the report, if satisfied that the Work complies with Contract requirements and confirming the

- value of remaining work, Consultants will recommend the acceptance of Interim Completion by signing the Interim Certificate.
- .4 When PCA is also satisfied that the construction work is substantially complete, the Departmental Representative will also co-sign and issue the Interim Certificate of Completion to the Contractor; provided that the Work remaining to be done under the Contract is, in the opinion of the Departmental Representative, capable of completion or correction at a cost of not more than:
 - .1 3% of the first \$500,000, and
 - .2 2% of the next \$500,000,
 - .3 1% of the balance of the value of the Contract at the time this cost is calculated.
- .5 Payment to the Contractor requires completion and signing, by the parties concerned, of the following documents:
 - .1 Interim Certificate of Completion (Government form).
 - .2 Interim Site Review report and Acceptance.
 - .3 Progress Claim including holdback amount to be released.
 - .4 Cost Breakdown for the Fixed Price Contract and the cost for the remaining Work.
 - .5 Cost Breakdown for Unit and/or Combined Price Contract.
 - .6 Project Schedule for the remaining Work.
 - .7 Statutory Declaration for Interim Certificate of Completion.
 - .8 Clearance Certificate from the work accident compensation organization.
- .6 The Consultant must verify that all items are correctly stated and ensure that completed documents and any supporting invoices/documents are given to the Departmental Representative for processing.

16. FINAL COMPLETION

- .1 The Contractor shall inform the Department Representative when satisfied that all work under the Contract has been completed, including correction of all deficiency items listed during the Interim Inspection.
- .2 Contractor shall apply and obtain Occupancy Permit issued by the Authority Having Jurisdiction prior to the Final Site Review.
- .3 The contractor shall arrange for the Final Site Review with the Departmental Representative, PCA representatives, stakeholders, Acceptance Board, Consultants and major Subcontractors.
- .4 If the Work complies with Contract requirements and is satisfactory, upon recommendation from the Consultant, the Acceptance Board will accept of completion of the project.
- .5 Payment to the Contractor requires completion and signing, by the parties concerned, of the following documents:
 - .1 Interim Certificate of Completion (Government form).
 - .2 Final Certificate of Completion (Government form), Final Site Review report and Acceptance.
 - .3 Progress Claim including holdback amount to be released.
 - .4 Cost Breakdown for Fixed Price Contract.
 - .5 Cost Breakdown for Unit and/or Combined Price Contract.
 - .6 Statutory Declaration for Final Certificate of Completion.
 - .7 Work accident compensation organization Clearance Certificate.
 - .8 Trades' Certificates as appropriate.
 - .9 Occupancy permit.
- .6 The Consultant must verify that all items are correctly stated and ensure that completed documents and any supporting invoices/documents are given to the Departmental Representative for processing.
- .7 The Consultant shall continue to monitor the situation and communicate with the Departmental Representative to ensure that he/she is aware of any deficiency work being delayed beyond reasonable time frames.

17. RECORD AS-BUILT DRAWINGS AND SPECIFICATIONS

- .1 The Consultant must produce as-built drawings for areas that show deviations in construction from the original Contract drawings, including as-built information, changes shown on Post Contract Drawings, changes resulting from Change Orders or from on Site Instructions.
- .2 Include final survey drawing in the as-built record.
- .3 Check and verify all as-built records for completeness and accuracy prior to submitting to the Departmental Representative.
- .4 Submit Record Drawings and Specifications within three (3) weeks of Final Completion acceptance. Electronic versions are required for both Drawings and Specifications, in both original and PDF formats.

18. OPERATION AND MAINTENANCE MANUALS

- .1 The Prime Consultant must submit Operation and Maintenance Manuals to the Contractor for review and acceptance prior to Interim Completion, with the exception of work that is scheduled to be performed.
- .2 Submit four (4) duplicate hard copies and two (2) duplicate electronic copies of the Operation and Maintenance Manuals to Departmental Representative within three (3) weeks of Final Completion acceptance.
- .3 Ensure that the project name, project number, project address, building number, contractor's name and contact information are printed on all pages.
- .4 Ensure that manuals are organized in 3-ring binders and separated into the different specification sections by coloured dividers.
- .5 Ensure that a complete set of as-built Drawings and Specifications are included.
- .6 Ensure that a copy of the Real Property Report, signed and sealed by the Canadian Surveyor, is included.
- .7 Ensure that a copy of the commissioning report is attached.
- .8 Ensure that a copy of all information on products, materials, equipment and fixtures (including name and contact information of sub-trade, Supplier and manufacturer etc.), test/approval information documents, operating instruction and maintenance information/schedule related to spare parts, certificates, warranty and site-specific final shop drawings etc., are attached.

BS11 COMMISSIONING

1. INTENT:

The Consultant shall provide commissioning services to verify that the department's functional requirements are correctly interpreted during the design stage and contract documents, and that the building systems operate consistently at peak efficiencies, and within the specified energy budget.

As a member of the Parks Canada team, the Commissioning Manager represents the Owner's and User's interests, and is responsible for overseeing all commissioning activities during the development, implementation and post construction stages of the project.

Throughout this stage, the Consultant and Consultant's representatives on site will work closely with the Commissioning Manager, Parks Canada and the Contractor to implement commissioning activities and create useful, well-integrated drawings, reports and manuals, in compliance with contracted Documents.

- .1 To define the operational and performance requirements of the Owner and User.
- .2 To ensure that responsibility for meeting these requirements and demonstrating compliance is defined in the design and contract documents.
- .3 To ensure that appropriate and start-up and checkout procedures are employed for components, subsystems, including meaningful documentation for and certification of Quality Control reports and techniques under the normal or enhanced basic services and contractual procedures.
- .4 To ensure that the final product meets the specified requirements and the criteria set out in the project brief.
- .5 To document the operations, maintenance and management requirements, and transferring the completed works to qualified facility operators.

- .6 To minimize the life cycle operating and maintenance costs.
- .7 To verify that the department's functional requirements are correctly interpreted during the design stage, and that the building systems operate consistently at peak efficiencies, under all normal load conditions of the design intent, and within the specified energy budget.

2. SCOPE AND ACTIVITIES:

- .1 The Consultant shall provide the services that include but not be limited to the following activities:
 - .1 Provide complete documentation on operations and maintenance requirements;
 - .2 Prepare the Standard Operations Procedures (SOP) manuals..
 - .3 Carry out various checks and tests to determine if the new facilities function in accordance with the contract documents;
 - .4 Attend the commissioning testing to ensure that proper protocols are being maintained.
 - Identify Contractor and Sub-contractor commissioning, performance verification (PV) and testing responsibilities;
 - .6 Plan the PV activities, develop the installation checklists and PV report forms, and prepare a detailed verification schedule. PV tests will be performed by the Contractor and supervised by the Consultant. Maintain detailed development reports and review with the Contractor for special systems such as the Energy Monitoring and Control System (EMCS), telecommunications and safety.
 - .7 PV inspection forms will be completed for all components, subsystems, systems, and integrated systems, and a final performance verification report will be submitted to the Commissioning Manager.
 - .8 Ensure that the documentation and testing reports from the Commissioning Manager are submitted to the Departmental Representative in a proper, timely and organized fashion.
 - .9 Prepare a training plan for the O&M staff to be trained on the operation of the new facilities. The training plan shall recognize both short-term and long-term requirements and shall employ both paper documents and visual techniques.

3. SCOPE AND ACTIVITIES - DETAILS

- 1. The project will be accepted and the Certificate of Substantial Completion will be issued only after the Contractor meets the requirements of the Contract and:
 - a. Successful completion of integrated systems tests, life safety support systems tests and after meeting all requirements of the authority having jurisdiction.
 - b. All test certificates, commissioning reports and commissioning documentation have been approved by the Departmental Representative.
- 2. During the Construction Phase, the Consultant shall:
 - a. Monitor and report on Contract commissioning activities,
 - b. Review and certify verification sheets as they are completed by the contractor,
 - c. Review commissioning schedule,
 - d. Attend all component, system and integrated systems tests,
 - e. Review and comment on commissioning test results,
 - f. Provide advice and recommendations for fine-tuning,
 - g. Finalize the Design Intent Report and Client / Users O&M Manual to reflect ascommissioned operation and maintenance of each system.

4. DELIVERABLES

The Consultant shall provide the following:

- 1. Commissioning Plan,
- 2. Division 01 Commissioning Specifications,

- 3. Curriculum vitae sheets to be filled in by the Contractor,
- 4. PVT (Performance Verification Testing) Sheets to be filled in by the Contractor,
- 5. Reviewed and Accepted Commissioning (Evaluation) Report.

BS12 POST CONSTRUCTION SERVICES

1. GENERAL

- 1. All work under the Construction Contract carries a standard twelve (12) month warranty commencing on the effective date of the issuing of Interim Certificate of Completion. Certain parts of the work, such as seals and bearings, roofing, windows and exterior doors, landscaping may have extended warranties as specified.
- 2. The roofing warranty must be at least 30 years and extended to the same warranty period as the specified roofing product being used.
- 3. Window and exterior door warranties must be at least 10 years and extended to the same warranty period as the specified product being used.
- 4. Landscaping warranty must cover two (2) full growing seasons.
- The Contractor is responsible for correcting and/or replacing all defects in the work during the warranty period, except for damage caused by misuse, abuse or neglect by others.
- 6. The Departmental Representative must promptly notify the Consultant in the event that defects or alleged defects appear in the work of the Contractor.
- 7. The Consultant shall investigate all defects and alleged defects in the work promptly and issue appropriate information and advice to the Departmental Representative.
- 8. The Consultant shall arrange a lesson-learned meeting with the Contractor, Departmental Representative, stakeholders within four (4) weeks of Final Completion. The Consultant shall provide information, advice, improvement, suggestions, constructive comments and lessons learned for the benefit of the future projects.

2. 12-MONTH WARRANTY INSPECTION

- 1. Nine months after Interim Completion acceptance, the Consultant shall arrange a 12-month warranty site inspection with the Departmental Representative, Consultant and Sub-Consultants, Contractor, Mechanical and Electrical Subcontractors, stakeholders, PCA Maintenance staffs.
- Prepare deficiency list with the Departmental Representative for the Contractor's correction/adjustment prior to the site inspection and distribute to the site inspection participants.
- 3. Update the deficiency list during the site inspection and distribute to the site review participants.
- 4. Inform Departmental Representative in writing when all items listed on the 12-month Warranty Inspection report have been completed satisfactorily.

BS13 PROJECT ADMINISTRATION REQUIREMENTS

1. PROJECT MANAGEMENT

- The Departmental Representative assigned to the project is the Project Manager unless noted otherwise.
- 2. The Departmental Representative is directly concerned with the project and is responsible for its progress. The Departmental Representative is the liaison officer with the Consultant, PCA, stakeholders and Contractor.
- 3. Unless stated otherwise by the Departmental Representative, the Consultant is responsible for obtaining information on and meeting all Federal and Provincial/Territorial requirements, permits and approvals necessary for the work.

4. Departmental Representative might assign the Project Management role to PWGSC or the Prime Consultant as indicated in each Standing Offer Call-up request.

2. LINES OF COMMUNICATION

- 1. Unless otherwise requested by the Departmental Representative, the Consultant shall communicate with the Departmental Representative only.
- During the Construction Tender stage, the Contracting Authority shall conduct all correspondence with bidders and then award the Contract with assistance from the Departmental Representative.
- 3. During the construction stage, the Departmental Representative shall submit the CCN with Contractor's quote to the Contracting Authority who will issue the Change Orders.

3. MEDIA

1. The Consultant shall not respond to request for project-related information or questions from the media. Such inquires are to be directed to the Departmental Representative.

4. GENERAL DELIVERABLES

 Where deliverables and submissions include summaries, reports, drawings, plans, specifications or schedules, one (1) copy shall be provided to the Departmental Representative in electronic PDF format. A copy of the original format and hard copies might be required as requested by the Departmental Representative.

Deliverable submissions including, but not limited to the following:

	Document	Deliverable format
.1	Written reports and studies:	Microsoft Word, Excel & PowerPoint
.2	Electronic spreadsheets and budgets:	Microsoft Word, Excel & PowerPoint
.3	Presentations:	Microsoft Word, Excel & PowerPoint
.4	Schedules	Adobe PDF
.5	Drawings:	AutoCAD and Adobe PDF
.6	Specifications:	NMS Editable
.7	Exhibit/Interpretive Element	Adobe Creative Suite CS6 or higher, and Adobe
		PDF and EPS
.8	Web content	Adobe PDF
.9	Internet	HTML, Macromedia Flash

- .10 Alternatively, the Consultant may submit the work in PDF format. Except that final drawings (at any stage) and record drawings must be in AutoCAD and PDF formats.
- .11 All drawings will be generated and distributed in a format using layering and file transfer protocols as prescribed in Standards and Procedures.

5. ACCEPTANCE OF CONSULTANT DELIVERABLES

- 1. While the Departmental Representative acknowledges the Consultant's obligations to meet project requirements, the project delivery process entitles Departmental Representative to review the Consultant's work.
- 2. The Consultant must obtain Departmental Representative approval at each Project stage. The Departmental Representative reserves the right to reject non-conforming or unsatisfactory Consultant work.
- 3. Acceptances indicate that, based on a general review of material for specific issues, the material is considered to comply with governmental and departmental objectives and practices and that overall project objectives should be satisfied. Acceptance does not relieve the Consultant of professional responsibility for the project and compliance with the terms and conditions of the Contract.

4. Departmental Representative acceptances do not prohibit rejection of work which is determined to be unsatisfactory at later stages of review. If progressive design development or technical investigation reveals that earlier acceptances should be withdrawn, the Consultant is responsible for revising work and resubmitting for acceptance at the Consultant's cost.

6. COORDINATION WITH SUB-CONSULTANTS

The Consultant shall:

- 1 Throughout all phases of the project, assume responsibility for coordinating the work of any Sub-Consultants and specialists retained by the Consultant or by the Departmental Representative.
- .2 Ensure clear, accurate and ongoing communication of design concept, budget, scheduling issues (including changes) and that all project information is provided to the Sub-Consultants and specialists in a timely manner.
- .3 Coordinate input for the Departmental Representative's Risk Management Plan.
- .4 Coordinate the Quality Assurance process ensuring that submissions of Sub-Consultants and specialists are complete and signed-off by the designated senior reviewer.
- .5 Ensure Sub-consultants and specialists provide adequate site review services and attend all required meetings.

7. PROJECT RESPONSE TIME

Key personnel of the Consultant and Sub-Consultants or specialist firms must be personally available to attend meetings or respond to inquiries within one (1) working day.

8. DESIGN MEETINGS

- .1 The Departmental Representative will arrange meetings generally every two weeks throughout the design and tendering stages of the project, to bring together the following:
 - .1 Departmental Representative,
 - .2 Parks Canada Agency representatives,
 - .3 Stakeholders,
 - .4 Consultants.
- .2 Meetings will normally be by conference call. On occasions face-to-face meetings will be required.
- .3 The Consultant shall:
 - .1 Attend the meetings,
 - .2 Record the issues and decisions,
 - .3 Prepare and distribute minutes within 48 hours of the meeting.
- .4 Standing agenda items shall include: schedule, cost, risk, quality, health and safety, sustainable development, environment, ecology, as well as site-specific and project-specific issues.
- .5 On occasion, there may be urgent meetings to solve problems. The Consultant must be available to attend such meetings with 24 hours' notice.

9. CONSTRUCTION MEETINGS

- .1 The Departmental Representative will arrange meetings generally every two weeks throughout the construction period, to bring together the following:
 - .1 Departmental Representative,
 - .2 Parks Canada Agency functional area representatives,
 - .3 Stakeholders,
 - .4 Consultants,
 - .5 Contractor,
 - .6 Major sub-trades.
- .2 Meetings will normally be held on site, at the contractor's site office.

- .3 The Consultant shall:
 - .1 Attend the meetings,
 - .2 Record the issues and decisions,
 - .3 Prepare and distribute minutes within 48 hours of the meeting.
- .4 Standing agenda items shall include: schedule, project progress, cost, changes, risks, quality, health and safety, sustainable development, environment, ecology, as well as site-specific and project-specific issues.
- .5 On occasion, there may be urgent, problem-solving meetings. The Consultant must be available to attend such meetings with 24 hours' notice.

10. QUALITY ASSURANCE / VALUE FOR MONEY REVIEWS

- .1 In concert with the Integrated Design process, the Departmental Representative will conduct Value Architecture/Engineering for Money/Quality Assurance reviews on design and construction documents prepared by the Consultants. Consultants and Sub-Consultants must respond in writing to Departmental Representative's comments, in a timely manner and will be held accountable for delays if proper and timely responses do not occur.
- .2 Departmental Representative reviews are not intended as a check against errors or omissions contained within the documents submitted. Consultants are responsible for checking and correcting any such errors or omissions prior to submission, and regardless of any review comments by Departmental Representative.

BS14 PROJECT PARTICIPANTS

1. FEDERAL PROJECT TEAM

The Federal Project Team includes:

- The Project Leader, who represents the Owner (PCA), identifies requirements and initiates projects, develops requirements in both functional and operational terms, obtains approvals and funding, and participates in the selection of consultants.
- .2 The Departmental Representative, who is assigned by the Project Leader and is responsible for the day-to-day management of the project. The Departmental Representative will be the Consultant's single point of contact for all project requests.
- .3 PCA representatives. There may be numerous representatives involved in the project. These representatives will be responsible for functional issues on the project, related to their respective organizations.
- .4 PWGSC representatives, if required.

BS15 SUBMISSIONS, REVIEW AND APPROVAL PROCESS

1. SUBMISSIONS:

- .1 Provide all required submissions, either to, or as identified by the Departmental Representative.
- .2 Provide a draft report to the Departmental Representative for review at the Integrated Design sessions, prior to the last meeting of the Pre-design, Schematic Design and Design Development stages.
- .3 Provide required sets of Construction Drawings and Specifications to the Departmental Representative for review at the Integrated Design sessions, at 33%, 66%, 99% and 100% stages.
- .4 Provide Construction Drawings and Specifications to the Departmental Representative ready and suitable for Tender.

2. PCA DESIGN REVIEW COMMITTEE

- .1 The purpose of the review and approval process is to ensure compliance with the project program, adherence to good design practice and technical quality assurance.
- .2 The Departmental Representative will schedule review sessions by the committee at the completion of the Pre-Design, Schematic Design, Design Development and 99% of the Construction Documentation stages.

3. OTHER AUTHORITIES HAVING JURISDICTION

- .1 Although the Federal Government does not formally recognize jurisdictions at other levels of government, voluntary compliance with the requirements of these other levels of government is a requirement.
- .2 Codes, regulations, bylaws and decisions of Authorities Having Jurisdiction will be observed. In cases of conflicts, the most stringent will apply. The Consultant shall identify other jurisdictions appropriate to the project.
- .3 PCA will voluntarily comply with the applicable provincial/territorial Occupational Health and Safety Acts and Regulations, in addition to the related Canada Occupational Safety and Health Acts and Regulations.

ADDITIONAL SERVICES (AS)

The Consultant shall coordinate and manage the additional services, listed below, provided by in-house resources, Sub-Consultants and /or Specialists* and required to complete project requirements in support of the requested services under a Call-Up.

* "Sub-Consultants and/or Specialists" refers to Consultants outside of those included in the Consultant's Team Identification, attached at Appendix D, and as identified under TP 10.1. (d) Disbursements.

The Consultant may be requested to provide one or more of the following services, either independently or as part of the project for the specific project Call-up:

AS1 INVESTIGATIONS AND REPORTS

AS.1.1 INTENT

The Consultant may be requested to investigate a site condition or building condition to determine the life expectancy of the building system or component, the cause of a problem such as water leakage, structural or envelope deficiency, malfunction of mechanical and/or electrical systems; analyze the situation; record the conditions; and provide a recommendation for repairs or improvement of the situation, or generate strategic options for future investment considerations to the property or building.

AS.1.2 SCOPE AND ACTIVITIES:

- .1 The Consultant shall perform on-site investigations and provide reports as required by the Department Representative, including but not limited to the following:
 - a. Research and review original construction documents and any historical documents describing modifications to the site or building;
 - b. Review site and/or building conditions and compare conditions to existing documents.
 - c. Pursue more detailed investigation of site and/or building conditions which may include: deconstruction of components, with permission from the Departmental Representative, to determine a more comprehensive understanding of the existing conditions such as the composition of built-in elements or the cause of the problem:
 - d. Record findings of the investigation by recording in detail, including drawings and photographs, the location of the problem or situation and providing a description of the condition, the design capacity of the building system:
 - e. Identify all deficiencies, potentials and constraints with the existing systems;
 - f. Recommend alternative remedial measures for deficiencies and/or options for improvements;
 - g. Prepare a report which includes the results of site investigations, review of the project scope of work and recommendations of alternative remedial measures for deficiencies and/or options for improvements and the associated cost and schedule implications of each option.

AS 1.3 DELIVERABLES

- .1 The Consultant shall, based on the specific requirements of the Call-up, provide the following:
 - a. Building Condition Report (BCR)
 - b. Investment analysis report (IAR), as necessary
 - c. Building Assessment report

AS2 FUNCTIONAL PROGRAMMING

AS 2.1 INTENT

The purpose of a functional program is to ensure the Consultant has gathered sufficient information to analyze the Departmental Representative's functional and operational requirements, developed an understanding of the requirements for the building infrastructure and applied the Parks Canada Fit-up Standards. At the time of Call-up, the Departmental Representative will identify the specific services required from Functional Programming Services and incorporate all of the information into the Functional Program Document.

AS 2.2 SCOPE AND ACTIVITIES:

The Consultant shall:

- .1 Interview users and stakeholders to determine the Departmental Representative's functional and operational requirements for staffing, support areas; requirements for expansion or downsizing of the operation, special purpose areas, spatial relationships and adjacencies; and the impact of these requirements on the building's basic infrastructure.
- .2 Attend meetings, communicate with and coordinate the other consultants and specialists.
- .3 Develop the format for the Functional Program Document and draft 'Table of Contents'. The submission must also include as a minimum the formatting for spreadsheets, room data sheets, cost estimates, and reports. Submit for review. Revise as required. Resubmit for final approval.
- .4 Prepare, coordinate and assemble the following sections of the Functional Program Document, as required by the specific Call-up:
 - a. Administrative Space Recommendations Report
 - b. Support Space Recommendations Report
 - c. Special Purpose Space Recommendations Report
 - d. Security Recommendations Report
 - e. Communications/Data Recommendations Report
 - f. Audio-Visual Recommendations Report
 - g. Room Data Sheets
 - h. Zoning (Bubble) Diagram
- .5 Consolidate the sections of the Functional Program Document

AS 2.3 DELIVERABLES - DETAILS:

The Consultant shall, based on the specific requirements of the Call-up, provide the following:

- ADMINISTRATIVE PREMISES RECOMMENDATIONS REPORT.
 - .1 Analyze information gathered and make recommendations in accordance with the Government of Canada Fit-Up Standards:
 - a. Identify opportunities for space consolidation;
 - b. Draft a document indicating the effects of each of the proposed planning alternatives, based on the Client Department mission statement, functional requirements, space allocation, and project budget. Provide written justification and rationale for each proposed change.
 - .2 Submit for review. Revise as required. Resubmit for final approval.
- SUPPORT SPACE RECOMMENDATIONS REPORT

- .1 Gather and document (text and images) the Client Department's support space requirements;
- .2 Analyze information gathered and make recommendations regarding support space in accordance with the Government of Canada Fit-Up Standards;
 - a. Identify opportunities for space consolidation.
 - b. Draft a document indicating the effects of each of the proposed planning alternatives, based on the Client Department mission statement, functional requirements, space allocation, and project budget. Provide written justification and rationale for each proposed change.
 - Requirements for off-site support spaces, if applicable, must also be included and clearly noted as such.
- .3 Submit for review. Revise as required. Resubmit for final approval.

3. SPECIAL PURPOSE SPACE RECOMMENDATIONS REPORT

- a. Prepare a comparative (i.e. quantitative and qualitative) analysis between existing special purpose space and each of the proposed changes in sufficient detail to facilitate selection by the Agency Representative and identify options for space optimization, and use of multipurpose spaces, etc.
- b. Identify requirements for off-site special purpose spaces, if applicable, must also be included and clearly noted as such.
- c. Prepare a workflow diagram.
- d. Obtain approval of the special-purpose space from the appropriate Departmental Representative (e.g., Accommodation Manager), through the Departmental Representative.
- Draft a document indicating the effects of each of the proposed changes, based on the Client Department mission statement, functional requirements, space allocation, and project budget. Provide written justification and rational for each proposed change.
- .5 Submit for review. Revise as required. Resubmit for final approval.

4. SECURITY RECOMMENDATIONS REPORT

- .1 Prepare a report to document the Client Department's current and future security requirements and the effect these may have on other functional requirements and proposed changes.
- .2 Submit for review. Revise as required. Resubmit for final approval.

5. COMMUNICATIONS/DATA RECOMMENDATIONS REPORT

- .1 Prepare a report to document the Client Department's current and future communications/data requirements and the effect these may have on other functional requirements and proposed changes. The report must be in accordance with the Government of Canada Fit-Up Standards.
 - a. Prepare recommendations and determine all necessary modifications to the base building. Assess the impact of those modifications on overall space, time and budget.
 - b. Coordinate work performed by Mechanical and Electrical Sub-Consultants and incorporate them into the Communications/Data Recommendations Report.
 - c. Submit for review. Revise as required. Resubmit for final approval.

6. ROOM DATA SHEETS

.1 Compile all the data per room function (number of occupants; area in square metres; critical dimensions; functional and operational requirements; essential proximity; unique characteristics or features of space; architectural requirements: wall type, STC rating, fire resistance rating, wall finishes, floor and ceiling finishes, doors/door frames and interior glazing, prefabricated millwork, specialties [i.e., tackboards, whiteboards, tack strips, chair rail, corner guards]; structural requirements; mechanical requirements: HVAC, plumbing; electrical requirements: power and lighting; Telecommunications requirements: voice, data and equipment; furniture and equipment requirements; security requirements: door hardware,

duress alarm, security system such as motion detector, door contact, card access, camera; audio-visual requirements: equipment, black out blinds, projector screen, remote control, lighting control; signage requirements; other special requirements) for each typical and special-purpose room and prepare room data sheets as per the approved room data sheet format.

.2 Submit for review. Revise as required. Resubmit for final approval.

7. ZONING (BUBBLE) DIAGRAM

- .1 Prepare zoning (bubble) diagrams based on the Client Department's functional program, space allocation and horizontal zoning plans, for all spaces forming part of the project.
- .2 Number of diagrams to be identified at time of Call-up.
- .3 Zoning (bubble) diagrams are to include as a minimum the following:
 - a. Identification and location of hard walls/partitions.
 - b. Identification of primary and secondary circulation paths; calculations for length of routes.
 - c. Identification of (group and position titles/position levels or names) and area designation (in square metres) for workstations (by group/position names); and
 - d. Identification and area designation (in square metres) for support spaces and special purpose spaces.
- .4 Submit for review. Revise as required. Resubmit for final approval.

CONSOLIDATION OF FUNCTIONAL PROGRAM DOCUMENT

- .1 Consolidate the functional requirements information, including Sub-Consultant and specialist work into the Functional Program Document as per the approved format.
- .2 When conflicting requirements or recommendations occur, provide an integrated recommendation together with adequate justification.
- .3 Submit for review. Revise as required. Resubmit for final approval.

AS3 FEASIBILITY STUDIES

AS 3.1 INTENT

The Consultant shall prepare feasibility studies for building requirements, site plan and space planning designs for both new buildings, and proposed additions. Cost studies, graphic representations, etc. are to accompany the text document to further clarify or explain the rationale for decisions.

The Consultant shall attend Client and stakeholder meetings to gather and present information. The Consultant shall also record and distribute minutes at a frequency to be determined in conjunction with the Departmental Representative.

AS 3.2 SCOPE AND ACTIVITIES:

The Consultant shall provide:

- .1 a written verification of project requirements that includes objectives, parameters, timelines and budget, with reference to roles and responsibilities, lines of communications, and submission requirements for approvals, presentations, reviews;
- .2 a project schedule with periodic updating as determined with the Departmental Representative;
- .3 assistance in preparing a risk management report for the Departmental Representative;
- .4 implementation strategies that document task/activities, milestones, process for information gathering, project goals and deliverables;
- .5 an existing Building Condition Report where there is an intention to renovate;
- .6 a security recommendations report of the Departmental Representative's current and future security requirements and the effect they may have on the feasibility studies;
- .7 a Communication/Data Recommendations Report of the Departmental Representative's current and future requirements and the effect they may have on the feasibility studies;

- .8 verification of on-site conditions through the preparation and updating of master drawings to scale and in an approved AutoCAD format;
- .9 building capability recommendations report to address current and future interior and exterior conditions, systems, access, conveying systems, washrooms, and other items that are likely to affect the Departmental Representative's requirements;
- .10 preliminary sustainability recommendations report which may include information related to reuse, recycling, waste diversion, energy and water efficiency in facilities and use of durable materials;
- .11 horizontal zoning plans per floor that are based on the Departmental Representative's approved functional program;
- .12 cost estimates (Elemental Cost Analysis) in a format acceptable to the Departmental Representative;
- .13 mechanical and electrical engineering design concept and solutions to be based on Departmental Representative's project requirements (number of options to be determined at time of Call-up);
- feasibility Study Document that consolidates all the requirements of the 3 viable options of the complete exercise with allowance for resubmission for final approval after predetermined reviews by the Departmental Representative.

AS4 INTERIOR DESIGN

AS 4.1 INTENT

The Consultant shall prepare concept designs for space planning and furniture layout leading to contract documents that are compliant with the latest version of building codes and fire codes. Colour boards and material selection that address sustainable initiatives, PCA corporate imagery, and fit-up standards are to be included in the scope of work. Document and assist in identifying all requirements that exceed or are NOT part of the standards. All non-compliant components must respect the Government of Canada Approval and Fit-up Standards process. Estimates and specifications including phasing strategy for swing space are to be addressed and represented in graphic fashion, with presentations made to the Client group and Departmental Representative. Designated substance reports are to be reviewed for impact on finishes removal. Recycling initiatives for furniture and screens, as well as coordination of the relocation of mechanical, electrical and telecommunications items are to be included in the overall submission package.

AS 4.2 SCOPE AND ACTIVITIES:

The Consultant shall:

- .1 attend all meetings and presentations required for the project. Additional Consultant team members shall be required to attend project team meetings to address their particular areas of expertise during the different delivery stages for each Call-up. The number and frequency of project team meetings will be determined at time of Call-up.
- .2 ensure all Sub-Consultants attend as required throughout the various phases of the project;
- .3 record the issues, decisions and action items (with responsibility) at each meeting and prepare and distribute meeting minutes within 72 hours of the meeting. Meeting minutes must clearly identify the status of the project as well as any problems raised during the presentation that has an effect on costs, risks and scheduling.
- .4 make presentations as identified under the RS sections to support the review and approval process; prepare and distribute status reports to the Departmental Representative on a monthly basis.
- draft monthly status reports on work progress and submit them to the Departmental Representative. Status reports must clearly identify any issues raised during the project the impacts on costs, risk and schedule for the project.
- .6 coordinate the scope of work and design with other disciplines;
- .7 if applicable, review and coordinate the work of other contracts, such as the purchasing of furniture, audio-visual, security systems and IT/telecommunications equipment, and inform the Departmental Representative if the work of other contracts will impact the design layouts or the work of other disciplines before proceeding with the implementation of the changes.

AS 4.3 DELIVERABLES - DETAILS

The purpose of this section is to describe interior design services that may be identified and requested by the Departmental Representative at the time of Call-up.

1. MASTER DRAWINGS

- Verify site conditions by preparing or updating master scale drawings in an AutoCAD format approved in accordance with Appendix C (attached) entitled "Doing Business" ensuring in particular that existing architectural/interior design, mechanical, electrical, structural, and communication elements, as well as data transmission devices placed on the underside of suspended ceilings, are correctly indicated.
- .2 Submit for review. Revise as required. Resubmit for final approval.

2. BUILDING CAPABILITY RECOMMENDATIONS REPORT

- .1 The intent of the Building Capability Report is to investigate, assess and analyze how well the building(s) meets Client Department requirements, and make recommendations to suit the Client Department's requirements. This report must not be confused with a Building Condition Report (BCR) which identifies the capital improvement requirements necessary to maintain an asset at a specified level, from the beginning to the end of a set planning horizon.
- .2 The Consultant must assess the capability of the existing building infrastructure and systems including as a minimum architectural, interior design, mechanical, electrical, structural, communication/data, and security, to determine how effectively the building(s) meets Client Department requirements.
- .3 Prepare the Building Capability Report in reference to the Client Department's functional requirements. The report must include but will not necessarily be limited to:
 - a. Results of site investigations and comprehensive review of the project requirements;
 - b. Location and capability of existing infrastructure and building systems including architectural/interior design, mechanical, electrical, structural, communications/data and security systems;
 - c. Deferred maintenance; curable/incurable equipment obsolescence; design problems and deficiencies that are likely to affect Client requirements;
 - Identification of all deficiencies, potentials and constraints with the existing building systems to support the Client Department's functional requirements and proposed planning alternatives;
 - e. Areas of concern including an assessment of their impact on space, time and budget;
 - f. Preliminary recommendations and alternative remedial measures for areas of concern;
 - g. Preliminary assessment of the building's conformance with the PARKS CANADA Sustainable Development Strategy;
 - h. In buildings or floor spaces where existing construction and/or fit-up exist and are to be reused, assess building conformance with the Government of Canada Fit-Up Standards.
- .4 Coordinate work performed by Mechanical and Electrical engineering Sub-Consultants and incorporate into the report on communications and data. Mechanical and electrical engineering services must be complete in that they identify all issues that will have a significant impact on the project.
- .5 Submit for review. Revise as required. Resubmit for final approval.

3. SUSTAINABILITY RECOMMENDATIONS REPORT

- .1 The Sustainability Recommendations Report will include but will not necessarily be limited to the following:
 - a. Identification of construction, renovation and demolition waste materials diversion target (minimum is 75% or more);
 - b. Recommendations for sustainable sound construction materials (renewable, recycled content, durable materials);

- c. Energy and water efficiency in facilities (including heating, ventilation, lighting, low water consumption sanitary appliances, etc.); and,
- d. Complete sustainability checklist using either Green Globes Fit-up or LEED Commercial Interiors tool. The checklist must include the projected Sustainability Goal intended to be achieved and the rationale for including and excluding specific elements on the checklist.
- .1 Coordinate work performed by Mechanical and Electrical engineering Sub-Consultants and incorporate the results into preliminary report.
- .2 Submit for review. Revise as required. Resubmit for approval.

4. SCHEMATIC PLANS

- .1 At the time of Call-up and based on Government of Canada Fit-Up Standards, prepare a maximum of two (2) schematic plans of one floor (or portion, depending on the size of the floor plate).
- .2 The schematic plans must reflect the approved Client Department's overall functional requirements but not necessarily any particular group, division, etc.
- .3 The schematic plans must contain sufficient detail to graphically illustrate the Government of Canada Fit-Up Standards, and the functional program requirements established in RS 2.2.2 Functional Programming.
- .4 The following must be included:
 - a. Identification of all partition including door swings;
 - b. All circulation paths;
 - c. Proposed workstation layouts for both enclosed offices and open areas;
 - d. Support space for both enclosed areas and open areas;
 - e. Special purpose spaces as required to illustrate the overall design strategy; and
 - f. Identification of all rooms and areas including name, numbers and size.
- .5 Provide a written justification and summary for each option including as a minimum: number of workstations and enclosed offices according to size and level, total number of end users, types and number of support spaces, types of special purpose spaces, percentage of circulation, percentage of building loss factor and percentage of open offices versus closed offices.
- .6 The schematic plans must reflect the space allocation, approved functional program and project budget.
- .7 The plans must be consistent with the building's configuration and systems including as a minimum: mechanical, electrical, structural, communications/data, security.
- .8 Submit schematic plans for review. Revise as required. Resubmit for final approval pending review and approval by authorities having Jurisdiction.

5. MECHANICAL AND ELECTRICAL ENGINEERING DESIGN CONCEPT

- .1 Prepare mechanical and electrical engineering design concept documents in sufficient detail to illustrate the mechanical and electrical engineering design concept and to demonstrate compliance with the project requirements. Develop an alternative design concept solution that accommodates the Client Department's requirements; respond to the existing building, its surrounding context and the project budget. Provide option analysis complete with life-cycle cost analysis.
- .2 Number of options to be identified at time of Call-up.
- .3 Design Concept and alternative solutions must adhere to the Government of Canada Fit-Up Standards.
- .4 Prepare mechanical and electrical engineering drawings to include analytical diagrams, schematic bubble diagrams, plans, elevations and sections. Perspective sketches may be requested.
- .5 Submit for review. Revise as required. Resubmit for final approval.

6. REVIEW AND APPROVAL BY AUTHORITIES HAVING JURISDICTION

- .1 Submit Client approved schematic plans and required completed Human Resources and Social Development Canada (HRSDC) forms (HRSDC's Advice of Transmittal Form, Occupancy Fit-Up Data Sheet and the Building Code Data Sheet).
- .2 Submit Client approved schematic plans to the Federal Heritage Buildings Review Office (FHBRO) as required by the project.
- .3 Revise plans as required and provide written response to comments received from authorities having Jurisdiction.
- .4 Coordinate review and approval process by Authorities having Jurisdiction with Mechanical and Electrical engineering Sub-Consultants and ensure written responses to comments are provided.
- .5 Submit schematic plans for review. Revise as required. Resubmit for final approval.

7. FEASIBILITY STUDY

- .1 Prepare a report that examines the viability and practicality of a project, where feasibility study services or deliverables are required above and beyond those described in RS 2.2.3 Additional Services.
- .2 Make detailed and specific recommendations. Provide analysis and justification as required.
- .3 Submit for review. Revise as required. Resubmit for approval.

VERIFICATION OF FUNCTIONAL PROGRAM

- .1 Review, update and/or complete Functional Program Document prepared by others. Refer to RS 2.2.2 Functional Programming and coordinate with Departmental Representative to determine list of services and deliverables required for Functional Program Document.
- .2 Ensure content of Functional Program Document prepared by others includes required deliverables described in RS 2.2.2 of this Standing Offer and that the deliverables are complete and still current, i.e. up-to-date and approved by the Departmental Representative.
- .3 Update the functional program deliverables as required.
- .4 Submit for review. Revise as required. Resubmit for approval.

9. VERIFICATION OF SCHEMATIC PLANS

- .1 Review, update and/or complete the Schematic Design deliverables prepared by others. Refer to RS 2.1.2 Design Concept (Schematic Design) of Basic Services for list of services and deliverables.
- .2 Ensure Schematic plans prepared by others includes the deliverables described in RS 2.1.2 Design Concept (Schematic Design) of Basic Services, and that the deliverables are still current, i.e. up-to-date and are approved by the Client Department.
- .3 Provide a detailed list of all requirements that exceed the Government of Canada Fit-Up Standards. Assist Parks Canada in the reconciliation and approval process for non-conforming components.
- .4 Update schematic plans, as required.
- .5 Submit schematic plans for review. Revise as required. Resubmit for final approval.

10. TEST PLANS

- Develop test plans of one (1) floor plate (or portion, depending on the size of the floor plate) in sufficient detail to test the viability of the workstations/work settings layouts and support space options being considered. Include special purpose space options as required.
- .2 Number of options to be identified at time of Call-up.
- .3 Test plans must reflect Client Department's overall functional requirements but not necessarily any particular group, division, etc.
- .4 Test plans must include circulation paths, building loss factor.
- .5 Submit for review. Revise as required. Resubmit for final approval.

11. INVENTORY AND ASSESSMENT OF EXISTING FURNITURE AND EQUIPMENT

- .1 Prepare a detailed furniture and equipment inventory report including drawings of existing furniture and equipment layouts and a chart indicating counts, sizes of furniture and equipment, list of furniture components and equipment, a description of existing finishes and colours, photographs of each typical furniture component and equipment, and an assessment of the condition of existing furniture for the following areas:
 - a. Workstations/work settings;
 - b. Enclosed offices;
 - c. Support space; and,
 - d. Special purpose space.
- .2 Furniture and equipment layouts described above must include identification of existing location, and user's name or workstation number, if applicable.
- .3 All information gathered under items 1 and 2 above must be assembled into a report.
- .4 Submit for review. Revise as required. Resubmit for approval.

12. FREE-STANDING FURNITURE

- .1 Provide generic requirements for new free-standing furniture required for the project. Including but not limited to the following:
 - a. Identification of furniture by type (i.e. single pedestal desks, credenzas, filing, chairs, etc.);
 - b. Dimensions:
 - c. Total number of units;
 - d. Typical layouts if applicable;
 - e. Technical requirements if applicable;
 - f. Finishes;
 - g. Associated unit price ranges and budget information.
- .2 Submit for review. Revise as required. Resubmit for final approval.

13. SYSTEMS FURNITURE

- .1 Provide generic requirements for new systems furniture to be procured through the Standing Offer or other government internal procurement methods including as a minimum the following:
 - a. Identification of furniture type (e.g. desking or panel hung systems etc.);
 - b. Description of components (e.g. overhead bins, file pedestal etc.);
 - c. Dimensions:
 - d. Typical layouts;
 - e. Total number of each layout type and/or total component count;
 - f. Technical requirements (e.g. panel height(s), mobility, height adjustability, electrical requirements etc.);
 - g. Finishes; and
 - h. Associated unit price ranges and budget information.
- .2 Submit for review. Revise as required. Resubmit for final approval.

14. REFURBISHMENT OF EXISTING FURNITURE

- Provide a detailed inventory of existing furniture to be refurbished through the Standing Offer process including as a minimum the following:
 - a. Identification of furniture by manufacturer and type (e.g. work surfaces, desks, chairs, file cabinets etc.);
 - b. Total number of units;
 - c. Existing/new finishes; existing/new location; and,
 - d. Associated budget information.

.2 Submit for review. Revise as required. Resubmit for final approval

15. COLOUR BOARDS

- .1 Develop colour schemes boards that clearly demonstrates the intended use of materials including as a minimum architectural finishes, interior design finishes, paint colours, and finishes for furniture and furnishings.
- .2 In a written format, identify the colour, pattern, texture, name, manufacturer and reference number for each finish and colour identified.
- .3 Submit colour schemes and material samples for review. Revise as required. Resubmit for final approval.

16. PRESENTATION BOARDS

- Prepare for presentation purposes the approved schematic plans, vertical stacking diagrams, horizontal zoning plans, and/or final furniture plans.
- .2 The presentation technique selected by the Consultant must clearly communicate both the functional and aesthetic aspects of the proposed fit-up developed for the Client Department. All presentation boards must be completed at an appropriate scale, mounted on boards, and colour rendered. Elevation and perspective views, as required, must include human figures for scale.
- .3 Present the material to the Departmental Representative, Architecture and Engineering Resources (if applicable) and the Client Department.
- .4 Submit comments from presentation(s), if any, in the form of meeting minutes.
- .5 Revise the presentation material as required. Resubmit for final approval.

17. PRESENTATION TO UPPER MANAGEMENT

- .1 Assist the Departmental Representative or appropriate representative from the Client Department in preparing a presentation to upper management of the Client Department, to achieve an executive level understanding of the project, to present progress status reports, obtain feedback, and/or seek approval.
- 2 Attend the presentation and provide all required assistance.
- .3 Submit the findings from the presentation in the form of meeting minutes. Revise as required. Resubmit.

18. EMPLOYEE INFORMATION SESSION

- .1 Assist the Departmental Representative or appropriate representative from the Client Department in the preparation of an information session for employees of the Client Department to explain the following:
 - a. Objectives of the project;
 - b. Employee involvement;
 - c. Communication strategy for disseminating project information; and/or
 - d. Project schedule.
- .2 Attend the presentation and provide all required assistance.
- .3 Submit findings from the employee information session in the form of meeting minutes. Revise as required. Resubmit.

19. FOCUS GROUP SESSIONS

.1 Prepare, coordinate and conduct focus group sessions with participants chosen by the Client Department, to assist in the information-gathering process, and/or to assess the viability of proposed planning alternatives. Participants may include representatives from property management, human resources, labour relations, information technology, corporate communications, security and representatives from various divisions (i.e. directorates, branches, sectors, units, etc.).

.2 Submit findings from the focus group sessions in the form of meeting minutes. Revise as required. Resubmit.

20. RELATED PUBLIC SPACES

- .1 Provide functional program services described in the Required Services (RS) section of this document that are applicable to upgrading the base building outside the office space described in the Call-up. These related public spaces might include, as a minimum, lobbies, washrooms, and/or elevator cabs. This does not include areas within the office fit-up space where higher interaction with the general public might occur (i.e. reception area, service counter).
- .2 Confirm project budget related to the fit-up of related public spaces and provide justification regarding functional and technical requirements along with Class 'D' estimates.
- .3 Submit for review. Revise as required. Resubmit for final approval.

21. DETAILED COMMUNICATION STRATEGY

- .1 Prepare a detailed communications strategy in relation to the functional program. Report to include as a minimum:
 - a. Written and verbal communication strategy within the project team
 - b. Written and verbal communication strategy outside the project team; and
 - c. Other communication strategies, as required.
- .2 Submit for review. Revise as required. Resubmit for final approval.

22. TRANSFER OF INFORMATION

- .1 The Consultant is required to present a formalized presentation/summary of Required Services and deliverables in order to provide a historical context and a complete overview of the project parameters to the project team.
- .2 The Consultant must provide the following deliverables, which will include as a minimum:
 - a. Proposed agenda for formal approval by the Departmental Representative;
 - b. A written narrative/overview to identify and describe all significant factors which have influenced the decision-making process during the project life cycle; and a briefing on the last document submission:
 - c. After completion of the presentation, the written narrative/overview must be submitted to the following:
 - i) one (1) hard copy to the Departmental Representative;
 - ii) one (1) hard copy to the Client Department; and
 - iii) one (1) hard copy and one (1) electronic non-PDF copy to the Architecture and Engineering Resources (where applicable).

23. CLASS 'D' COST ESTIMATE

- Prepare a Class 'D' cost estimate (Elemental Cost Analysis). Estimate must be summarized in an agreed and consistent elemental format, by discussion with the Departmental Representative.
- .2 Cost estimate is to include as a minimum architectural, interior design, mechanical and electrical. The Class 'D' estimate is to isolate and show separately the cost of base building costs, fit-up costs and Client Department costs (refer to the funding accountabilities identified in the Government of Canada Fit-Up Standards and submit for review). Revise as required. Resubmit for final approval.

24. COORDINATION OF OTHER CONTRACTS BY OTHERS

The Consultant is to review and coordinate with the Sub-Consultants and specialists the scope of work of other contracts (scope of work procured by Parks Canada or another department for security systems, audio-visual equipment, telecommunication cabling, system furniture, high density mobile storage, etc.) with the scope of work within the project of the specific Call-up.

.2 The Consultant shall inform the Departmental Representative of any discrepancies or conflicts that would impact the project and recommend to the Departmental Representative various options to resolve the conflicts.

AS5 ACCESSIBILITY AUDITS

AS 5.1 OBJECTIVE

The Consultant shall conduct an accessibility audit of both exterior and interior spaces using the audit templates provided by the Departmental Representative to indicate basic or enhanced accessibility requirements, associated costs, and corrective action. Photographs and diagrams are to be included to identify scope areas.

AS 5.2 SCOPE AND ACTIVITIES

The Consultant shall:

- .1 attend all meetings and presentations required for the project. Additional Consultant team members shall be required to attend project team meetings to address their particular areas of expertise during the different delivery stages for each Call-up. The number and frequency of project team meetings will be determined at time of Call-up.
- .2 ensure that Sub-Consultants participate in the different project stages, as needed; record the issues, decisions and action items (with responsibility) at each meeting and prepare and distribute meeting minutes within 72 hours. Meeting minutes must clearly identify the status of the project.

AS 5.3 DELIVERABLES

The Consultant shall provide the following:

.1 Written reports including the audit templates, photographs of existing conditions, drawings and recommendations for rectification of recommendations beyond those of existing norms, as needed..

AS6 SUSTAINABILITY STRATEGIES AND REPORTS

AS 6.1 OBJECTIVE

The Consultant, as strategic adviser for the project, is to research and investigate a wide range of sustainability strategies for the specific project with the objective of achieving the assessment tool targets that conform to PARKS CANADA's various green building targets as described in "PARKS CANADA - Strategic Framework for Sustainability in Buildings" including; but, not limited to:

- .1 Recycling and reuse of materials, systems, equipment;
- .2 Procurement of "green" materials;
- .3 Energy reduction and management;
- .4 Water management;
- .5 Waste reduction and management;
- .6 Life cycle costing, cost benefit analysis;
- .7 Integrated Design process.

AS 6.2 SCOPE AND ACTIVITIES

The Consultant shall:

- .1 Research and investigate sustainable development strategies in the context of the project and make recommendations.
- .2 Prepare a detailed inventory of existing non-contaminated materials, systems, equipment for reuse or recycling. Include target markets for recycled material and make recommendations. Verify with Departmental Representative. Revise as required. Obtain approval.
- .3 Investigate and identify potential "green" building materials and products for the project include sourcing (i.e. In order to meet government objectives, sole source may be necessary). Verify with Departmental Representative. Revise as required. Obtain approval.
- .4 Investigate and analyze potential to exceed the Model National Energy Code by 30% to 90 %. Make recommendations for an Energy Reduction and Management plan.
- .5 Investigate and analyze potential to increase energy efficiency, and strategies to decrease water run-offs.
- .6 Develop a non-hazardous and hazardous waste reduction and management plan. Make recommendations. Verify with Departmental Representative. Revise as required. Obtain approval.
- .7 Based on the recommendations included in 1 to 4, perform a cost / benefit and life cycle costing analysis for the Sustainability Strategy for the project.

AS 6.3 SCOPE AND ACTIVITIES - DETAILS

1. At the Analysis Stage:

The Consultant shall prepare sustainability development strategies and a report that includes the following aspects as a minimum:

- .1 Review potential for environmental impacts and application of the Canadian Environmental Assessment Act (CEAA).
- .2 Review and confirm the proposed assessment of Sustainable Development Design standards to be applied to the project, such as achieving LEED certification.
- .3 Establish a policy for the project to minimize environmental impacts consistent with the project objectives and economic constraints.
- .4 Identify sustainable design opportunities, strategies, targets, preliminary budgets (i.e. energy, water, waste, etc.).

2. At the Design Concept Stage:

The Consultant shall provide a Sustainable Design Strategy that includes the following as a minimum:

- .1 Provide sustainable design opportunities, strategies, preliminary budgets (i.e. energy, water, waste, etc.). Demonstrate life cycle costing for a sustainable design allowance to demonstrate that investment in sustainable technologies and processes return a value to PARKS CANADA.
- .2 Identify which LEED water efficiency credits, energy credits, material credits, indoor environmental quality credits will be pursued. For those credits identified, provide a short description on how they will be achieved.

3. At the Design Development Stage:

The Consultant shall provide, as a minimum:

Updated sustainable design opportunities, strategies, updated budgets (energy, water, waste, sustainable procurement strategies, etc.).

.1 Updated energy analysis and energy budget established for all disciplines at the Design concept stage.

- .2 Information on all internal and external energy loads in sufficient detail to determine the compatibility of the proposal with existing services, approved concept and energy budget.
- .3 LEED target (as per the Strategic Framework Summary Tables of PARKS CANADA Strategic Framework for Sustainability in Buildings) for the determined system scorecard indicating which credits the design meets or will meet.

AS 6.4 DELIVERABLES

The Consultant shall:

- .1 Submit the Sustainability Strategy for review, in a report.
- .2 Revise as required.
- .3 Resubmit for final approval.

AS7 RESIDENT SERVICES DURING CONSTRUCTION

AS 7.1 OBJECTIVE

The purpose of the Resident Site services is to ensure the presence of the Consultant's full-time representative on site to inspect, to coordinate, and to monitor all aspects of the work during the construction of the facility, as well as to liaise with the Contractor, Parks Canada, and other stakeholders as appropriate to the work.

More than one person may be required to suit the hours of construction, the skills required depending on the nature of the work being executed, and on the advancement phase of construction work on site.

The Consultant Resident Site Representative is responsible for providing continuous (including overtime when construction operations perform multiple shifts per day) site review for all aspects of the project, maintaining daily records of all construction work done. He or she is to ensure regular communication among the PARKS CANADA Property Manager or representative, the Project Manager, design agencies, Contractor, Regional Fire Commissioner and the Provincial Department of Labour.

The Consultant Resident Site Representative shall:

- .1 be directly responsible to the Consultant and to all members of the Consultant's team of specialist Sub-Consultant disciplines.
- .2 liaise with the Departmental Representative, the Contractor, and with other project team members and stakeholders.
- .3 become thoroughly familiar with the contract documents, the National Building Code and all Fire Commissioner of Canada Standards for Construction operations (incl. FCC No. 301 dated June 1982 and the Standard for Welding and Cutting FCC No. 302 dated June 1982).
- .4 The Consultant Resident Site Representative shall also be aware of all Federal, Provincial and Municipal standards for the health and safety of construction workers.
- .5 become thoroughly familiar with the requirements of the Consultant Project Brief and project responsibilities of others which relate to the Consultant's services.

AS 7.2 SCOPE, ACTIVITIES AND DELIVERABLES

1. General:

The Consultant Resident Site Representative(s) shall:

1 Provide full-time resident inspection, clarification, coordination and monitoring during the construction work and be responsible to the Consultant. In addition, the Departmental Representative may delegate additional responsibilities subject to Consultant's agreement.

File Name - Nom du dossier: Contemporary Architecture - National Parks and Historic Sites in the Province of Ontario.

- Maintain daily records of all construction work placed and ensure constant communication with .2 the PARKS CANADA Property Manager, the Project Manager, the Regional Fire Commissioner, the Consultant, the Contractor, the PARKS CANADA Representative and consultants.
- Supervise an assistant approved by PARKS CANADA. .3
- In case of emergencies, the Consultant Resident Site Representative(s) is (are) empowered to stop work, or give orders to protect the safety of the workers or Crown property.

2. Inspection and Reporting

The Consultant Resident Site Representative shall inspect all phases of the work in progress, for the purpose of bringing to the attention of the Contractor, after checking with the Consultant, and Departmental Representative any discrepancies between the work, the contract documents and accepted construction procedures. He or she shall keep a daily log of such inspections and shall issue a weekly written report to the Consultant, for distribution, in the form directed. The Resident Site representative shall make any other reports or surveys as may be requested by the Project Manager through the Consultant.

3. Interpretation of the Contract Documents

Interpretation of the contract documents shall be the responsibility of the Consultant. The Consultant may, however, delegate specific duties while maintaining responsibility.

It shall be the duty of the Resident Site representative to assist the Consultant and to further inform the Consultant of any anticipated problems which may delay the progress of the work. The method for relaying such information shall be determined by the Consultant.

4. Changes in the Work

The Resident Site representative shall not authorize or order any change in the work which will constitute a change in design or in the value of the Contract except as requested by the Departmental Representative.

The Consultant may call upon the Resident Site representative to assist in the evaluation of changes in the work, where a knowledge of job conditions is required.

5. Communication and Liaison

The Resident Site representative shall:

- Convey the Consultant's instructions regarding the required standards of workmanship to the .1 Contractor(s):
- .2 Verify whether the work on site is in accordance with the construction documents, confer and obtain guidance on these findings with the Consultant. The matter is then to be brought to the attention of the Contractor's Superintendent. Although informal discussions with Sub-trade Superintendents are permissible (but only with the agreement of the Contractor), the Resident Site representative should not deal directly with foreman or tradesmen, or interfere with the progress of the work.
- Communicate formally with the contractor in writing, and immediately transmit to the .3 Departmental Representative and the Consultant.
- Contact the Consultant immediately when it is apparent that information or action is required of .4 the Consultant (e.g. general instructions, clarifications, approval of shop drawing, requisitions, contemplated Change Orders, site instructions, details, drawings, etc.)
- Accompany PARKS CANADA representatives on inspections and report as required on the .5 Consultant responses to the project requirements, comments or instructions of PARKS CANADA's representatives. Note that the Resident Site representative should request that such requirements, comments or instructions be provided to him or her in writing.
- Consider and evaluate any suggestions or modifications to the documents offered by the Contractor and immediately report these to the Consultant with comments.

File Name - Nom du dossier: Contemporary Architecture – National Parks and Historic Sites in the Province of Ontario.

.7 Ensure that PARKS CANADA and the Consultant are notified promptly when key pieces and/or components of materials and equipment are delivered, so that these parties can arrange for the appropriate personnel to have an opportunity to inspect same prior to installation.

The Resident Site representative will investigate, schedule and approve in writing, all temporary or permanent connections into any of the buildings' systems prior to the work being done. He or she shall provide advanced forecasts and advise the PARKS CANADA Property Manager of any interruption of normal building services with a minimum 24 hours notice prior to the work being undertaken, where this work cannot be done during the silent hours.

6. Daily Log

The Resident Site representative shall:

- .1 keep a daily log recording:
 - a. weather conditions, particularly unusual weather relative to construction activities in progress;
 - b. workforce on site: construction firms on site, work being done by each firm, number of workers per firm, equipment on site (used and unused);
 - c. any instructions given to the Contractor;
 - d. major material and equipment deliveries and removals;
 - e. daily activities and major work done;
 - f. start, stop or completion of activities; quantities of each type of work done and in progress, shutdowns (time start and end/firms/workers affected);
 - g. presence of inspection and testing firms, tests taken, results, etc.;
 - h. explicit confirmation of expected site conditions encountered, or a full description of unusual site conditions experienced;
 - i. significant developments, remarks, etc.;
 - j. special visitors or events on site;
 - k. authorities given to contractor to undertake certain or hazardous works;
 - I. environmental incident/accidents;
 - m. safety incidents/accidents;
 - n. record of significant inspections of work performed;
 - reports, instructions from Appropriate Authorities Response Actions. Note: The log is the
 personal property of the Resident Site representative. Certified copies of the log book are
 to be provided to PARKS CANADA and the Consultant at the end of the project.
- .2 Provide copies of the daily log to the Departmental Representative on a daily basis.
- .3 Maintain a collection of electronic photographs, taken on a daily basis, that illustrate daily activities on site, including deficiencies, progress, special conditions, etc.
- .4 Incorporate date taken onto the photographs and into file names.
- At the end of construction, submit a report to the Departmental Representative containing all daily logs and photographs compiled in a sequential manner.

7. Weekly Records

The Resident Site representative shall prepare weekly reports for the Consultant in the form directed, including:

- a. work progress relative to schedule;
- b. major activities started or completed during the week; main activities in progress;
- c. major deliveries of materials and/or equipment;
- d. difficulties encountered which may cause delays in completion;
- e. materials and labour needed immediately;
- f. cost estimates of work completed and materials delivered (for cost plus contracts) as may be requested by PARKS CANADA;

- g. any outstanding information or action required by Consultant or PARKS CANADA;
- h. work force;
- i. weather:
- j. other remarks;
- k. accidents on site;
- I. life safety or building hazards caused by the work, the contractor or his agents.

8. Site Records

The Resident Site representative shall maintain orderly and updated files at the site for the use of PARKS CANADA, Consultant and himself or herself as follows:

- a. Contract and Tender Documents.
- b. Approved Shop Drawings.
- c. Approved Samples.
- d. Samples.
- e. Site Instructions.
- f. Contemplated Change Orders.
- g. Change Orders.
- h. Memoranda.
- i. Test and Deficiency Reports.
- j. Correspondence and Minutes of Meeting.
- k. Names, addresses, telephone numbers of Client representatives, Consultant and all Contractors, sub-trades key personnel associated with the Contract; including home telephone numbers in case of emergencies.

In addition, the Resident Site representative shall maintain an updated progress schedule. A reproduction of the original Contract drawings shall be carefully preserved and shall be kept marked up to date with all addenda, Change Orders, site instructions, details, as-built conditions, etc., issued subsequent to the award of the Contract.

9. Inspection of the Work

The Resident Site representative shall make on site observations and spot checks of the work to determine whether the work, materials and equipment conform with the contract documents and supplementary conditions. The Consultant's Site representative shall advise the Contractor of any deficiencies or unapproved deviations via memorandum and report immediately to the Consultant and PARKS CANADA Construction Representative any of these issues on which the Contractor is tardy or refuses to correct.

The Resident Site representative shall arrange for the Consultant's architectural, structural, mechanical, electrical and other consultants to make the periodic inspections required by the Consultant's Contract, and for these inspections to be made timely with respect to the progress of the work.

The Resident Site representative shall also report if materials and equipment are being incorporated into the project prior to approval of relative shop drawings or samples.

The Resident Site representative shall assist in the preparation of all deficiency reports, interim, preliminary, and final, in collaboration with PARKS CANADA and Consultant's representatives.

The Resident Site representative shall be responsible for the measurement of all work to be done on a unit-cost basis.

10. Site Meetings

The Resident Site representative shall attend all job-site meetings.

11. Inspection and Testing

The Resident Site representative must see that the tests and inspections required by the contract documents are conducted, and should observe these tests and report the results in the daily log.

The Consultant should be notified if the test results do not meet the specified requirements, or if the Contractor does not have tests undertaken as required.

12. Emergencies

In the case of emergency where safety of persons or property is concerned, or work is endangered by the actions of the contractor of the elements, to safeguard the interests of PARKS CANADA, the Resident Site representative shall give immediate written notice to the Contractor of the possible hazard. He or she shall further, if necessary, stop the work or give orders for remedial work, and contact the Consultant immediately for further instruction.

13. Limitations

The Resident Site representative shall not:

- .1 Authorize deviations from the contract documents.
- .2 Conduct tests.
- .3 Approve shop drawings or samples.
- .4 Advise the PCA representative in any matter without obtaining guidance from the Consultant.
- .5 Accept any work or portions of the building.
- .6 Enter into the area of responsibility of the Contractor's Field Superintendent.
- .7 Stop the work unless convinced that an emergency exists as noted above.

14. Hazardous Construction Operations

It is the duty of the Resident Site representative to examine all site conditions and methods to be used by the Contractor undertaking hazardous operations.

Give written authority to undertake hazardous operations to the Contractor, when fully satisfied that all necessary precautions and actions have been taken by the Contractor to safeguard the life safety of the workers and building occupants and Crown property. Written authority shall be countersigned by the Contractor to acknowledge that the latter is aware of the Resident Site representative's instructions and requirements and both parties will retain copies of the authority document signed mutually by them.

The Resident Site representative shall inspect the areas where hazardous work is under way to ensure that the Contractor is maintaining the agreed safety standards. Any infractions may result in the Resident Site representative stopping the work. All infractions, or work stoppages ordered shall be reported in writing and verbally to the Consultant and PARKS CANADA Construction Supervisor.

15. Building Security

Special precautions must be taken at all times to prevent unauthorized entry of the building. The Resident Site representative is to ensure that all contractor-made openings and means of access, are firmly secured when the contractor leaves the site.

The Resident Site representative will liaise closely with the Consultant and PWGSC Departmental Representative on all security and/or safety problems that may arise due to the contractor's operations.

AS8 ESTIMATING AND COST PLANNING

AS 8.1 OBJECTIVE

1. Cost Estimating Specialist

Delivering the project on time and within budget is a high priority. A fully qualified cost estimating, cost planning and cost control team, referred to herein as the Cost Specialist, with a demonstrated record of successful cost management on large construction projects is required. This Cost Specialist will be conversant with all aspects of construction cost estimating during the design stages including the use of Elemental Cost Analysis, Risk Analysis, Life Cycle Costing and Value Engineering/Management techniques.

The purpose of cost planning and cost control is to assist in the accomplishment of project cost objectives. It is a continuous and interactive process involving planning, action, measurement, evaluation and revision.

AS 8.2 SCOPE OF SERVICES

The Cost Specialist shall provide an interactive and continuous cost consulting service from the commencement of project design through to construction completion, including the preparation of complete estimates for all construction trades, escalation, inflation and contingency costs.

The Cost Specialist shall provide to PARKS CANADA and the Consultant, a cost advising, and cost monitoring/reporting service.

The Cost Specialist shall attend all project meetings throughout the design phases and be prepared to present and defend the estimates directly to the Departmental Representative.

The fee proposal should be based on one lump-sum fixed-price construction contract. Should the Departmental Representative decide to deliver the project by project management, construction management, phased construction or other means, the Cost Specialist will negotiate any fee adjustment with the Consultant that is acceptable to PARKS CANADA, prior to commencing adjustment of estimates and reporting systems.

Other services may be provided at additional cost, if requested.

AS 8.3 SERVICES - BASIC ACTIVITIES

The Cost Specialist shall work with and advise the Consultant team and PARKS CANADA of the costs of individual building components and costs of various design systems. Estimates should be prepared in detail and summarized using an Elemental Analysis format. Acceptable formats are noted under the Submission Standards section following.

2. Reporting

a) Milestone Reporting:

At each of the Milestones specified in this document, provide a complete submission including the required Elemental Summaries, supported by all back-up work sheets clearly detailing the process used in preparing the estimate. The detailed work sheets will be the prime basis on which estimates will be reviewed by Parks Canada. Cost comparisons and cost reports identifying and explaining the differences between each succeeding cost estimate and their cost effect are also required.

In addition, the Cost Specialist shall fully coordinate all estimates with schedules.

A typical Milestone Report will contain:

- .1 Project Estimate Summary;
- .2 Elemental Estimate Summary;
- .3 Estimate Back-Up Detail:

- Basis for escalation, inflation and contingency calculations;
- Detailed measurement and pricing;
- .4 Narrative:
 - Outline description of estimate basis;
 - Description of information obtained and used in the estimate including the date received;
 - Listing of notable inclusions:
 - Listing of notable exclusions; listing of items/issues carrying significant risk;
 - Notes on past and forecast Cost Specialist activity;
- .5 Estimate Reconciliation:
 - With last submission:
 - With Construction Cost Plan.
- .6 All other relevant information.

b) Monthly Report

In addition to the Milestone Reports, submit a Monthly Report outlining activities during the previous month, identifying areas of concern and new information received etc., along with forecast and proposed revisions to the current estimate. This report shall also contain a full upto-date Elemental Cost Summary:

- .1 Project Estimate Summary;
- .2 Elemental Cost Summary;
- .3 Narrative:
- .4 Description of the basis for estimate revision;
 - · Description of new information used in the estimate including the date received;
 - Listing of notable inclusions;
 - Listing of notable exclusions;
 - · Listing of items/issues carrying significant risk;
 - Notes on past and forecast Cost Specialist activity

c) Exception Report

The Cost Specialist is to provide continuous cost monitoring, timely identification and early warning of all changes that affect or potentially affect the estimated construction costs of the project.

If the estimate falls short of or exceeds the Construction Cost Plan due to such changes, the Cost Specialist with the Consultant team shall fully advise the Departmental Representative.

The Cost Specialist with the Consultant team shall submit to PARKS CANADA proposed alternative design solutions and revise the most recent monthly estimate.

An Exception Report will include sufficient description and cost detail to clearly identify:

- Scope Change: Identifying the nature, reason and total cost impact of all identified and potential project scope changes affecting Construction Cost Estimate.
- .2 Cost Overruns and Underruns: Identifying the nature, the reason and the total cost impact of all identified and potential cost variations.
- Options Enabling a Return to Construction Cost Estimate: Identifying the nature and potential cost effects of all identified options proposed to return the project within Construction Cost Estimate.

3. Submission Standards

a) Summary Format

.1 Elemental Analysis: All estimates shall be summarized in an agreed and consistent Elemental format. Several variations in format may be acceptable to Parks Canada (by discussion) but those following the ASTM (USA), and CIQS (Canada), 2014 MasterFormats are preferred.

- .2 Trade Summary: Where a trade summary is required, those following the Masterformat are preferred, except where local practice provides a more suitable alternative.
- .3 Project Cost Subdivision: The estimate shall isolate the costs of each phase of construction. All estimates within these phases shall further isolate and show separately the cost of individual building blocks and/or the accommodation sections listed here:
 - New Construction;
 - Renovation, layout.

b) Media

- .1 Provide three (3) hard copies of all reports including estimate summaries, and one (1) additional hard copy of the full report including the additional estimate support information to PARKS CANADA.
- .2 Provide one electronic copy of the total estimate, summary and supporting documentation.

c) Timelag

Recognizing that estimates must follow the design decisions they represent, such estimates may lag. The cost portion of the Milestone Reports may follow, but by no more than two weeks unless otherwise determined by the Departmental Representative.

d) Use of all available information

The Cost Specialist is responsible for providing a complete cost estimate even though the information provided during the concept, design development and early working drawing stages is incomplete. Where requirements are not firmly defined, the Cost Specialist shall make assumptions, confirm them with the Consultant and either list them as assumptions, or have them incorporated in an outline specification modified by the Consultant.

4. Techniques

The Cost Specialist is required to be familiar with and make use of a broad range of cost techniques, especially the following:

- Risk Analysis: All construction estimates (except the final pre-tender estimate) shall include and identify design, estimating, inflation escalation and currency exchange allowances as are deemed necessary in light of the current information available. The Cost Specialist shall provide a satisfactory explanation of the level and/or amount of all such sums included within any estimate.
- 2. Scheduling: The Cost Specialist shall assist the Time Specialist by providing building quantities, building systems information, and other quantifiable parameters deemed appropriate to the calculation of a reasoned project time schedule. The Time Specialist shall assist the Cost Specialist by maintaining an up-to-date schedule of all design activities along with an agreed bidding and Construction Schedule that will be incorporated by the Cost Specialist within the estimates on a timely basis.
- 3. **Life Cycle Costing:** In advising the Consultant of the cost information for alternative materials, methods and systems, the Cost Specialist must use all available information to ensure that a complete cost picture is made available, upon which design and construction decisions will be made.
- 4. **Continuing Estimate Process:** A process of continual adjustment of previous estimates may be used in place of total remeasurement at each milestone reporting point. This is acceptable, provided that at each monthly reporting point a full and up-to-date Elemental Cost Summary is provided and that at each milestone reporting point this Elemental Cost Summary is supported by complete, detailed, stand alone back-up/support documentation, as previously described.
- 5. **Project Research:** The Cost Specialist shall visit the proposed or alternative construction sites to become familiar with site conditions, site access, etc., analyze local labour and material supply conditions, local bidding practices and competition to establish pricing levels. A written report detailing this reconnaissance activity is expected.

6. Value Engineering/Management: Parks Canada may request a Value Engineering/Management Study to be undertaken. The Consultant team will not be major players in this process, but shall answer questions and/or provide additional information called for by the Value Management team if requested to do so. The Cost Specialist shall assist the Value Management team by providing copies of the latest cost estimate and any additional cost information that may be required.

No allowance should be made for this activity in the fee proposal as payment for this activity shall be on a negotiated basis and paid separately by PARKS CANADA.

AS 8.4 SERVICES - SPECIFIC ACTIVITIES

a) Project Analysis Stage

Review, report on, and propose revisions to the existing Class "D" estimate. Do not proceed until the Cost Specialist, the Consultant and PARKS CANADA have accepted the revised Class "D" estimate.

The revised Class "D" estimate shall become the Construction Cost Plan.

b) Concept Design

A Class "C" estimate will be prepared at the highest level of detail commensurate with the available information using elemental and additional detailed costs.

c) Design Development

Upon completion of design development prepare a Class "B" estimate representing the increased level of design detail available. The report shall be prepared using detailed (elemental) costs i.e. measured quantities with minimal allowances or lump sums.

Upon final acceptance, the Class "B" estimate shall become the Construction Cost Plan.

d) Contract Documents

During the production of the contract documents a process of continuing cost control progressively more detailed is required. At each review of contract documents, an up-to-date estimate shall demonstrate compliance with the Construction Cost Plan. Non-compliance with the Construction Cost Plan will require revisions to the contract documents.

e) Pre-Tender

Upon completion of the contract documents a pre-tender Class "A" cost estimate will be prepared using 100% measured quantities.

Provide a trade breakdown of the pre-tender estimate for use in reviewing the submitted bids and the successful Contractor's estimate breakdown.

f) Tender Stage

- 1. Tender Award: During the tender period, examine and report on any cost impact created by the issue of tender/Contract addenda. Incorporate the results of such addenda review into the final pre-tender estimate (both elemental and trade versions) prior to receipt of bids.
- **2. Bid Review and Analysis:** Assist the Departmental Representative, as required, by analyzing and reconciling any differences between the pre-tender estimate and the submitted bids.
- **Negotiation:** Should it be necessary to negotiate with a bidder prior to awarding the Contract, the Cost Specialist shall provide cost information as needed and participate in the negotiations if requested.
- **4. Reconciliation:** Upon the signing of a Contract with the successful Contractor, the Cost Specialist, if necessary, will reconcile both the elemental and trade estimates, in

detail, with the agreed Contract sum. These reconciled estimates will be used by the Construction Team during the construction phase of the project.

g) Cost Specialist Services through Construction

During construction, the Cost Specialist shall assist the Construction Team with cost advice if requested.

If required, payment will be made on an agreed, negotiated basis. Such activity may well encompass the following activities:

- Evaluation of Change Orders;
- Evaluation of claims:
- Evaluation of work completed;
- Evaluation of cash flow.

h) Post Contract

The Cost Specialist may be required to assist with the provision of details needed for an evaluation of the project, regarding the Project's cost performance.

If required, this work will be paid for on an agreed, negotiated basis.

AS9 RISK MANAGEMENT

AS 9.1 OBJECTIVE

The Consultant shall provide support to the Project Manager in identifying risks throughout the project life cycle.

AS 9.2 SCOPE AND ACTIVITIES

- a. Identify risk events based on past experience and using proposed checklist or other available lists;
- b. Qualify/quantify probability of risk event (Low, Medium, High) and their impact (Low, Medium, High);
- c. Prioritize risk events (i.e. concentrate efforts on risk events with High probability and Medium to High impact);
- d. Develop risk response (i.e. evaluate alternatives for mitigation. This is the real added-value of risk management); and,
- e. Implement risk mitigation.

AS 9.3 DELIVERABLES

- f. Prepare Risk Management Reports at Design Development, 66% Design Documents, and 100% Design Documents stages.
- g. Include input from all Sub-Consultants, and from Client.
- h. Take steps to implement risk mitigation as required. This may include (but is not limited to) further recommendations, analysis, investigations, site meetings, site supervision, etc.

AS10 CLOSURE REPORT

As needed, the Consultant shall submit closure reports generally comprising of the following:

1. Introduction:

- a. Project history.
- b. Scope of work.
- c. Description of design intent.
- d. Design Development.
- e. Tendering process and award of Contract.

2. Project implementation:

- a. Start-up meeting.
- b. Work plan and schedule of work.
- c. Field testing and quality control.
- d. Progress meetings and minutes.
- e. Site Instructions.
- f. Change Orders.

3. Issues and difficulties encountered during implementation:

- a. Delays in the work
- b. Lessons Learned.

4. Conclusion and Summary.

5. List of Appendices.

- a. Copy of specifications.
- b. Contractual drawings in CAD and PDF format.
- c. List of Subcontractors and suppliers.
- d. Digital photographs.
- e. As-built drawings (electronic version) in CAD and PDF format.
- f. Record drawings and specifications.
- g. Post Contract drawings.
- h. Any other drawings related to the project.
- i. Geotechnical report if applicable.
- j. Any environmental report.
- k. Any other report related to the project.

AS11 AS-BUILT DOCUMENTATION (DRAWINGS AND PHOTOGRAPHS) AND MEASURED DRAWINGS

AS 11.1 OBJECTIVE

- 1. The Consultant may be requested to review the field on a more frequent basis to record the as-built conditions during the construction, beyond what the contractor will be submitting in the basic services. The scope of this activity is to be determined at time of Call-up.
- 2. The Consultant may be also requested to prepare measured drawings based from on-site measurements of an existing building or space. The purpose of these measured drawings can be for a building to which additions or alterations will be made; or for spaces which are intended for lease and from which drawings, the areas for lease purposes will be calculated.
- 3. The request for this service may be part of the Integrated Design service or a stand-alone service.

AS 11.2 SCOPE AND ACTIVITIES

The Consultant shall:

- 1. Review the field, take photographs and measurements, as required, record the measurements and details.
- 2. For as-built conditions, confirm with the contractor for the accuracy of the "as-built" conditions during the construction.
- 3. Check and verify that all as-built conditions, to the best of his/her knowledge, are recorded accurately and completely. Request for photographs of the areas from the contractor, prior to enclosing the areas.
- 4. Prepare as-built and scale drawings in AutoCAD format, in accordance with the appended specifications.

AS 11.3 DELIVERABLES

The Consultant shall provide:

- 1. As-built drawings in CAD and PDF format;
- 2. Photographs of completed work.

AS12 MATERIALS AND SYSTEMS TESTING

The Consultant shall:

- 1. Prepare scope of work for procurement of testing services
- 2. Procurement of Testing Services (i.e. concrete testing, review rebar installation, compaction testing, soil testing, domestic water line testing, sprinkler water line testing, during construction)
- 3. Review Analysis of Testing:
- 4. Review results of testing and inform Departmental Representative of any impacts to the project.

AS13 COORDINATION OF OTHER SUB-CONSULTANTS AND SPECIALISTS

AS 13.1 OBJECTIVE

The Consultant shall coordinate and manage the services of additional Sub-Consultants/Specialists required to complete project requirements in support of the requested services under a Call-up.

AS 13.2 SCOPE AND ACTIVITIES

The Consultant shall prepare a documentation and reporting structure for the coordination of the Sub-Consultants and/or specialists to include minutes, Change Orders, site instructions, shop drawing log and other items of the design process to facilitate project completion, commissioning and close-out. The Consultant shall:

1. represent the Client during the design and construction phase, leading up to the close-out of the project, including the completion and submission of the necessary warranty reviews. The Consultant shall also be involved in advising the Client on dispute resolution with respect to construction quality, scheduling, progress payments and the submission of claims documents.

AS 13.3 DELIVERABLES

The Consultant shall provide:

- 1. a written verification of project requirements that includes objectives, parameters, timelines and budget, with reference to roles and responsibilities, lines of communications, and submission requirements for approvals, presentations, reviews;
- 2. a project schedule with periodic updating as established by the Departmental Representative.
- 3. assistance in preparing a risk management report for the Departmental Representative;
- 4. implementation strategies that documents task/activities, milestones, process for information gathering, project goals and deliverables;
- 5. site inspection and field reports to the authorities having Jurisdiction;
- 6. minutes that record the problems, decisions and actions items (with responsibility) as discussed at each presentation and prepare and distribute minutes of the presentation within 72 hours;
- status reports distributed to the Departmental Representative on a monthly basis. Status reports
 must clearly identify any issues raised during the project, detailing the impacts on cost, risk and
 schedule for the project.

AS14 ADMINISTRATION OF MULTIPLE CONTRACTS

The Consultant may be asked to coordinate the requirements of a project with the scope of multiple contracts managed by the Departmental Representative and/or the Client. The Consultant shall inform Departmental Representative and/or the Client of the discrepancies between the multiple contracts and the specific project. The Departmental Representative and/or the Client will determine which scope of work will be changed to rectify the conflict.

Details of Required Services to be determined at the time of each individual Call-up.

AS15 COMPLIANCE / TECHNICAL / PEER REVIEWS

The Consultant may be asked to review the design of a project prepared by another consultant or to review a project built by a contractor for compliance to specific standards. The Consultant and Sub-Consultants / specialists will be advised of the applicable standards, building codes and regulations at the time of the Call-up. It is essential that the Consultant and Sub-Consultants / specialists fully understand the applicable standards, building codes and regulations.

Details of Required Services to be determined at the time of each individual Call-up.

AS 16 OTHER ADDITIONAL SERVICES

If required, any additional services will be identified at the time of each individual Call-up, and the Consultant will be responsible for the provision and management of these additional services.

SPECIALIZED SERVICES (SS)

References to "Departmental" should be understood as referring to the Parks Canada Agency.

The Consultant shall coordinate and manage the specialized services, listed below, provided by Sub-Consultants and /or Specialists and required to complete project requirements in support of the requested services under a Call-up.

Disbursements. The Consultant may be requested to provide one or more of the following specialized services, either independently or as part of the project for the specific project Call-up.

For each of the following services, the Consultant shall:

- 1. prepare a written verification of project requirements that includes objectives, parameters, timelines and budget, with reference to roles and responsibilities, lines of communications, and submission requirements for approvals, presentations, reviews;
- 2. attend meetings and record the issues, decisions and actions items (with responsibility) as discussed at each presentation and prepare and distribute minutes of the presentation within 72 hours;
- 3. prepare and distribute status reports to the Departmental Representative at a frequency to be determined. Status reports must clearly identify any issues raised during the project, detailing the impacts on cost, risk and schedule for the project;
- 4. develop implementation strategies that documents task/activities, milestones, process for information gathering, project goals and deliverables;
- 5. ensure that cost estimates are commensurate with project requirements; provide Class D, C, B, and A estimates along with submissions and services;
- 6. prepare a final Document that consolidates all the requirements of the complete exercise with allowance for resubmission for final approval after predetermined reviews by the Departmental Representative.

SS1 LANDSCAPE ARCHITECTURAL DESIGN

If required, the Consultant will be responsible for the provision, management and coordination of a landscape architectural professional to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage the landscape architect to meet the project objectives;
- 2. Submit the proposals of at least two landscape architectural firms to the Departmental Representative for approval;
- 3. Commission a landscape architect required for consultancy services;
- 4. Review and coordinate the landscape architecture services required within the project parameters.

Details of other Required Services to be determined at the time of each individual Call-up.

The following are some examples of the types of projects where the landscape architecture specialist would be required:

Landscape architecture around a building

Rainwater management including parking lots, gardens, groundwater recharge, and wetland management.

SS2 BUILDING ENVELOPE SPECIALIST

If required, Consultant will be responsible for the management and coordination of a building envelope specialist to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on scope of services required to engage the building envelope specialist to meet project objectives.
- 2. Review and coordinate the building envelope specialist's services required within the project parameters.
- 3. Carry out appropriate tests on the building envelope as required.

The following are some examples of the type of projects where the building science specialist would be required:

1. Facade repair:

The Consultant shall prepare design and contract documents for the facade repair of existing buildings and for as-built design investigation of the building assembly. Cost estimates are to be provided with at least two design options for the facade treatment.

2. Roof Replacement

The Consultant shall prepare contract documents for the repair of the existing roof or replacement with a new roof. In doing so, the Consultant shall ensure that appropriate recycling initiatives are undertaken, and that asbestos and other designated substances are properly removed and disposed of in accordance with Provincial and Federal standards and regulations. The Consultant shall ensure that contract documents reflect the existing conditions and include all roof penetration, roof curbs, and R-value as appropriate for the site condition and functional requirements and operations of the facility and staff. Initial site reviews and building assessments are to be completed in order to determine conditions that affect current and future requirements.

3. Window repair and/or replacement

The Consultant shall prepare contract documents for the repair and/or replacement of windows and all associated security screens and insect screens and shall also ensure proper recycling and disposal of associated materials.

The Consultant shall:

1. Ensure the repair and reinstating of all items affected by the window replacement process;

4. Incorporation of New Features into the Existing Envelope

The Consultant shall:

- 1. Ensure the quality of the design and constructability of any new aspect of the envelope
- 2. Coordinate all new work on the envelope such as new windows, curtain walls, roof lights, additional walls, roof extensions, overhangs, etc.
- 3. Ensure compatibility of materials:
- 4. Minimize thermal bridges.
- 5. Accommodate new services and penetrations into the envelope such as new photovoltaic panels, etc.

- 6. All interventions must be based on fundamental Building Science principles and must meet the efficiency targets in applicable codes and standards and the Departmental Representative's expectations.
- 7. Ensure quality control via site inspections during construction. Work progress monitoring must be documented and all shortfalls must be remedied.
- 8. With a view to quality assurance and improving the energy efficiency of the envelope, prototypes sometimes may need to be tested to determine whether a component and/or assembly meets the required efficiency criteria related to:
 - airtightness;
 - · watertightness;
 - thermal behaviour;
 - · condensation resistance.
- 9. Thermographic assessments may be required to obtain an overall picture of the conditions that may affect the efficiency of the building envelope. These conditions involve air exchanges, thermal bridges, and the moisture content of materials.
- 10. Blower door tests may be required to measure overall air leakage for the building, or for a new adjacent volume.

Details of other Required Services to be determined at the time of each individual Call-up.

SS3 SUSTAINABLE DESIGN SPECIALIST

PARKS CANADA promotes an integrated approach from the earliest stages of a building project and may require consulting services to assist with meeting Sustainable Development Strategy (SDS) Targets and Federal government policy requirements with respect to Greening Government Operations.

If required, the Consultant will be responsible for the provision, management and coordination of a LEED accredited professional or Passive House accredited designer or equivalent to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on scope of services required to engage the sustainable design specialist to meet the project objectives;
- 2. Review, integrate and coordinate the sustainable design specialist's advice with the other disciplines and stakeholders to meet the requirements of the project.

The following are some examples of the scope of services where the sustainable design specialist would be required:

- Sustainable Design: The Consultant shall prepare sustainable design requirements for existing
 and proposed projects that meet LEED or Green Globes rating specified by the Call-up. The
 Consultant shall use an IntegratedDdesign approach and provide a list of areas and options to be
 selected to meet the sustainable rating determined by the PCA representative for its buildings.
 Monitoring of the sustainable implementation strategy is to be provided by the Consultant;
- Abatement and disposal of hazardous materials: review of designated substance report, preabatement assessments, development of the scope of work for abatement/disposal projects and conducting, supervising, coordinating and documenting abatement/disposal activities. This may include preparation of tender documents including development of project specifications using the National Master Specifications format;
- 3. Provide sustainable design advisory services to the Consultant team;
- 4. Direct and provide Integrated Design service for implementation of LEED targets;
- 5. Prepare Environmental Studies Reports;
- 6. Prepare energy efficiency and renewable energy studies;

- 7. Prepare water efficiency studies
- 8. Prepare environmentally preferable construction documents and specifications
- 9. Implement the recommendations of the sustainability report into design studies and contract documents:
- 10. Assess the degree of compliance with the established legal requirements and policies. Take into account references such as the ISO 14000 Series Standards for Environmental Management Systems; Departmental Sustainable Development Strategies (SDS), objectives and targets for building environmental reviews or operational assessments; Green Design Standards (LEED, Green Globes BOMA Go Green Plus, BOMA Best) as identified in specific requests for proposals and Project Briefs;
- 11. Provide recommendations/design decisions that could be incorporated into standard procedures, plans and specifications, action plans and/or environmental management plans designed to ensure that the facility is designed, constructed and operated in compliance with applicable Legislation, standards and policies and/or the project meets expected results or certifications;
- 12. Direct and provide recommendations to a project team for a specific project, through an Integrated Design process with the goal of obtaining certification by LEED, Green Globes, Passive House or BOMA Best:
- 13. Assemble and submit required documentation of a building design project or a recently completed building for assessment and certification by LEED or Green Globes or BOMA Best;
- 14. Provide energy simulation services based on PHPP (Passive House Planning Package) software which reveals energy losses throughout the building and supports the team in Passive House certification.

Details of other Required Services to be determined at the time of each individual Call-up.

SS4 INFORMATION TECHNOLOGY SPECIALIST

If required, the Consultant will be responsible for the management and coordination of an information technology/telecommunications professional to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage the information technology/telecommunications professional to meet the project objectives;
- 2. Review and coordinate the information technology/telecommunications services required within the project parameters.

The following are some examples of the type of services where the information technology / telecommunications specialist would be required:

1. Provide advice and design for IT and telecommunication systems for interior fit-up spaces as part of the IntegratedDdesign service or stand-alone service for a specific project.

Details of other Required Services to be determined at the time of each individual Call-up.

SS5 BUILDING CODE SPECIALIST

If required, the Consultant will be responsible for the provision, management and coordination of a building code specialist to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage the building code specialist to meet the project objectives;
- 2. Engage the building code specialist as a Sub-Consultant;
- 3. Review and coordinate the building code specialist services required within the project parameters.

The following are some examples of the type of services where the building code specialist would be required:

- 1. Provide advice on interpretation of the National Building Code and the provincial building code and the differences between the two codes.
- 2. Review sites and/or projects for conformance to building codes, Federal standards and other standards related to building code issues.
- 3. Provide services related to building code interpretation as part of the integrated services for the project or stand alone services to Federal departments.

Details of other Required Services to be determined at the time of each individual Call-up.

SS6 AUDIO-VISUAL SPECIALIST

If required, the Consultant will be responsible for the provision, management and coordination of an audio-visual specialist to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage the audio-visual specialist to meet the project objectives;
- 2. Engage the audio-visual specialist firm as a Sub-Consultant;
- 3. Review and coordinate the audio-visual specialist services required within the project parameters.

The following are some examples of the type of services where the audio-visual specialist would be required:

- 1. Provide advice and specifications on type of audio-visual equipment required for training and/or meeting rooms for a specific project.
- 2. Prepare concept layouts for procurement of a-v equipment and special furniture related to audio-visual.
- 3. Prepare contract documents for procurement and installation of audio-visual equipment and special furniture related to audio-visual performance.

Details of other Required Services to be determined at the time of each individual Call-up.

SS7 ACOUSTIC SPECIALIST

If required, Consultant will be responsible for the provision, management and coordination of an acoustic specialist to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage the acoustic specialist to meet the project objectives;
- 2. Engage the acoustic specialist firm as a Sub-Consultant;
- 3. Review and coordinate the acoustic specialist's services required within the project parameters.

The following are some examples of the type of services where the acoustic specialist would be required:

- 1. Visit site and investigate the acoustical problem.
- 2. Provide advice on acoustics solutions to resolve a specific problem or incorporate into a design for a specific space or project.
- 3. Select acoustical products to meet a certain performance specification. Details of other Required Services to be determined at the time of each individual Call-up.

SS8 SECURITY SPECIALIST

If required, Consultant will be responsible for the provision, management and coordination of a security specialist to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage the security specialist to meet the project objectives:
- 2. Engage the security specialist firm as a Sub-Consultant;
- 3. Review and coordinate the security specialist services required within the project parameters.

The following are some examples of the type of services where the security specialist would be required:

1. Provide advisory services on type of security hardware and security systems required to accommodate all levels of security operations in an office, detention and/or institutional facilities or special purpose spaces.

Details of other Required Services to be determined at the time of each individual Call-up.

SS9 SCHEDULING SPECIALIST

If required, Consultant will be responsible for the provision, management and coordination of a scheduling specialist to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage the scheduling specialist to meet the project objectives;
- 2. Engage the scheduling specialist firm as a Sub-Consultant;
- 3. Review and coordinate the scheduling specialist services required within the project parameters.

The following are some examples of the type of services where the scheduling specialist would be required:

- 1. Provide advisory services on staging and phasing of projects and their impact on the schedule.
- 2. Prepare deadlines for accelerated projects indicating critical paths.
- 3. Prepare construction schedules for cost estimating purposes.

Details of other Required Services to be determined at the time of each individual Call-up.

SS10 FOOD SERVICE / KITCHEN CONSULTANT

If required, Consultant will be responsible for the provision, management and coordination of a food service / kitchen consultant to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage the food service / kitchen consultant to meet the project objectives;
- 2. Engage the food service / kitchen consultant firm as a Sub-Consultant;
- 3. Review and coordinate the food service / kitchen consultant services required within the project parameters.

The following are some examples of the type of services where the food service / kitchen consultant would be required:

- 1. Visit site and assess condition of kitchen equipment for functionality and compliance with latest codes and standards;
- 2. Provide advisory services on replacement or improvements to the existing food services and kitchen equipment;
- 3. Provide conceptual layouts and cost estimates for budget purposes to enable Client to procure kitchen equipment. Prepare tender documents and specifications;
- 4. Prepare tender documents and specifications. Details of other Required Services to be determined at the time of each individual Call-up.

SS11 VERTICAL TRANSPORTATION SPECIALIST

If required, Consultant will be responsible for the provision, management and coordination of a vertical transportation specialist to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage the vertical transportation specialist to meet the project objectives;
- 2. Engage the vertical transportation specialist as a Sub-Consultant;
- 3. Review and coordinate the vertical transportation specialist services required within the project parameters.

The following are some examples of the type of services where the vertical transportation specialist would be required:

- 1. Provide advisory services on the condition of the existing elevators
- 2. Assess existing elevators for conformance to latest codes and standards

3. Prepare performance based specifications for proposed elevators

Details of other Required Services to be determined at the time of each individual Call-up.

SS12 SIGNAGE SPECIALIST (signage elements)

If required, Consultant will be responsible for the provision, management and coordination of a wayfinding and signage specialist to provide the advice and services required for the specific project identified at the time of each individual Call-up.

The Consultant shall:

- 1. Provide advice on the requirements for the type of services required to engage wayfinding and signage specialist firm, who is familiar with the Federal Identity Program (FIP) standards, to meet project objectives;
- 2. Engage a wayfinding and signage specialist as a Sub-Consultant;
- 3. Review and coordinate the wayfinding and signage specialist services required within the project parameters.

The following are some examples of the type of services where the wayfinding and signage specialist would be required:

- 1. Provide design services for wayfinding and signage for existing and/or proposed projects.
- 2. Prepare proposals for procuring signage.

Details of other Required Dervices to be determined at the time of each individual Call-up.

SS13 OTHER SPECIALIZED SERVICES

If required, any additional services will be identified at the time of each individual Call-up, and the Consultant will be responsible for the provision and management of these additional services.

APPENDIX A -

Basis of Payment

BASIS OF PAYMENT

Appendix "A"

INSTRUCTIONS

- 1. Rates quoted must remain firm for the period of the Standing Offer. GST/HST, if applicable, is not included and is to be shown as a separate item on any resulting invoice
- 2. There will be no extra payment made for overtime.
- 3. All Travel and Living expenses must have the prior authorization of the Project Authority and comply with government's related allowance amount, rules and regulations, and are subject to government audit.

TABLE ONE: STANDING OFFER - Fixed Hourly Rates

Category of Personnel	Year 1 Sept. 16, 2016	Year 2 Sept. 16, 2017	Option Year 1 Sept. 16, 2018	Option Year 2 Sept. 16, 2019	Option Year 3 Sept. 16, 2020
	to Sept 15, 2017	to Sept.15, 2018	to Sept.15, 2019	to Sept.15, 2020	to Sept.15, 2021
Project Manager (Additional Service)	\$150.00	\$150.49	\$151.99	\$153.51	\$155.05
Architecture:					
Senior Architect	\$149.98	\$151.48	\$152.99	\$154.52	\$156.07
Intermediate Architect	\$96.98	\$97.95	\$98.93	\$99.92	\$100.92
Junior Architect	\$89.98	\$90.88	\$91.79	\$92.71	\$93.63
Senior Architectural Technician	\$88.98	\$89.87	\$90.77	\$91.68	\$92.59
Intermediate Architectural Technician	\$87.98	\$88.86	\$89.75	\$90.65	\$91.55
Junior Architectural Technician	\$84.98	\$85.83	\$86.69	\$87.55	\$88.43
Heritage Architecture:					
Senior Conservation Architect	\$89.98	\$90.88	\$91.79	\$92.71	\$93.63
Intermediate Conservation Architect	\$88.98	\$89.87	\$90.77	\$91.68	\$92.59
Junior Conservation Architect	\$84.98	\$85.83	\$86.69	\$87.55	\$88.43
Structural Engineering:					
Senior Engineer	\$158.00	\$150.00	\$152.85	\$155.75	\$158.71
Intermediate Engineer	\$97.00	\$97.00	\$98.85	\$100.73	\$102.64
Junior Engineer	\$91.00	\$91.00	\$92.73	\$94.50	\$96.30
Senior Engineering Technician	\$90.00	\$90.00	\$91.71	\$93.45	\$95.22
Intermediate Engineering Technician	\$25.00	\$25.00	\$25.48	\$25.96	\$26.45
Junior Engineering Technician	\$5.00	\$5.00	\$5.10	\$5.20	\$5.30
Mechanical Engineering:					
Senior Engineer	\$158.00	\$158.00	\$161.00	\$164.00	\$170.30
Intermediate Engineer	\$97.00	\$97.00	\$98.85	\$100.73	\$102.64
Junior Engineer	\$91.00	\$91.00	\$92.73	\$94.50	\$96.30
Senior Engineering Technician	\$90.00	\$90.00	\$91.71	\$93.45	\$95.25
Intermediate Engineering Technician	\$25.00	\$25.00	\$25.48	\$25.96	\$26.45
Junior Engineering Technician	\$5.00	\$5.00	\$5.10	\$5.20	\$5.30

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Electrical Engineering:					
Senior Engineer	\$150.00	\$150.00	\$152.85	\$155.75	\$158.71
Intermediate Engineer	\$97.00	\$97.00	\$98.85	\$100.73	\$102.64
Junior Engineer	\$91.00	\$91.00	\$92.73	\$94.50	\$96.30
Senior Engineering Technician	\$90.00	\$90.00	\$91.71	\$93.45	\$95.22
Intermediate Engineering Technician	\$25.00	\$25.00	\$25.48	\$25.96	\$26.45
Junior Engineering Technician	\$5.00	\$5.00	\$5.10	\$5.20	\$5.30
Exhibit/Signage/Interpretive Designer:					
Senior Exhibit Specialist / Creative Director	\$149.00	\$149.00	\$149.00	\$149.00	\$149.00
Intermediate Exhibit Specialist	\$109.00	\$109.00	\$109.00	\$109.00	\$109.00
Interpretive Planning Specialist	\$109.00	\$109.00	\$109.00	\$109.00	\$109.00
Senior Graphic Designer	\$109.00	\$109.00	\$109.00	\$109.00	\$109.00
Intermediate Graphic Designer	\$99.00	\$99.00	\$99.00	\$99.00	\$99.00
Interpretive Writer	\$99.00	\$99.00	\$99.00	\$99.00	\$99.00
Interpretive Content Developer	\$99.00	\$99.00	\$99.00	\$99.00	\$99.00
Civil Engineer:					
Senior Engineer	\$165.00	\$165.00	\$168.00	\$171.20	\$174.45
Intermediate Engineer	\$97.00	\$97.00	\$98.85	\$100.73	\$102.64
Junior Engineer	\$91.00	\$91.00	\$92.73	\$94.50	\$96.30
Senior Engineering Technician	\$90.00	\$90.00	\$91.71	\$93.45	\$95.22
Intermediate Engineering Technician	\$25.00	\$25.00	\$25.48	\$25.96	\$26.45
Junior Engineering Technician	\$5.00	\$5.00	\$5.10	\$5.20	\$5.30
Geotechnical Engineer:					
Senior Engineer	\$165.00	\$165.00	\$168.00	\$171.20	\$174.45
Intermediate Engineer	\$97.00	\$97.00	\$98.85	\$100.73	\$102.64
Junior Engineer	\$91.00	\$91.00	\$92.73	\$94.50	\$96.30
Senior Engineering Technician	\$90.00	\$90.00	\$91.71	\$93.45	\$95.22
Intermediate Engineering Technician	\$25.00	\$25.00	\$25.48	\$95.96	\$26.45
Junior Engineering Technician	\$5.00	\$5.00	\$5.10	\$5.20	\$5.30
Environmental:					

\$165.00	\$165.00	\$168.00	\$171.20	\$174.45
\$97.00	\$97.00	\$98.85	\$100.73	\$102.64
\$91.00	\$91.00	\$92.73	\$94.50	\$96.30
\$150.00	\$150.00	\$152.85	\$155.75	\$158.71
\$97.00	\$97.00	\$98.85	\$100.73	\$102.64
\$91.00	\$91.00	\$92.73	\$94.50	\$96.30
\$90.00	\$90.00	\$91.71	\$93.45	\$95.22
\$25.00	\$25.00	\$25.48	\$25.96	\$26.45
\$5.00	\$5.00	\$5.10	\$5.20	\$5.30
\$100.00	\$100.00	\$101.90	\$103.84	\$105.81
\$85.00	\$85.00	\$86.70	\$88.35	\$90.00
\$85.00	\$85.00	\$86.70	\$88.35	\$90.00
\$110.00	\$111.10	\$112.21	\$113.33	\$114.74
\$10.00	\$10.10	\$10.20	\$10.30	\$10.41
	\$97.00 \$91.00 \$150.00 \$97.00 \$91.00 \$90.00 \$25.00 \$5.00 \$100.00 \$85.00 \$110.00	\$97.00 \$97.00 \$91.00 \$91.00 \$150.00 \$150.00 \$97.00 \$97.00 \$91.00 \$91.00 \$90.00 \$90.00 \$25.00 \$25.00 \$5.00 \$5.00 \$100.00 \$100.00 \$85.00 \$85.00 \$110.00 \$111.10	\$97.00 \$97.00 \$98.85 \$91.00 \$91.00 \$92.73	\$97.00 \$97.00 \$98.85 \$100.73 \$91.00 \$91.00 \$92.73 \$94.50

End of Basis of Payment

<u>APPENDIX B -</u> <u>DOING BUSINESS GUIDE</u>

DOING BUSINESS GUIDE

Appendix "B"

The Procedures and Standards established by PWGSC are attached as a separate PDF document. All reference to the Department of Public Works and Government Services Canada should be deleted and replaced with Parks Canada Agency.

APPENDIX C HEALTH AND SAFETY

HEALTH AND SAFETY

Health and Safety: For work in the Province of Ontario.

1. EMPLOYER/ PRIME CONTRACTOR

During the Design Stage

a. The Proponent shall, where the Proponent is working on Federal property and is in control of the work site (no Federal presence or construction contractor), for the purposes of the Occupational Health and Safety Act, Ontario (or equivalent) shall: act as the Employer, where the Proponent is the only employer on the work site, in accordance with the Authority Having jurisdiction; accept the role of Prime Contractor, where there are two or more employers (including sub-proponents) involved in work at the same time and space at the work site, in accordance with the Authority Having Jurisdiction; and

During the Construction Stage

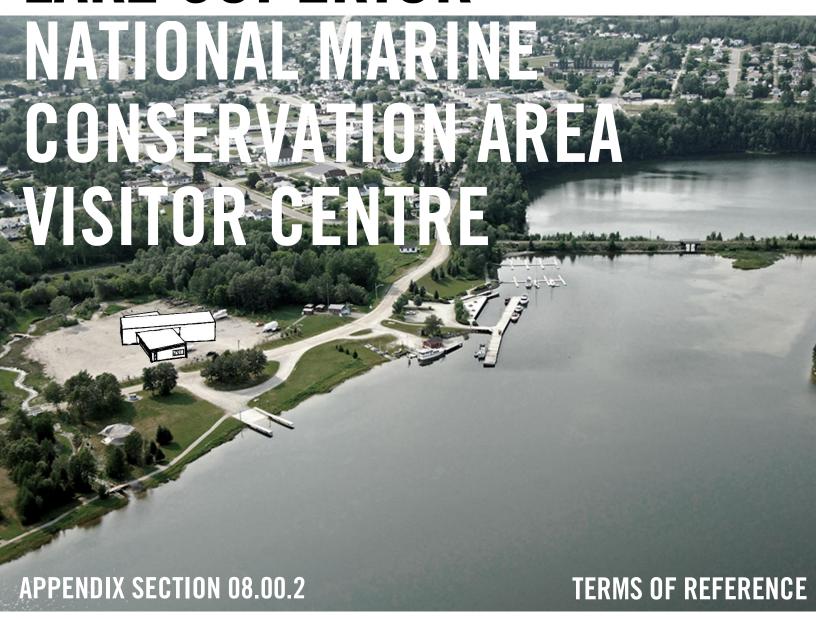
b. The Proponent shall, for the purposes of the Occupational Health and Safety Act, Ontario (or equivalent) and for the duration of the Work of the Contract, agree to accept that the Construction Contractor is the Prime Contractor, and to conform to that Contractor's Site Specific Health and Safety Plan.

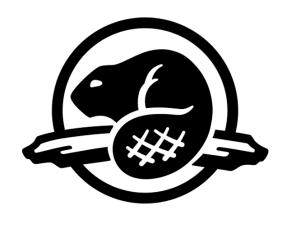
2. WCB

The recommended Proponent shall provide to the Contracting Authority, prior to Standing Offer authorization:

- **2.1** Workers Compensation Board letter of good standing, listing covered Directors, Principals, Proprietor(s) or Partners who will be or who are anticipated to be present on the work site(s).
- **2.2** The recommended Proponent shall deliver all of the above documents to the Contracting Authority on or before the date stated (usually 3-5 days after notification) by the Contracting Authority. Failure to comply will result in a breach of promise, at which time the Contracting Authority will be free to approach the next responsive proponent.

LAKE SUPERIOR





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Parks Canada

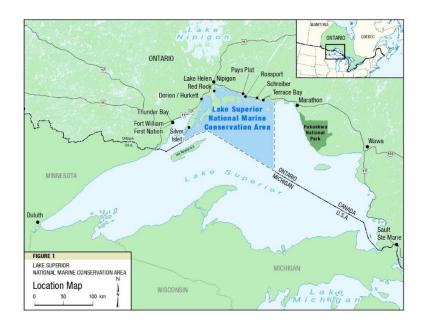
Parcs Canada PERKINS+WILL



Stantec

originstudios

TERMS OF REFERENCE -PROJECT BRIEF Supplemental to the Standing Offer 5P301-16-0003



Lake Superior National Marine Conservation Area LS NMCA

New administration building and Discovery Center

Lake Superior National Park

Parks Canada, Northern Ontario Field Unit LS NMCA 001

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CONSULTANT TERMS OF REFERENCE

1.0 PROJECT INFORMATION

1.1 Project Identification

PROJECT TITLE Lake Superior National

Marine Conservation Area

LOCATION OF PROJECT Nipigon, ON

Canada P0T 2J0

PROJECT NUMBER LS NMCA-001

Stakeholders

CLIENT DEPARTMENT / USER: Cory Gaudet- Northern Ontario

Field Unit, Parks Canada

Agency

Project Contacts

PCA PROJECT MANAGER

Maguy Eustache, Project Architect 30 Victoria Street, Gatineau, QC

Phone: 819-420-9615

Email: Maguy.Eustache@pc.gc.ca

1.2 Context

Beyond the ribbon of the TransCanada highway, in the heart of Northern Ontario lies an inland freshwater sea of many moods. —Lake Superior is the largest lake in the world. The Lake Superior National Marine Conservation Area (LS-NMCA) covers a total area of 10, 880 square meters of water and several islands stretching between the tip of Thunder Cape and Bottle Point East of Terra Bay and extending south of the USA border. Located along North shore of Lake Superior the landscape in the area consists of rolling hills, imposing cliff faces, forests, rivers and magnificent views of the lake. It is expected that this area will showcase life on the edge of an inland sea and due to its accessibility the LSNMCA will be an experience for everyone.

The LSNMCA, once established will be relatively unique in that, excepting 4 small land parcels, Park Canada will not have administrative responsibility over the mainland region. It remains clear however, that considering the vast and remote nature of the majority of LSNMCA, the mainland area with its transportation corridors and community facilities offer by far the most desirable locations to engage visitors of all demographic and walks of life. For these reasons, the conceptual development of this area offers significant opportunities for an open, transparent, community based approach to building linkages with the LSNMCA and promoting appropriate partnering opportunities where possible and desirable.

Being an aquatic area, the LSNMCA is also particularly and directly linked to the waterways, forests, bogs, etc. of the watershed that surround it as well as the human uses of the lands within that watershed. Many of the rivers surrounding the area for example, not only supply continuous fresh water but spawning grounds for many fish species, key nutrients for the larger lake ecosystem and outdoor recreational activities which are linked with future visitor experience and public outreach educational opportunities

1.3 Scope of work

Parks Canada Agency (PCA) is inviting your Architecture consulting firm to submit a Proposal to provide a full range of professional services for architectural services for the Pre-Design/Concept Design for the Lake Superior National Marine Conservation Area combined Administration/Discovery Centre Building. Optional services include design, tender, construction administration and post-construction professional services, but these services have not been confirmed at this time, the full proposal should not include these services at his point only pre-Design will initially be awarded.. The Pre-Design/Concept design services are to fully incorporate Interpretive/Exhibit planning and concept design into the overall Pre-Design for this Multi-Function Building.

This multi-use building is intended to act as both the administrative and visitor experience hub for the LSNMCA). The structure will house the administrative and operational staff (Resource Conservation, Park Wardens, Visitor Experience, Asset Management) for the LSNMCA, and incorporate visitor reception and interaction with the intent of informing visitors on each of the unique locations within LSNMCA, and having them travel there to see more.

The objective is to have the Pre-Design Stage completed for the multi-purpose building and attached landscape that will support the LSNMCA for the next 50+ years. The Pre-Design should conclude with a design ready concept, which included a detailed options analysis between two concepts with the client, and incorporates Interpretive/Exhibit Design elements. The architectural design of the building should include the marine focused theme of LSNMCA, and be a unique feature to the region. The building itself should be part of the Visitor Experience, and it's amenities should fulfill visitor's needs and create a great visitor experience in an exciting facility that gives visitors a sense of arrival and welcome to Lake Superior. It should link the interior and programming spaces with the design of the outdoor spaces to create continuity and connectivity between the two.

A previously conducted Needs Analysis Space Allocation has been completed and validated by Parks Canada. This reference should guide the requirements for operational and office space. The discovery center and landscape should incorporate the findings from the Visitor Experience Strategy workshops, while respecting the both the size and budget for this project.

One maintenance garage/storage style operational facility will also be required, separate from the main building. This facility should act as a maintenance garage. Intended as a cold storage facility with the option for heated workspace. This space will also be used for hanging and drying of equipment used by operational staff. This garage is included in the space allocation document.

Parking will also be a key consideration in finalizing the landscape design. It must accommodate staff, visitors, and take into account the Marina adjacent to the site. Recommendations for all parking areas that could be developed for expansion should be included in the concept.

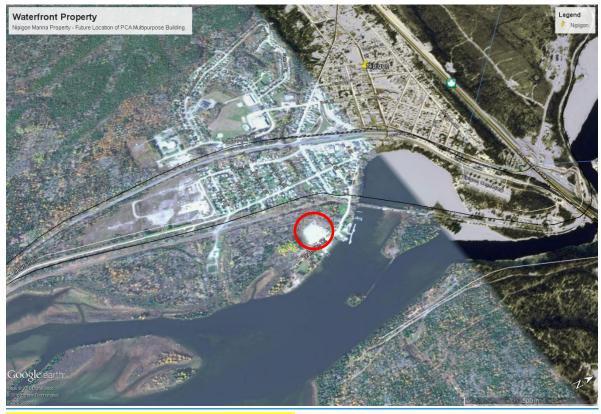
See attached vision, mission and socio-economic context and considerations for the development of this multi-use building and surrounding site.

1.4 Project Background

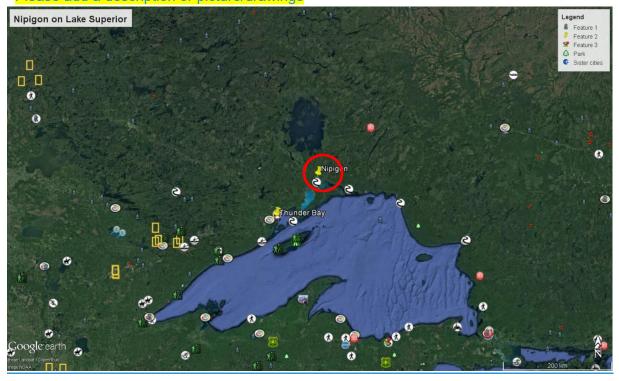
1.4.1 Site Conditions

The site for the building is currently used as an RV and Boat parking lot by the Municipality. It consists of a hard packed gravel parking lot. There is over head electricity which runs across the entrance. The location has water and sewer services. The local marina is adjacent to the building location. And the property across the street opens onto the Nipigon River mouth and the LSNMCA. A civil services study has already been completed and will be available as a reference to the winning bidder.

1.4.2 Site Description



Please add a description or picture/drawings



1.5 Environmental Site Assessment (ESA)

Environmental Site Assessment (ESA) - Basic Impact Assessment (BIA) to be completed by PCA which will provide best management practices for construction which must be

followed. The consultant will be responsible for providing information on impacts to surface water runoff and environmental impacts, specific to the addition of the project to the landscape, and any mitigating measures being taken (example: including an oil/water separator in the stormwater design).

1.6 Land Survey

Land Survey including detail/topographic of LSNMCA sites -to be completed by consultant when the decision of project footprint is known.

1.7 Geotechnical Report

Geotechnical investigation and report is available

2.0 PROJECT PARAMETERS

2.1 Summary of Project Requirements

See the scope of work is describe above.

2.2 Budget

The project scope must be tailored to meet the User's Department's budget. The construction budget is estimated at 5.5 million dollars for this project include the construction multi-use building and site development.

2.3 Schedule

The Consultant shall submit a draft schedule for review within 5 working days after issuance of the contract to reflect the following High Level Project Milestones listed below:

Activity	Estimated duration/ End date
Consultant Contract Award	Baseline
Pre-design Services Report- Sept	ember 2017
Functional programming	3 weeks
Client review and feedback	1 week
Exhibit design workshop	1 weeks
Client review and feedback	1 week
Concept design and sustainability analysis	8 weeks
Pre-Design report draft	4 weeks
Client review and feedback	1 week
Final report	1 weeks
Total	20 weeks

2.3.1 Occupant Considerations

The consultation and interview with LS NMCA is plan to occur during fall 2017.

2.3.2 Items that Could Impact Project Completion Schedule

The following are potential issues that could delay or impact the project, which the Consultant should take into consideration when preparing the detailed schedule:

Information on site might not be accurate or sufficient and further investigation will need to take place.

2.4 Existing Drawings and Documentation

Subject to applicable security restrictions, the Consultant will be given access to existing drawings, survey notes, design notes, specifications or reports that will aid in the work. All such documents must be returned to the Departmental Representative on termination of the contract.

The existing drawings and documents provided for this project are to be treated as reference material only. PCA cannot ensure their completeness and accuracy. As such the Consultant is responsible to review and confirm all information and inform PCA of any discrepancies.

The following is a list of documents available for your reference:

Attached in One drive:

- 1. Site map-
- 2. Extension of Municipal Services Nipigon contract specs and tender documents including geotechnical information
- 3. Addenda of the project of Extension of Municipal Services
- 4. Vision, mission and socio-economic context and considerations for the development of this multi-use building and surrounding site.
- 5. LS NMCA- Visitor Experience Strategy report
- 6. Space requirements analysis for operational and office space
- 7. Crime prevention through environmental design document
- 8. Workplace 2.0 standard

3.0 REQUIRED SERVICES

Basic, additional and specialized services are required of the following members of the consultant standing offer team:

1. Architectural as Prime Consultant;

The project needs to be headed by a qualified professional Architect supported by a multidisciplinary team with a background in design and tender document preparation, specifications using the National Master Specifications format, construction and building demolition. The lead Architect appointed by the consulting firm on this project will assume the responsibility of the Architect, and as such will be responsible for the final content of the design documents (drawings, reports and specifications) and As- Constructed files and records of the demolition and reconstruction activities. Although the specifications preparation and abatement/ disposal activities of designated substances and hazardous materials will be done by others and not the Architect's responsibility, the Architect will coordinate to include the other consultant's specification sections into the required single tender package.

- 2. Other discipline members as identified by the Prime Consultant:
 - a. Exhibit Designer
 - b. Structural Engineer;
 - c. Mechanical Engineer;
 - d. Electrical Engineer;
 - e. Civil Engineer;
 - f. Quantity Surveyor
 - g. Landscape Architect;
 - h. Sustainability specialist
- 3. Other Sub-consultants as identified by the Prime Consultant for the work in this Call-Up and agreed to by the Departmental Representative.

The detailed requirements for services and deliverables are stated in the Standing Offer Agreement and are not repeated in this text; however, the following services are

required and are included by reference. The Consultant shall provide, but is not limited to, the following required services:

3.1 Scope of Services

Phase 1: Pre-Design

BS	Basic Services
BS2	Pre-Design Services
BS5	Exhibit Design Services (concept only)
AS	Additional Services
AS2	Functional programming
AS6	Sustainability Strategies and reports

Phase 2: Schematic Design/Design Development Stage/ Construction

Basic Services
Schematic Design Services
Design Development services
Exhibit Design Services
Civil Engineering Services
Geotechnical engineering Services
Construction document Services
Tendering Services
Construction Administration Services
Commissioning
Post Construction Services

3.2 Detailed Scope of Services

In addition to the description of all the required services listed above in section 3.1 within the Standing Offer Agreement, the following detailed scope of work is required for the identified Required Services:

Phase 1

BS2 Pre-design Services (Note: Refer to S.O also)

The Consultant shall also:

- 1. Review the existing documentation for the buildings and comments if needed
- Visit the site for project team to familiarize themselves with the site constraints and compare their findings with the existing documents and update the documents with the existing conditions
- 3. Review the existing site conditions
- 4. Get familiar with the institution site restrictions that would impact the project implementation
- 5. Options analysis must include 2 building design concepts and recommendations
- 6. The estimated budget and schedule should be broken down for futures phases of the project. A risk analysis also should be provide for future phases of the project.
- 7. Design for CPTED crime prevention through environmental design
- 8. Incorporate visitor safety in the concept (e.g.: access, location of garbage cans, lighting, no dark corner, no back doors in washroom etc.)
- 9. Design to minimize ongoing maintenance
- 10. Design to maximize the use of exterior spaces for interpretation and exhibit
- 11. Include the above into the Pre-Design report.

BS5 Exhibit Design Services (Note: Refer to S.O also)- Concept stage only

The Consultant shall:

- 1. provide services only as describe in section 2.1 Creative consultation , research and concept development
- 2. also provide 2 options for each design concept (2) with class D budget associated to each option
- 3. provide services for outdoors exhibit and interpretation area
- 4. Include the above into the pre-design report

AS2 Functional programming (Note: Refer to S.O also)

The Consultant shall also:

- 1. provide programming services for exterior area
- 2. provide programming services for future phases *
- 3. Include the above into the pre-design report

AS6 Sustainability Strategies and reports (Note: Refer to S.O also)

The Consultant shall also:

- Provide sustainable opportunities, strategies, preliminary budgets to achieve net zero certification and passive house certification within budget. If the passive house certification is not achievable within the budget the consultant shall propose other alternative to achieve any other sustainable design recognized certification.
- 2. integrate energy and resource conservation technologies into the design, technology shall not be an after-through employed to correct fundamental design deficiencies
- 3. Seek the limits of energy conservation through passive solar design and the passive house methodology.
- 4. Use sustainable materials with least environmental impact based on embodied energy, embodied water, embodied emissions and recycled content. Material selection must meet the responsible industry living building imperative and avoid materials on the living building red list.
- 5. Use FSC wood shall be considered as the preferred construction material wherever economically competitive.
- 6. Include net zero carbon ready. Incorporate infrastructure rough-ins to enable future installation of renewable energy generation and storage systems and easy integration with existing mechanical, electrical and plumbing systems.
- 7. Provide design construction and operation of the building shall target space heating and cooling demand of International Passive House standard.
- 8. Pre-design report shall
 - a. Include compactness, orientation, shading, location of the thermal envelope and optimization of thermal bridges.
 - b. Use related adopted data such as indoor temperature, relative humidity, usage occupancy rate and internal heat sources. All assumptions shall be validated by PHI or the Certifier for energy modelling.
 - c. Include Building services concept, ventilation in summer/winter, heating/cooling, hot water generation, minimization of the energy demand, pre-selection of bldg. services components and identification of innovative approached for temperature control and dehumidification.
 - d. Preliminary Energy balance and calculation with the PHPP.

Phase 2

BS3 Schematic design Services (Note: Refer to S.O also)

The Consultant shall also:

- 1. Present alternative design options for the building layout which are viable and have potential for development.
- 2. Include the above into the Schematic design report

BS4 Design Development Services (Note: Refer to S.O also)

The Consultant shall also:

- 1. Provide alternatives on exhibit design to suit client requirements and budget.
- 2. Explain the expected functions to operating staff.
- 3. Include in the report: building envelope design relevant to energy efficiency (windows, doors, thermal insulation, airtightness target)
- 4. Thermal Bridging
- 5. Airtightness strategy and critical airtightness at important connection details
- 6. Building services: dimensioning and layout of the ventilation system with heat recovery. Temperature control and building automation system strategy, heating and cooling strategies

BS5 Exhibit Design Services (Note: Refer to S.O also)

The Consultant shall also:

1. Develop the selected concept as per SO required services

BS7 Geotechnical Engineering (Note: Refer to S.O also)

The Consultant shall also:

1. Engage a Geotechnical Engineer as a sub-consultant (if the services are unavailable in-house).

BS8 Construction Document Services (Note: Refer to S.O also)

The Consultant shall also:

- 1. include the International Passive House Institute or the certifier evaluation of:
 - a. thermal bridging calculation
 - b. specification of material components related to energy efficiency
 - c. Hygro-thermal performance of the envelope
 - d. Updated Energy balance and calculation with the PHPP
 - e. International Passive House Institute or the certifier formal precertification letter.

BS9 Tendering Services (Note: Refer to S.O also)

The Consultant shall also:

1. Produce a set of drawings for construction to incorporate all addenda after the tendering period.

BS10 Construction Administration Services (Note: Refer to S.O also)

The Consultant shall also:

1. pursue the Passive House Certification construction documentation on an ongoing biweekly basis to the satisfaction of the certifier.

3.3 Project Deliverables and Submissions

Refer to AA 2.4 General Project Deliverable of the Standing Offer.

Submissions are to be sent to the Project Manager in Gatineau.

3.4 Reviews and Acceptance of Project Deliverables

Work in progress is to be reviewed by the Departmental Representative as well as the following:

PCA and User Team Review:

- 1. Submission format: report and drawings
 - Expected Turnaround Time: 7 working days
 - Number of Submissions: until approval has been received
- 2. Submission Format: minutes of meeting
 - Expected Turnaround Time: 3 working days

Chart of Reviews and Approvals

Deliverables PCA PM			Client /User	
	R	Α	R	Α
Pre-design Services:				
Analysis of Project Scope of Work report	Х	Х	Х	Х
Review of Budget cost estimate	Х		Х	Х
99% Draft Pre-design Report	Х	Х	Х	Х
Final Pre-Design Report	Х	Х	Х	Х
Review of minutes of meeting	Х		Х	
Design Development services				
Review of Class 'D' cost estimate	Х		Х	Х
99% Draft Schematic design Report	Х	Х	Х	Х
Final Schematic Design Report	Х	Х	Х	Х
Review of minutes of meeting	Х		Х	
Design and Construction Documents				
and Tender Services:				
99% Design Concept Drawings	Х	Х	Х	Х
Review of Class 'C' cost estimate	Х		Х	Х
50% Construction/Tender Drawings and Specs	Х	Х	Х	Х
Class 'B' Estimate	Х		Х	Х
Review of minutes of meeting	Х		Х	
99% Construction/Tender Drawings and Specs	х	х	х	Х
Class 'A' Estimate(s)	Х		Х	Х
Final Construction/Tender Documents	Х	Х	Х	Х
Review of minutes of meeting	Х		Х	
Construction and Contract Administration Services:				
Shop drawings	Х		Х	
Proposed changes to contract	Х		Х	
Final Documents	Х		Х	

Legend: R = Review A = Acceptance

4.0 PROJECT ADMINISTRATION

The following Consultant roles and responsibilities apply during all phases of project delivery indicated in the Standing Offer and these Terms of Reference (ToR). Requirements described in this Terms of Reference are read in conjunction with the Call-Up requirements mentioned in the Standing Offer.

4.1 Project Management

The Departmental Representative is directly concerned with the project and responsible for its progress on behalf of PCA and the client.

The Departmental Representative is the liaison amongst and between the Consultant and client.

PCA will administer the project and exercises continuing control over the project during all required services.

Unless directed otherwise by the Departmental Representative, the Consultant obtains all Federal requirements and approvals necessary for the work from the Departmental Representative.

4.2 Lines of Communication

The Consultant shall correspond only with the PCA Project Manager. The Consultant is to communicate with the client department or other PCA staff regarding project issues, only if authorized to do so, by the PCA Project Manager. Direct communication between members of the PCA Project Team on routine matters is required to enable the discussion and resolution of technical issues. However, no communication shall alter the terms of the project scope, budget or schedules unless directed in writing by the PCA Departmental Representative.

4.3 Media

The Consultant shall not respond to requests for project related information or questions from the media. Such inquiries are to be directed to PCA Project Manager immediately. Refer to Standing Offer.

4.4 General Project Deliverable

Where deliverables and submissions are required under this Call-Up they shall be submitted in accordance with the SO. References to CD or DVD are replaced by USB

memory key for submission of electronic deliverables or identified site as directed by the Departmental Representative.

4.5 Acceptance of Project Deliverables

As per standing offer requirements.

4.6 Meetings

After the initial meeting with PCA and Parks Canada Agency, the Consultant shall arrange meetings throughout the entire project development period as bi-weekly meetings/teleconferences or as required by the Project Manager for clarification and resolution of all the issues for the project.

The Consultant is to identify the meetings in the proposed project schedule for review by the Project Manager.

The Consultant shall attend the meetings, record the issues and decisions and prepare and distribute minutes within 48 hours. The Consultant shall create and maintain a list of outstanding action items and outstanding issues, and include these lists within the minutes of the meeting.

A start-up meeting will be held in person to discuss the project methodology, requirements, schedule, etc.

4.7 Project Response Time

It is a requirement of this project that the key senior and project personnel of the architectural firm and sub-consultants, if any, be personally available to attend meetings or respond to inquiries within three (3) working days.

4.8 Codes and Standards

The Consultant shall comply with all statutes, codes, regulations, and by-laws applicable to the design and where necessary, shall review the design with those Public Authorities Having Jurisdiction in order that the consents, approvals, licenses and permits required for the project may be applied for and obtained.

The Consultant shall utilize the latest editions of the applicable codes, standards, regulations and by-laws. Public Authorities Having Jurisdiction shall review the design in order to obtain and apply approvals and permits required for the project. The Consultant shall identify all jurisdictions appropriate to the project. In this project we identified these codes and regulations but the Consultant has the option of consulting other regulations, standards, codes and references as deemed necessary to complete the work under this Call-Up.

	Workplace Hazardous Materials Information System (WHMIS); National Building Code of Canada; Provincial Occupational Health and Safety Act and Regulations for Construction
	Projects; Regulation for Designated Substance, O.Reg. 490/09; and Canada Labour Code (including latest revisions of all regulations) CSA standards for accessibility
	ere is a conflict between federal and provincial regulations, the most stringent lation will apply.
	r to Standing Offer and "Doing Business with A&E" for a list of codes, regulations, dards, and guidelines.
4.9	Health and Safety
Regu	Consultant shall abide by the current Occupational Health and Safety Act and ulations and Environmental Acts and Regulations. Refer to the Standing Offer. ding the following:
	Develop written Site-Specific Health and Safety Plan (SSHSP) based on hazard assessment prior to beginning any field work and continue to implement, maintain, and enforce plan through all required services of the project.
	The SSHSP needs to cover all activity of the Consultant team (Consultant personnel, sub-Consultant and contractors).
	The Consultant shall incorporate in his SSHSP and abide by any additional constraint or safety requirement imposed by PCA for accessing and using the leased property or part thereof.
	Coordinate field work with PCA for any activity on or adjacent to the project site.
	Provide all required Personnel Protective Equipment, equipment and material as required to meet the intent of the safety requirement set in the SSHSP or as required by the Provincial Occupational Health and Safety Legislation.
	The Consultant shall be responsible for health and safety for all of their team on site, and for protection of general public and government employees adjacent to the site to the extent that they may be affected by conduct of any field work.
•	Assign responsibility and obligation to a Competent Person or Supervisor to oversee the field work. At the Competent Person's discretion, the field work may be stopped if necessary or advisable for reasons of health or safety. The Departmental Representative may also stop work for health and safety considerations.
	Prior to starting field work, attend a Safety Briefing meeting with PCA and facility maintenance provider and client.

Daily tailboard meetings are required at the project site. Records of tailboard
meetings are to be submitted to the Departmental Representative on a daily
basis.

• The Consultant Team will need to closely coordinate their field work schedule, if any, with the PCA Departmental Representative. In situations where the Consultant's team member will be visiting the site without being escorted by PCA, the Consultant will need to notify the Departmental Representative when they get to and leave the site. Under no circumstance will a member of the Consultant Team be allowed to visit the site alone.

4.10 Known Hazards

The existing information regarding previous studies and inspections of the site identify common hazards with respect to designated substances and to the general condition of the building structure. These are provided to assist in the preparation of the SSHSP and does not remove the Consultant responsibility to complete his own hazard assessment prior to beginning any field work.

While working on the property and inside the subject building, the Consultant Team will be exposed to, but not necessarily limited to, the hazards described in the previous studies and inspections.

More specifically under this Call-Up, the Consultant Team will be exposed to, but not necessarily limited to, the following hazards:

	Endangered and/or dangerous species Working near water Working on uneven ground/surfaces
REF	ERENCE CODES AND STANDARDS
	Canada Labour Code; Regulation for Designated Substance, O.Reg. 490/09; NBC 2010, Division B, Part 8 Safety Measures at Construction and Demolition Sites; Workplace Safety and Insurance Act, 1997, Municipal statutes and authorities.
SUB	MITTALS
	nit a Site-Specific Health and Safety Plan: Within 5 days after date of Notice oceed and prior to commencement of field work. Health and Safety Plan must de: Results of site specific safety hazard assessment.
	Mitigation and precaution measures that will be implemented as a result of a

safety and health risk or a hazard analysis for site tasks and operations.

•	Consultant's Team Safety Communication Plan.
	Contingency and Emergency Response Plan addressing standard operating
	procedures specific to the project site to be implemented during emergency
	situations.

In addition to the SSHSP the following documents shall also be submitted:

- A copy of the Consultant Team WSIB Clearance Certificates.
- Occupational health and safety training and certification records: the Consultant must provide documentation verifying all members of the Consultant team have received the appropriate safety training including equipment operation training as required to perform the specific field work.
- Departmental Representative may respond in writing, either accepting or requesting improvements, where deficiencies or concerns are noted and may request resubmission with correction of deficiencies or concerns.
- Departmental Representative's review of Consultant's final SSHSP should not be construed as approval and does not reduce the Consultant's overall responsibility for construction Health and Safety at the project site.

4.11 Site Access

- Site access prior to construction will need to be coordinated through the PCA
 Departmental Representative who will request access via Facility Manager upon
 receipt of 1 weeks' notice for the site visit.
- Site access is available during normal work hours of the Contractor which are Monday to Friday from to unless otherwise indicated. The General Contractor may elect to work on Saturday, Sunday and public holiday. If authorized, hours of work on weekends are to on Saturdays and on Sundays and public holidays. As such, the Consultant Field Representative may also be required to be available to work on weekends.
- Depending on the progress of the Contractor's work the service may be on an intermediate or full time basis.

4.12 Sustainable Development

See above in scope of work section

4.13 Security Screening Requirements

N/A Consultants will always be escorted by PCA staff.

4.14 Cash Flow

Within seven (7) days of award of the Contract, provide the Departmental Representative with an estimated cash flow of the fees and disbursements associated with the project.

	The estimated cash flow is to be provided for each fiscal year quarters (i.e Q1
	April/May/June, Q2 July/Aug,/Sept, Q3 Oct/Nov/Dec, and Q4 Jan/Feb/March)
	For fourth quarter (Q4) the estimate cash flow is to be provided on a monthly basis
Cash	flow to be evaluated and revised at the beginning of each quarter or whenever:
	A major change occurs in the accepted schedule for the work or; A contract amendment is issued

4.15 Taking the Services out of the Consultant's Hands

Refer to GC 9 Taking the Services Out of the Consultant's Hands, of the Standing Offer.

5.00 APPENDIX A

CONSULTANT PROPOSAL

1. CONSULTANT PROPOSAL

GENERAL

- As part of the Standing Offer Call-Up procedure the consultant needs to prepare a proposal to carry out the work under the Required Services as outlined in these Terms of Reference.
- ii) The proposal shall be in accordance to these requirements and the Standing Offer.
- iii) Applicants must outline their plan for achieving Passive House certification in a sustainability narrative to accompany their proposal. The narrative should convey an understanding of Passive House principles and the likely issues to navigate in implementing Passive House for this for this particular project. This should include, but is not limited to, an overview of the development team experience with Passive House and energy efficiency, a general plan for quality assurance during design and quality control during the construction process and commissioning turn over.

ANALYSIS OF PROJECT REQUIREMENTS

- The Consultant team is to review and analyze the project description and available existing documentation to fully understand the project requirements.
- ii) Attend a project pre-award meeting with PCA to discuss the project requirements.
- iii) Identify any issues or conflicts that will need to be addressed with respect to scope, quality, schedule, cost, and any other areas of particular concern or issues which may impact the implementation of the work. These issues need to be discussed with the Departmental Representative prior to final submission of the proposal.
- iv) Any of the issues or conflicts which were identified and discussed with the Departmental Representative that cannot be resolved prior to submission of the proposal shall clearly be identified in the proposal, and their impact explained.
- v) Develop a detailed work breakdown structure that incorporates all

of the above together with a detailed schedule including allowances for reviews and approvals for each PHASE of the project life cycle including deliverable requirements to be provided by the Client.

2. PROPOSAL REQUIREMENTS

- 1. The following are to form part of the consultant proposal:
 - i) Covering letter;
 - ii) Description of project and service to be delivered, including:
 - a) Clear statements of any assumptions that were made to prepare the proposal and fees, to cover situations where the statement of work required in the Terms of Reference is unclear or insufficient information to fully assess the required effort to perform a Required Service.
 - b) Description of the coordination and assistance that you will require from PCA.
 - iii) Consultant team identification including CVs of the team members. The C.Vs need to have sufficient details to justify the hourly rate category being used for the team members.
 - iv) Schedule;
 - v) Work Breakdown Structure showing sub-tasks and the consultant team members and level of effort for each sub-task;
 - vi) Fee schedule;
 - vii) The price proposal (Appendix B)

6.00 APPENDIX B

PRICE PROPOSAL

Notes:

- Fixed Fees and Time Based Fees to be in accordance with the Standing Offer Term and Condition Clause, Calculation of fees and in accordance with hourly rates established in the Standing Offer, showing category of personnel and level of effort (hours) for each Required Service.
- 2) If services identified under Additional and/or Specialized Services (i.e. Geotechnical Engineer, Sustainable Design Specialist) are provided in-house, fees are to be identified as a Fixed/Time Based Fee for the respective Additional/Specialized Service as identified below. If services are to be provided by Sub-Consultants or Specialists, fees are to be identified as a Disbursement within the respective Additional/Specialized Service below.
- 3) Disbursements are to be in accordance with the Standing Offer Term and Condition Clause, Terms of Payment (TP10).
- 4) With the exception of the disbursement identified below as "Other Disbursements", the amount of the disbursement to be provided is to be an upset limit amount.
- 5) Under this SO the travel distance for payment of travel and living expenses will be calculated from:
 - 1) The Consultant, Sub-Consultant or Contractor's office from where the individual that is travelling for this project is leaving from.
- Travel-related expenses will be paid (with prior approval of the Departmental Representative) in accordance with current accordance with current National Joint Council (NJC) Travel Directive:

 http://www.njccnm.gc.ca/directive/index.php?dlabel=travelvoyage&lang=eng&did=10&merge=2;

Invoicing

- 7) Invoicing to be in accordance with TP 2 Payments to the Consultant.
- 8) Travel expenses are to be captured in the Consultant Travel Expense Summary spreadsheet and supported by receipts/invoices.
- 9) Travel expenses will require to be broken down on the invoices among the 9 categories of expenses listed below as follows:
 - i. Air
 - ii. Rail
 - iii. Personal Motor Vehicle
 - iv. Rental Motor Vehicle
 - v. Taxi
 - vi. Other transportation
 - vii. Accommodation
 - viii. Meals
 - ix. Incidentals and other costs

REQUIRED SERVICES

Phase 1

BS	Basic Services and Addition	onal Services	
BS 2	Pre-Design Services Fixed fees Travel Disbursements (Upset Limit) Disbursement (Upset Limit)	Other	\$ \$ \$
BS5	Exhibit Design Fixed fees Travel Disbursements (Upset Limit) Disbursement (Upset Limit)	Other	\$ \$ \$
AS2	Functional programming Fixed fees Travel Disbursements (Upset Limit) Disbursement (Upset Limit)	Other	\$ \$ \$
AS6	Sustainability Strategies and Reporting Fixed fees Travel Disbursements (Upset Limit) Disbursement (Upset Limit)		\$ \$ \$
		Subtotal	\$
		HST TOTAL	\$ \$

Phase 2

BS3	Schematic Design Services	
	Fixed fees	\$
	Travel Disbursements (Upset Limit)	\$
	Other Disbursement (Upset Limit)	\$
BS4	Design Development Services	
	Fixed fees	\$
	Travel Disbursements (Upset Limit)	\$
	Other Disbursement (Upset Limit)	\$
DCE	Evhibit Danier Comings	
BS5	Exhibit Design Services Fixed fees	¢
		\$
	Travel Disbursements (Upset Limit) Other Disbursement (Upset Limit)	\$ \$
	Other Dispursement (Opset Limit)	Φ
BS6	Civil Engineering Services	
	Fixed fees	\$
	Travel Disbursements (Upset Limit)	\$
	Other Disbursement (Upset Limit)	\$
BS7	Geotechnical Engineering Services	
	Fixed fees	\$
	Travel Disbursements (Upset Limit)	\$
	Other Disbursement (Upset Limit)	\$
BS8	Construction document Services	
	Fixed fees	\$
	Travel Disbursements (Upset Limit)	\$
	Other Disbursement (Upset Limit)	\$
BS9	Tendering services	
	Fixed fees	\$
	Travel Disbursements (Upset Limit)	\$
	Other Disbursement (Upset Limit)	\$

Phase 2 (continue)

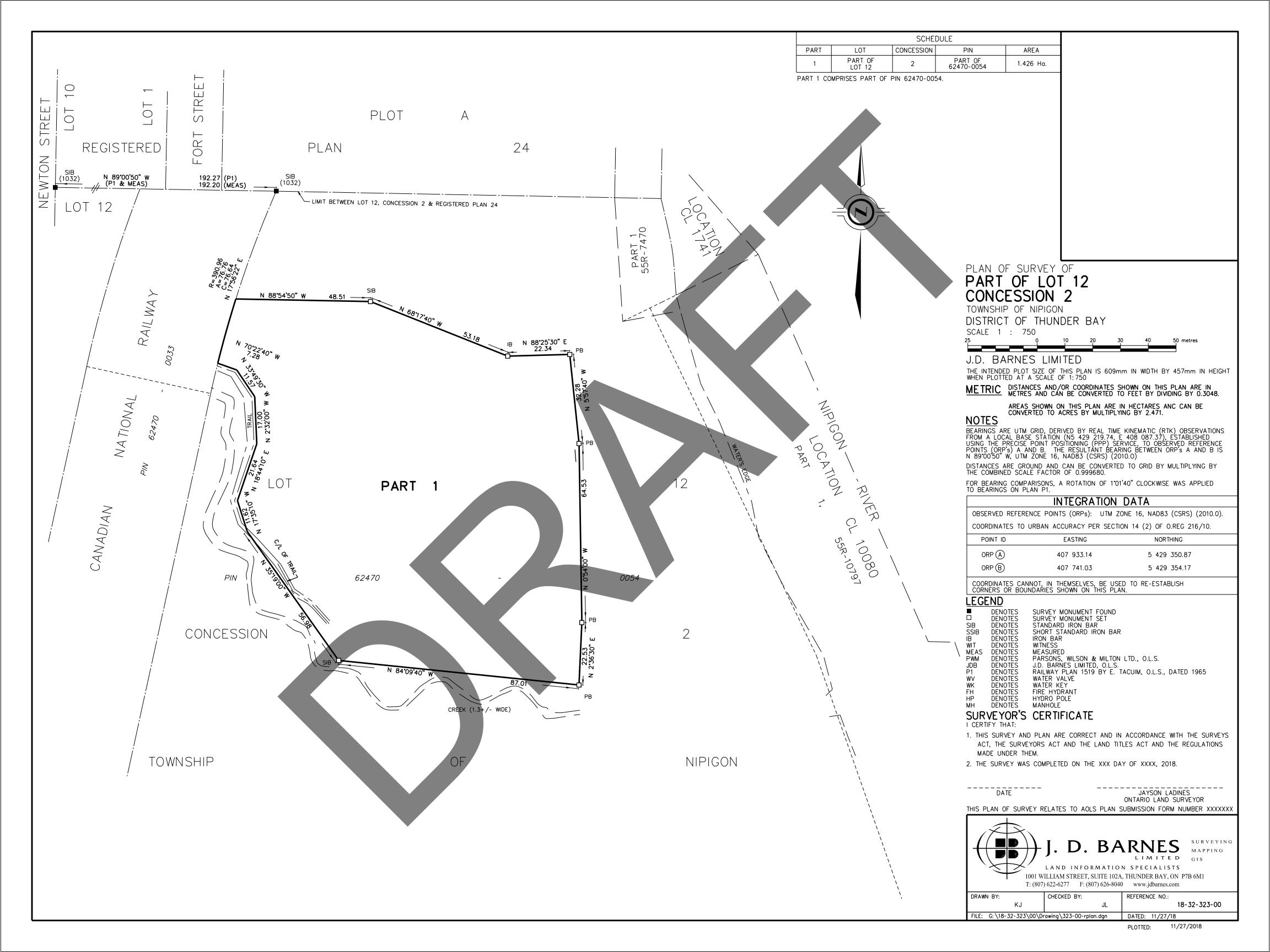
BS10	Construction Administration	n Services		
	Fixed fees		\$	
	Travel Disbursements (Upset	t Limit)	\$	
	Other Disbursement (Upset L	imit)	\$	
BS11	Commissioning			
	Fixed fees		\$	
	Travel Disbursements (Upset	t Limit)	\$	
	Other Disbursement (Upset L	.imit)	\$	
BS12	Post Construction Services	S		
	Fixed fees		\$	
	Travel Disbursements (Upset	t Limit)	\$	
	Other Disbursement (Upset L	imit)	\$	
	S	ubtotal	\$	
	н	ST	\$	
			\$	
		OTAL	·	· ·

7.00 APPENDIX C

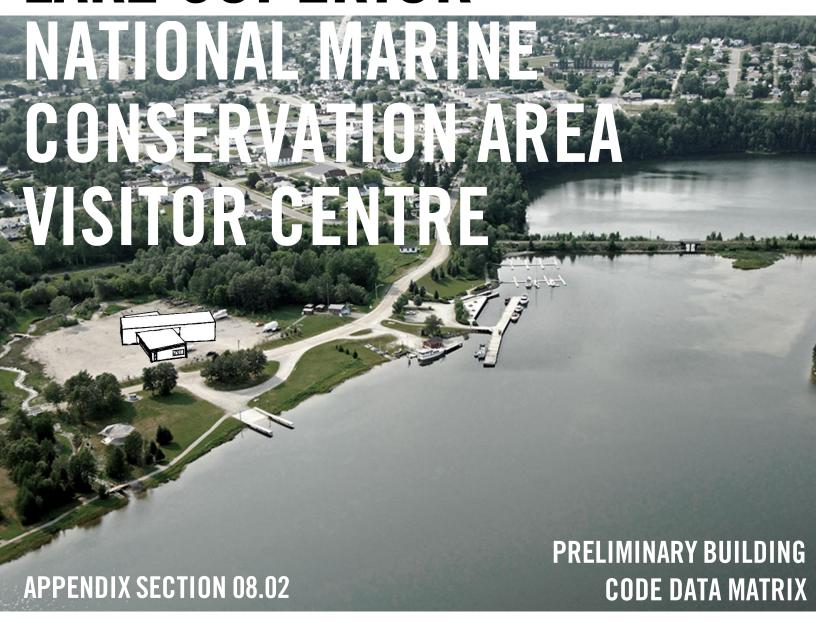
DOCUMENT CONFIDENTIALITY

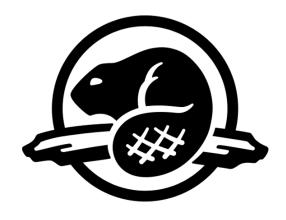
All documents provided by PCA for the purpose of this Call-Up are to be considered CONFIDENTIAL and are not to be used or shared by the Consultant, for any purpose other than the work under this Call-Up, without prior approval from PCA

DRAFT and FINAL reports, together with any other associated notes, preliminary reports, e-mails etc. are to be considered as CONFIDENTIAL and are not to be used or shared by the Consultant for any purpose other than for the work under this Call-Up.



LAKE SUPERIOR





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Parks Canada Parcs Canada PERKINS+WILL



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Name of Practice:

Perkins+Will 275 Slater Street, Suite 1810 Ottawa, ON, K1P 5H9

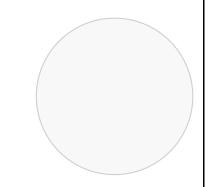
Name of Project:

Lake Superior National Marine Conservation Area Administrative Building and Discovery Centre OPTION 1 AND 2

Location:

Nipigon, ON

Date: 2018-06-28



	Ontario Building Code Data Matrix Part 3								
3.00	Building Code Version:	O. Reg. 332/12	_	Last Amen	dment	0. Reg. 19	91/14		
3.01	Project Type:	New □ Change of use							
			onstruction of a new administrative building and discovery centre for the wly established Lake Superior Marine Conservation Area.						
3.02	Major Occupancy Classification:	Occupancy A D	A <u>Discovery Centre</u>					3.1.2.1.(1)	
3.03	Superimposed Major Occupancies:	⊠ No □ Yes Description: N/A						3.2.2.7.	
					I	1			
3.04	Building Area (m ²)	<u>Description</u> :			Existing	<u>New</u>	<u>Total</u>	[A] 1.4.1.2.	
		Admin + Discovery C	Centre		0	<u>974m²</u>	<u>974m²</u>		
					0	0	0		
					0	0	0		
					0	0	0		
	Insert additional lines as needed			Total	0	<u>974m²</u>	<u>974m²</u>		

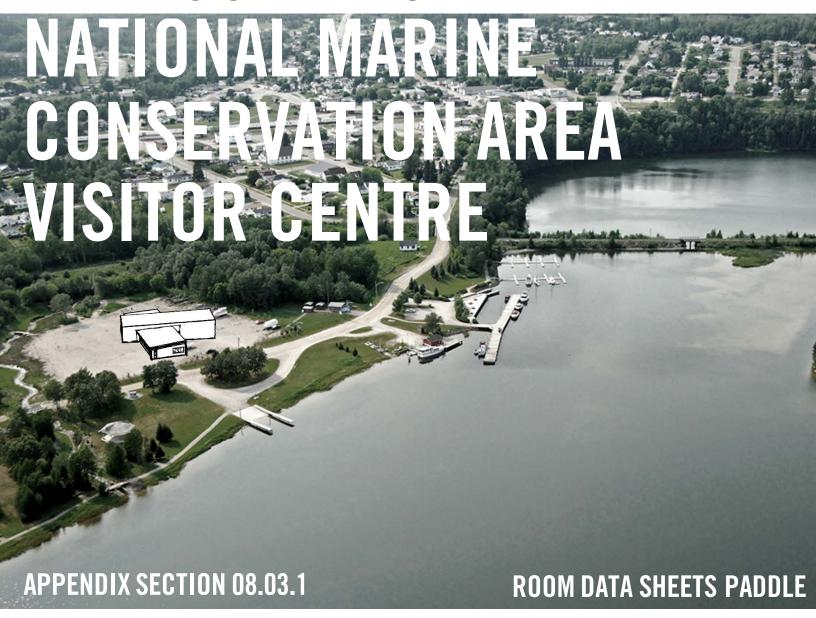
3.05	Gross Area (m ²)	Description:			Existing	<u>New</u>	<u>Total</u>	[A] 1.4.1.2.
					0	<u>974m</u>	<u>974m²</u>	
					0			
					0	0	0	
					0	0	0	
	Insert additional lines as needed			Total	0	0	0	
	recueu					<u>974m²</u>	<u>974m²</u>	
3.06	Mezzanine Area (m²)	Description:			<u>Existing</u>	<u>New</u>	<u>Total</u>	3.2.1.1.
		N/A			0	0	0	
					0	0	0	
					0	0	0	
					0	0	0	
	Insert additional lines as needed			Total	0	0	0	
3.07	Building Height	7600mm	Storeys	s above grade	1	(m) Above	grade	[A] 1.4.1.2. & 3.2.1.1.
		0	Storeys	s below grade				5.2.1.1.
3.08	High Building	⊠ No □'	Yes					3.2.6.
3.09	Number of Streets/ Firefighter access	1 stre	et(s)					3.2.2.10. & 3.2.5.
3.10	Building Classification: (Size and Construction Relative to Occupancy)	3.2.2.		Group/Div A2	+ D			3.2.2.20 83.
3.11	Sprinkler System	⊠ Required	□ No	t Required				3.2.1.5. & 3.2.2.17.
		<u>Proposed</u> :	□ sel	tire building ected floor areas lieu of roof rating	□ selec □ baser □ none	ted compartr nent	ments	5.2.2.17.
3.12	Standpipe System	Not required ■ Not	d 🗆 F	Required				3.2.9.
3.13	Fire Alarm System	□ Required Proposed:		Not required Single stage	Two stage	None		3.2.4.
3.14	Water Service / Supply is Adequate		Yes					

3.15	Construction Type:	Restriction: Actual: Heavy Timber								3.2.2.20 83. & 3.2.1.4.
3.16	Importance Category:	□ Low ☑ Normal □ High		v human o		ng □ E		aster shel		4.1.2.1.(3) & T4.1.2.1.B
		□ Post-disas	ter							
3.17	Seismic Hazard Index:	(IE Fa Sa (0.2 Seismic desig ((IE Fa Sa (0	gn required	for Table	4.1.8.				;	4.1.2.1.(3) 4.1.8.18.(2)
3.18	Occupant Load	Floor Level/A	or Level/Area		ancy	ncy Based On 9.3		Occupa (Persor	nt Load ns) 69 Max	3.1.17.
		Discovery Cer (290m²)	_	<u>D</u> <u>A2</u>	2.8			104 Max		
	Insert additional lines as needed								0	
3.19	Barrier-free Design:	Yes □ No	Washroom	ms, single	floor le	vel				3.8.
3.20	Hazardous Substances:	□ Yes ⊠ No	Explanat	ion						3.3.1.2. & 3.3.1.19.
3.21	Required Fire Resistance Ratings	<u>Horizontal As</u>	<u>sembly</u>	Rating		orting mbly (H)		ncombus lieu of ra		3.2.2.20 83. & 3.2.1.4.
		Floors over ba	sement	0		0	□ No	□ Yes	⊠ N/A	
		Floors		0		0	□ No	□Yes	⊠ N/A	
		Mezzanine Roof		0 3/4hr		0 3/4hr	□ No	□ Yes ⊠ Yes	⊠ N/A	

3.22	Spatial Separation	<u>Wall</u>	EBF Area (m²)	L.D <u>(m)</u>	L/H or <u>H/L</u>	Requ		Constru Type Require		Ty	ladding /pe equired	3.2.3.
	Insert additional lines as needed				0 0		bl bl	Noncomi e Noncomi e Noncomi	busti	No No No	ncombustib ncombustib ncombustib	
3.23	Plumbing Fixture Requirements	Ratio:	Ratio: Male:Female = 50:50 Except as noted otherwise								3.7.4.	
		Floor Level/Area			Occupai Load	<u>nt</u>				<u>Fixtures</u> <u>Provided</u>		
		Ground F	loor (D)		46	<u>5</u>	<u>3.7.</u>	4.2 (1)	3	_	3	
		Ground F	loor (A2)		104	1	<u>3.7.</u>	4.3	4	_	5_	
					(<u>) </u>			0	_	0	
	Insert additional lines as needed				(<u>) </u>			0	_	0	
3.24	Energy Efficiency:	Complian	ce Path:		Performa	nce (P	assiv	re House)				
		Climatic	Zone:		2a							
3.25	Notes:											
	Insert additional lines as needed											

All references are to Division B of the OBC unless preceded by [A] for Division A and [C] for Division C.

LAKE SUPERIOR







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01 - General Office					
01a - Site Manager					
Continual Change Descriped and Dyspided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	10.00	m2	107.639	f+2	
C - TOTAL NSM REQUIRED	10.00		107.639		
D - NSM PROVIDED PER ROOM	11.30		121.632		
E - TOTAL NSM PROVIDED	11.30		121.632		
L TOTAL NOWIT KOVIDED	11.50	111	121.002	11	
Section 2 - Room Use and Functional Relationshi	ns				
Section 2 - Room Osc and Functional Relationship]				
A - SPACE PURPOSE/ACTIVITY TYPE	OFFICE				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Main office	space			
D - VISUAL PROXIMITY REQ'S	N/A	-1			
	1				
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair /	Meeting	table / 2 ch	nairs	
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)	1 Whiteboa	rd			
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	2 lines				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Door lockse	<u> </u>			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS	Large, locki	ng cabine	t for docum	nent securi	ty
Section 4 - Notes					
Design as typical office (WP2.0)					
*Workstations as per PCA standard provided					
	1				
Approved By, Stephen Dieke					
Approved By: Stephen Dicks					
Date: April 05, 2018					
	1				
	1				

01 - General Office					
01b - Assets Function (EG04/06)					
Section 1- Space Required and Provided					
A NUMBER OF BOOMS	1.00				
A - NUMBER OF ROOMS	1.00	2	40.4076	61.0	
B - NSM REQUIRED PER ROOM	4.50		48.4376		
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM E - TOTAL NSM PROVIDED	4.50 4.50		48.4376 48.4376		
E - TOTAL NSW PROVIDED	4.50	1112	40.43/0	11-	
Castian 2 Deam Has and Functional Delationship					
Section 2 - Room Use and Functional Relationship	os I				
A - SPACE PURPOSE/ACTIVITY TYPE	WORKSTAT	ION			
B - OCCUPANT LOAD	1.00	1011			
C - SPACE PROXIMITY REQ'S	Main office	snace			
D - VISUAL PROXIMITY REQ'S	N/A	Space			
D VIOUNET NOMINITINE & O	TA//A				
Section 3 - Equipment and Furniture					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)	Tuest errait				
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Locking Cab	inet			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Design as typical office (WP2.0)					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01c - Finance					
OTC - Finance					
Castian 1 Chass Demisired and Dressided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	4.50	m²	48.4376	f+2	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	4.50		48.4376		
TO THE TOWN THOUSES		•••	1011070		
Section 2 - Room Use and Functional Relationship)S				
A - SPACE PURPOSE/ACTIVITY TYPE	OFFICE				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Main Office	Space			
D - VISUAL PROXIMITY REQ'S	N/A				
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES	Lagling Cab	in+			
L - SAFETY/SECURITY REQ'S M - SPECIAL REQ'S/CONSIDERATIONS	Locking Cab	ווונ			
N - SPECIAL SYSTEMS					
IN - SI ECIAL STOTEWIS					
Section 4 - Notes					
Design as typical office (WP2.0)					
*Workstation as per PCA standard					
Worker and por Fortecarradia					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01d - 2x Overflow FTE					
Section 1- Space Required and Provided					
A NUMBER OF BOOMS	0.00				
A - NUMBER OF ROOMS	2.00	2	40.4076	610	
B - NSM REQUIRED PER ROOM	4.50		48.4376		
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM E - TOTAL NSM PROVIDED	4.50 9.00		48.4376 96.8751		
E - TOTAL NSW PROVIDED	9.00	1111-	90.0731	11-	
Castian 2 Deam Has and Functional Delationship					
Section 2 - Room Use and Functional Relationship					
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Main office	Snace			
D - VISUAL PROXIMITY REQ'S	N/A	Space			
D VIOUNET NOMINITINE & O	14/7				
Section 3 - Equipment and Furniture					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)	rack chan				
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Design as typical office (WP2.0)					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01e - 2x Flex Overflow FTE					
Section 1- Space Required and Provided					
A NUMBER OF ROOMS	0.00				
A - NUMBER OF ROOMS	2.00		00 0017	610	
B - NSM REQUIRED PER ROOM	3.00		32.2917		
C - TOTAL NSM REQUIRED	3.00		32.2917		
D - NSM PROVIDED PER ROOM	3.00		32.2917 64.5834		
E - TOTAL NSM PROVIDED	6.00	m²	64.5834	IL	
Castian 2 Dannellas and Franctional Deletionship					
Section 2 - Room Use and Functional Relationship	os I				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Main office	enace			
D - VISUAL PROXIMITY REQ'S	N/A	space			
D - VISUALT NOAHWITT NEWS	11/7				
Section 3 - Equipment and Furniture					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)	rasit chan				
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Cubicles/Workstations in main office area					
Locate workstations across main wall					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01e - 2x Overflow Workstations					
(tied in to discovery centre)					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	2.00				
		2	40.4076	tro.	
B - NSM REQUIRED PER ROOM	4.50 4.50		48.4376 48.4376		
C - TOTAL NSM REQUIRED D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	9.00		96.8751		
L - TOTAL NOW FROM TROVIDED	9.00	111-	90.0751	11-	
Section 2 - Room Use and Functional Relationship					
Section 2 - Room Ose and Functional Relationship)5				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Discovery Ce	ntre			
D - VISUAL PROXIMITY REQ'S	N/A	5,11,10			
D TOOKET ROAIMITT REGO	1 1// 1				
Section 3 - Equipment and Furniture					
Cotton o Equipment and Farment					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Tied in to discovery centre					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
Olg - Reception					
OTE - Mecebrion					
Section 1- Space Required and Provided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	10.00	m ²	107.639	f+2	
C - TOTAL NSM REQUIRED	10.00		107.639		
D - NSM PROVIDED PER ROOM	10.60		114.097		
E - TOTAL NSM PROVIDED	10.60		114.097		
L TOTAL NORTH TOTAL	20.00	•••	1111037		
Section 2 - Room Use and Functional Relationship)S				
A - SPACE PURPOSE/ACTIVITY TYPE	RECEPTION	V/WELCO	OME		
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Lobby of Dis	scovery Ce	entre		
D - VISUAL PROXIMITY REQ'S	Lobby of Dis				
		,			
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	printer / poi	nt of sale	machine*		
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)	Fixed desk /	integrate	d with exhi	bit	
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING	Task lightin	g			
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	locking drav				' 1 sh
M - SPECIAL REQ'S/CONSIDERATIONS	workstation	/ millwork	integrated	with exhib	DIT*
N - SPECIAL SYSTEMS					
Castion 4 Notes					
Section 4 - Notes					
*PCA to confirm equip. requirements **Because this program requirement serves the					
1 5 1					
public, it shall be thematically integrated with the exhibit space of the Discovery Centre					
Texhibit space of the discovery Centre					
Approved By: Stephen Dicks					
Date: April 05, 2018					
·					
	•				

01 - General Office					
01h - Graphics Station					
Section 1- Space Required and Provided					
A NUMBER OF ROOMS	1.00				
A - NUMBER OF ROOMS	1.00	2	16 1450	(1)	
B - NSM REQUIRED PER ROOM	1.50		16.1459		
C - TOTAL NSM REQUIRED	1.50 1.50		16.1459 16.1459		
D - NSM PROVIDED PER ROOM E - TOTAL NSM PROVIDED	1.50		16.1459		
E - TOTAL NSW PROVIDED	1.50	1112	16.1439	11-	
Castian 2 Dannellas and Franctional Deletionakin					
Section 2 - Room Use and Functional Relationship	DS .				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation	*			
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Locate in ge	noral offi	CO STOS		
D - VISUAL PROXIMITY REQ'S	Locate III ge	niciai UIII	ce ai ea		
D - VIOUALI NOXIWITTI NEQ 3					
Section 3 - Equipment and Furniture					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	/ desk*			
B - NEW FURNITURE (MOVEABLE)	Task Chair	/ ucsk			
C - NEW FURNITURE (FIXED/BUILT-IN)	rusit oriun				
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA	1 line				
I - HVAC	1 11110				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS	Existing Ma	c Comput	er		
Section 4 - Notes					
*Workstation as per PCA standard					
PCA to confirm additional requirements					
Approved By: Stephen Dicks					
Date: April 05, 2018					

02 - Resource Conservation					
02a - Resource Conservation Manager					
The state of the s					
Section 1- Space Required and Provided					
Coction 1 Opace Required and Frontaca					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	4.50	m²	48.4376	ft ²	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	4.50		48.4376		
Section 2 - Room Use and Functional Relations	hips				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Access to st	aff / lab /	′ storage/uti	lity buildir	g
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S	1 11				
G - PHONE	1 line				
H - DATA	1 line		<u> </u>		
I - HVAC J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Locking cab	inot			
M - SPECIAL REQ'S/CONSIDERATIONS	LOCKING CAD	Пес			
N - SPECIAL SYSTEMS					
IN - 31 ECIAL STOTEMS					
Section 4 - Notes					
*Workstation as per PCA standard					
Workstation as per riork standard					
			†		
			1		
Approved By: Stephen Dicks					
Date: April 05, 2018			1		
,					
	•				

02 - Resource Conservation					
02b - Geomatics Officer					
02b - Geomatics Officer					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	4.50	m ²	48.4376	ft ²	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	4.50		48.4376		
Section 2 - Room Use and Functional Relationship)S				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Res Con tea	m / lab			
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A NEW FOURDAMENT					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line 1 line				
I - HVAC	1 IIIIe				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS	Existing Eps	son plotte	r		
		70 p.10110			
Section 4 - Notes					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

02 - Resource Conservation					
02c - Resource Conservation FTE					
Costion 1 Chara Denvived and Desvided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	4.50	m²	48.4376	f+2	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	4.50		48.4376		
L TOTAL NOW! NOVIDED	7.50	111	40.4370	11	
Section 2 - Room Use and Functional Relationsh	ins				
Section 2 - Room Osc and Functional Relationsh	lps				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Res Con tea	m / lab			
D - VISUAL PROXIMITY REQ'S	1113 2311 234				
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Locking cab	inet			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
*Workstation as per PCA standard					
	1				
	1				
	+				
Approved By, Stephen Dieke	1				
Approved By: Stephen Dicks Date: April 05, 2018	1				
Date. April 03, 2016	+				
	1				
	1				
	+				

02 - Resource Conservation					
02d - Resource Conservation Flex FTE					
OZU - NESOUICE CONSENATION FIEX FIE					
Section 1- Space Required and Provided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	2.00				
B - NSM REQUIRED PER ROOM	3.00	m²	32.2917	f+2	
C - TOTAL NSM REQUIRED	3.00		32.2917		
D - NSM PROVIDED PER ROOM	3.00		32.2917		
E - TOTAL NSM PROVIDED	6.00		64.5834		
E - TOTAL NOW! TROVIDED	0.00	111	04.3034	11.	
Section 2 - Room Use and Functional Relationship	ve.				
Section 2 - Nooni Ose and i unctional Relationship	3				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Res Con Tea	 am			
D - VISUAL PROXIMITY REQ'S	1,05 0011 100	4111			
5 HOOKET ROAIMITT REGO					
Section 3 - Equipment and Furniture					
- Equipment and Farmetale					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 Line				
H - DATA	1 Line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

02 - Resource Conservation					
02e - Quiet Room					
oze galet Koom					
Section 1- Space Required and Provided					
occion i opace required and i forface					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	5.00	m²	53.8195	ft ²	
C - TOTAL NSM REQUIRED	5.00		53.8195		
D - NSM PROVIDED PER ROOM	5.90	m²	63.507	ft ²	
E - TOTAL NSM PROVIDED	5.90	m ²	63.507	ft ²	
Section 2 - Room Use and Functional Relationship	os				
A - SPACE PURPOSE/ACTIVITY TYPE	QUIET ROO	M			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S	Main office				
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	T 11 (6				
B - NEW FURNITURE (MOVEABLE)	Table w/ 2 c	hairs (PC	A to contiri	m size)	
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S	1 1.				
G - PHONE H - DATA	1 line				
I - HVAC	1 line				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
TO BOINE OTOTEMO					
Section 4 - Notes					
Approved By: Stephen Dicks					
Date: April 05, 2018					
		_			

03 - Visitor Experience					
03a - Visitor Experience FTE					
VISITO EXPERIENCE I TE					
Section 1- Space Required and Provided					
Section 1 Space Required and 1 Torraca					
A - NUMBER OF ROOMS	6.00				
B - NSM REQUIRED PER ROOM	4.50	m ²	48.4376	ft ²	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	27.00		290.625		
Section 2 - Room Use and Functional Relations	hips				
A - SPACE PURPOSE/ACTIVITY TYPE	OFFICE				
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Visitor Expe	rience Te	am		
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	*Worksation	1			
B - NEW FURNITURE (MOVEABLE)	Task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Door lockset				
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 Notes					
Section 4 - Notes					
VE manager interpretive coordinators					
visitor experience product development	+				
*Workstation as per PCA standard	+				
Workstation as per 1 GA standard					
	+				
Approved By: Stephen Dicks					
Date: April 05, 2018					
54.0. April 00, 2010					
L .					

O3 - Visitor Experience O3b - Visitor Experience Flex FTE					
Specian 1 Special Provided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	4.00				
B - NSM REQUIRED PER ROOM	3.00	m ²	32.2917	f+2	
C - TOTAL NSM REQUIRED	3.00		32.2917		
D - NSM PROVIDED PER ROOM	3.00		32.2917		
E - TOTAL NSM PROVIDED	12.00		129.167		
TO THE WOM THOUSE	12.00		1231107		
Section 2 - Room Use and Functional Relationship	ns				
A - SPACE PURPOSE/ACTIVITY TYPE	Flex Space	Not offic	e		
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Visitor Expe	rience Tea	am		
D - VISUAL PROXIMITY REQ'S	<u> </u>				
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
flex space, not office					
*Workstation as per PCA standard					
Workstation as per i GA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

03 - Visitor Experience					
03c - Visitor Experience Free Address FTE					
Section 1- Space Required and Provided					
A NUMBER OF BOOMS	2.00				
A - NUMBER OF ROOMS	3.00	0	16 1450	610	
B - NSM REQUIRED PER ROOM	1.50		16.1459		
C - TOTAL NSM REQUIRED	1.50		16.1459		
D - NSM PROVIDED PER ROOM	1.50		16.1459		
E - TOTAL NSM PROVIDED	4.50	m²	48.4376	IL ²	
Castian 2 Daniella and Franctional Polationskin					
Section 2 - Room Use and Functional Relationship	S				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation	/ Eroo 1 d	drace		
B - OCCUPANT LOAD	1.00	i Free Ad	u1622		
C - SPACE PROXIMITY REQ'S		l viones tes	m		
D - VISUAL PROXIMITY REQ'S	Visitor exper	Terrice tea	111		
D - VISUAL FROMINITI REQS					
Section 3 - Equipment and Furniture					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)	task chan				
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC	1 11110				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
desks, not office					
*Workstations as per PCA standard					
·					
Approved By: Stephen Dicks					
Date: April 05, 2018					
	_				

03 - Visitor Experience					
03d - Quiet Room / Meeting Room					
C. J. 1 C B I I I I I					
Section 1- Space Required and Provided					
A NUMBER OF BOOMS	1.00				
A - NUMBER OF ROOMS	1.00	2	F0.010F	610	
B - NSM REQUIRED PER ROOM	5.00		53.8195		
C - TOTAL NSM REQUIRED	5.00 9.00		53.8195		
D - NSM PROVIDED PER ROOM E - TOTAL NSM PROVIDED	9.00		96.8751 96.8751		
E - TOTAL NSW PROVIDED	9.00	1112	90.6731	11-	
Castian 2 Deam Has and Functional Polationship					
Section 2 - Room Use and Functional Relationship	OS .				
A - SPACE PURPOSE/ACTIVITY TYPE	Meeting Roo	nm			
B - OCCUPANT LOAD	2-4	וווכ			
C - SPACE PROXIMITY REQ'S	Visitor Expe	rience Te	am		
D - VISUAL PROXIMITY REQ'S	VISITOI LXPE	HEHLE IE	uill		
D VIOUNET NOMINITINES					
Section 3 - Equipment and Furniture					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)	Table / 4 Ch	nairs			
C - NEW FURNITURE (FIXED/BUILT-IN)	142107 1 01				
D - ACCESSORIES (WHITEBOARDS, ETC.)	1 Whiteboa	rd			
E - LIGHTING	1 11111100000				
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
*PCA to confirm additional equipment requiremen	ts				
Approved By: Stephen Dicks					
Date: April 05, 2018					

04 - Shared Spaces					
04a - Shared Equip. Rooms					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	15.00	m²	161.459	ft ²	
C - TOTAL NSM REQUIRED	15.00	m²	161.459	ft ²	
D - NSM PROVIDED PER ROOM	17.00		182.986		
E - TOTAL NSM PROVIDED	17.00	m ²	182.986	ft ²	
Section 2 - Room Use and Functional Relationsh	ips				
A - SPACE PURPOSE/ACTIVITY TYPE	EQUIPMEN	<u>IT ROOM /</u>	STORAGE		
B - OCCUPANT LOAD	0.00				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
0 1: 2 5 : 15 : 15					
Section 3 - Equipment and Furniture					
A NEW FOLUDATION					
A - NEW EUDNITURE (MOVEARLE)	printer/copi	er/snreaa	er I		
B - NEW FURNITURE (MOVEABLE) C - NEW FURNITURE (FIXED/BUILT-IN)	ah ah ing aa	hinata wa	wl. ourfood		
D - ACCESSORIES (WHITEBOARDS, ETC.)	shelving, ca	l mets, wo	rk surrace		
E - LIGHTING	-				
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC	Time				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	locking key	cabinet			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
IT room, supply room, etc					
PCA to confirm office equipment requirments / sp	ecifications				
	 	<u> </u>			
15 6: : 5: :	-				
Approved By: Stephen Dicks	1				
Date: April 05, 2018	1				
	1				
	+				
	1				
	-				

04 - Shared Spaces					
04b - Large Conference Room					
04b - Laige Conference Room					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	30.00	m ²	322.917	f+2	
C - TOTAL NSM REQUIRED	30.00		322.917		
D - NSM PROVIDED PER ROOM	35.00		376.737		
E - TOTAL NSM PROVIDED	35.00		376.737		
L TOTAL NOM PROVIDED	33.00	111	070.707	1.	
Section 2 - Room Use and Functional Relationship	ns				
Section 2 Room Osc and Functional Relationship					
A - SPACE PURPOSE/ACTIVITY TYPE	CONFEREN	CF ROOM			
B - OCCUPANT LOAD	12-15				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Video Confe	rence Sys	tem		
B - NEW FURNITURE (MOVEABLE)	Conference				
C - NEW FURNITURE (FIXED/BUILT-IN)	PCA to conf	irm			
D - ACCESSORIES (WHITEBOARDS, ETC.)	PCA to conf	irm			
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	2 lines				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS	Rough-in fo	r IT infras	tructure		
Section 4 - Notes					
Virtual conference room / video calls					
AV consultant					
Rough-ins for AV / IT					
10.00					
Approved By: Stephen Dicks					
Date: April 05, 2018					

04 - Shared Spaces					
04c - Kitchen					
OTC - MICHEII					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	25.00	m ²	269.098	ft²	
C - TOTAL NSM REQUIRED	25.00		269.098		
D - NSM PROVIDED PER ROOM	20.00		215.278		
E - TOTAL NSM PROVIDED	20.00		215.278		
Section 2 - Room Use and Functional Relationship	S				
A - SPACE PURPOSE/ACTIVITY TYPE	KITCHEN				
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A NEW FOURDMENT					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS				*	
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Kitchen design and quipment as per Workplace 2.0) standards				
Approved By: Stephen Dicks					
Date: April 05, 2018					

04 - Shared Spaces							
04d - Collaborative Work Space							
o id Conasorative Work opace							
Section 1- Space Required and Provided							
Section 1 Space Required and 1 forface							
A - NUMBER OF ROOMS	1.00						
B - NSM REQUIRED PER ROOM	16.00	m ²	172.222	ft ²			
C - TOTAL NSM REQUIRED	16.00		172.222				
D - NSM PROVIDED PER ROOM	14.70		158.229				
E - TOTAL NSM PROVIDED	14.70		158.229				
Section 2 - Room Use and Functional Relationships							
A - SPACE PURPOSE/ACTIVITY TYPE	WORKSPACI	E					
B - OCCUPANT LOAD	TBC						
C - SPACE PROXIMITY REQ'S	Main office s	расе					
D - VISUAL PROXIMITY REQ'S							
Section 3 - Equipment and Furniture							
A - NEW EQUIPMENT							
B - NEW FURNITURE (MOVEABLE)	2 tables						
C - NEW FURNITURE (FIXED/BUILT-IN)							
D - ACCESSORIES (WHITEBOARDS, ETC.)	1 Whiteboard	d					
E - LIGHTING							
F - POWER REQ'S							
G - PHONE	1 line						
H - DATA	1 line						
I - HVAC							
J - PLUMBING							
K - SPECIAL FINISHES							
L - SAFETY/SECURITY REQ'S							
M - SPECIAL REQ'S/CONSIDERATIONS N - SPECIAL SYSTEMS							
IN - SPECIAL STSTEIVIS							
Section 4 - Notes							
flexible space / maleable							
informal quick meeting space							
intormal quick incering space							
Approved By: Stephen Dicks							
Date: April 05, 2018							
	-						

04 - Shared Spaces					
04e - Closet Space					
04c Oloset opace					
Section 1- Space Required and Provided					
Section 1 Space Required und 1 forface					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	1.50	m²	16.1459	ft ²	
C - TOTAL NSM REQUIRED	1.50		16.1459		
D - NSM PROVIDED PER ROOM	3.80	m ²	40.9028	ft ²	
E - TOTAL NSM PROVIDED	3.80	m ²	40.9028	ft ²	
Section 2 - Room Use and Functional Relationship	os				
A - SPACE PURPOSE/ACTIVITY TYPE	CLOSET/S	ERVICE			
B - OCCUPANT LOAD	0				
C - SPACE PROXIMITY REQ'S	keep toward	s the bac	k of buildir	ng	
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A NEW FOLLOWENT					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN) D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
staff coats / boots					
Janitorial storage / hazardous cleaning materials					
Approved By: Stephen Dicks					
Date: April 05, 2018					

04 - Shared Spaces					
04f - Telecommunications					
T. Totostimanioaciono					
Section 1- Space Required and Provided					
Occion 1 Opace Required and Frovided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	16.50	m ²	177.604	f†2	
C - TOTAL NSM REQUIRED	16.50		177.604		
D - NSM PROVIDED PER ROOM	10.50		113.021		
E - TOTAL NSM PROVIDED	10.50		113.021		
Section 2 - Room Use and Functional Relationsh	ips				
A - SPACE PURPOSE/ACTIVITY TYPE	IT / TELECO	MM			
B - OCCUPANT LOAD	0				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
file storage					
IT department can provide details					
AC requirement					
High density file storage					
PCA to confirm equipment requirements					
Assessed Dr. Charles D'. I					
Approved By: Stephen Dicks					
Date: April 05, 2018					
	+				
	+				

04 - Shared Spaces					
04g - Central Equip. RM					
04g - Central Equip. KW					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	90.00	m ²	968.751	ft ²	
C - TOTAL NSM REQUIRED	90.00		968.751		
D - NSM PROVIDED PER ROOM	9.10		97.9515		
E - TOTAL NSM PROVIDED	9.10		97.9515		
Section 2 - Room Use and Functional Relationshi	ps				
A - SPACE PURPOSE/ACTIVITY TYPE	EQUIP./ST	ORAGE / S	SERVICE		
B - OCCUPANT LOAD	0				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A NEW FOLUDATION					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)	ala ali ii a m				
C - NEW FURNITURE (FIXED/BUILT-IN) D - ACCESSORIES (WHITEBOARDS, ETC.)	shelving				
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Approved By: Stephen Dicks					
Date: April 05, 2018					

04 - Shared Spaces					
04i - Staff Washrooms / Showers					
OHI Otali Wasiiioonis / Ollowers					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	50.00	m ²	538.195	f†2	
C - TOTAL NSM REQUIRED	50.00		538.195		
D - NSM PROVIDED PER ROOM	12.70		136.702		
E - TOTAL NSM PROVIDED	12.70		136.702		
Section 2 - Room Use and Functional Relationsh	nips				
A - SPACE PURPOSE/ACTIVITY TYPE	Washroom /	Showers			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Continu 4 Notes					
Section 4 - Notes					
Include showers Universal design					
Offiversal design					
Approved By: Stephen Dicks					
Date: April 05, 2018					
1					

05 - Site Specific Requirements	Ī				
05a - Resource Conservation Lab					
Tresource conservation East					
Section 1- Space Required and Provided					
Section 1 Space Required and 1 forface					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	46.00		495.139	ft2	
C - TOTAL NSM REQUIRED	46.00		495.139		
D - NSM PROVIDED PER ROOM	46.00		495.139		
E - TOTAL NSM PROVIDED	46.00		495.139		
Section 2 - Room Use and Functional Relationshi	DS				
A - SPACE PURPOSE/ACTIVITY TYPE	LABORATO	RY			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S	Res Con Tea	am			
D - VISUAL PROXIMITY REQ'S	part of the o	discovery	center expe	rience	
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Refer to bel	OW			
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Freezer, fridege, fume hood, meeting table,					
task lighting, counter height worksurface, eyewash	1,				
safety shower, hazmat cabinet, floor drains,					
wild life samples	_				
PCA to confirm additional requirements	_				
15 01 1 21					
Approved By: Stephen Dicks					
Date: April 05, 2018					
	1				
	1				

05 - Site Specific Requirements					
05b - Public Washrooms					
T ublic Washiloonis					
Section 1- Space Required and Provided					
Section 1 Space Required and Florided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	40.00	m²	430.556	ft ²	
C - TOTAL NSM REQUIRED	40.00		430.556		
D - NSM PROVIDED PER ROOM	41.00		441.32		
E - TOTAL NSM PROVIDED	41.00	m ²	441.32	ft ²	
Section 2 - Room Use and Functional Relationsh	ips				
A - SPACE PURPOSE/ACTIVITY TYPE	PUBLIC WA	SHROOM			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S	_				
0 11 0 5 1 1 15 11					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)	+				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
universal washrooms					
acess from inside / access from outside					
Could be a separate pavilion outside					
Approved Dy. Stephen Diele					
Approved By: Stephen Dicks Date: April 05, 2018					
Date: April 03, 2010					
					I

OF Discovery Contro			1		
06 - Discovery Centre					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	200.00		2152.78		
C - TOTAL NSM REQUIRED	200.00		2152.78		
D - NSM PROVIDED PER ROOM	200.60		2159.24		
E - TOTAL NSM PROVIDED	200.60	m ²	2159.24	ft ²	
Section 2 - Room Use and Functional Relationship	S				
A - SPACE PURPOSE/ACTIVITY TYPE	EXHIBIT SF	ACE			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
VR headsets					
5 year max interpretive change over					
projection screen					
flewible seating					
overall flexibility					
Gift Shop					
Approved By: Stephen Dicks					
Date: April 05, 2018					

07 - Utility Building	1				
07 - Othity Building					
Section 1- Space Required and Provided					
A AUMADED OF BOOMS	1.00				
A - NUMBER OF ROOMS	1.00	_			
B - NSM REQUIRED PER ROOM	100.00		1076.39		
C - TOTAL NSM REQUIRED	100.00		1076.39		
D - NSM PROVIDED PER ROOM	100.80		1085		
E - TOTAL NSM PROVIDED	100.80	m²	1085	ft²	
Section 2 - Room Use and Functional Relationshi	ps				
A ODAGE DUDDOGE/ACTIVITYTYDE			NOTION		
A - SPACE PURPOSE/ACTIVITY TYPE	UTILITY / M	IULII-FU	NCTION		
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A NEW FOURDIENT					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S	_				
G - PHONE					
H - DATA					
I - HVAC	_				
J - PLUMBING	_				
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS	_				
N - SPECIAL SYSTEMS					
0 1 4 11 1					
Section 4 - Notes					
res con operaitonal building	_				
ovrhead doors on both sides (16')	_				
drain / plumbing / oil water separator	_				
fuel storage cages / staff lockers					
boat washing station (invasive species)	+				
Additional outdoor secure compound	+				
Approved By: Stephen Dicks					
Date: April 05, 2018					
	_				
	_				

08 - Warden	1				<u> </u>
08a - Warden office					
OGA - WAIGEN OFFICE	+				
Section 1- Space Required and Provided					
Section 1- Space Required and 1 Torrided					
A - NUMBER OF ROOMS	3.00				
B - NSM REQUIRED PER ROOM	4.50		48.4376	ft ²	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	18.20		195.903		
E - TOTAL NSM PROVIDED	18.20		587.709		
Section 2 - Room Use and Functional Relationshi	ps				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation	S			
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	LE WING OF	F ADMIN.	BUILDING	ì	
D - VISUAL PROXIMITY REQ'S					
Carling 2 Family 1 1 Family					
Section 3 - Equipment and Furniture					
A NEW FOLIDMENT	Workstation	C*			
A - NEW EQUIPMENT B - NEW FURNITURE (MOVEABLE)	task chair	S"			
C - NEW FURNITURE (FIXED/BUILT-IN)	rask citali				
D - ACCESSORIES (WHITEBOARDS, ETC.)	+				
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Secure cabi	net			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
WP 2.0					
*Workstations as per PCA standard					
Provide separate entrance to LE wing					
	+				
Approved By: Stephen Dicks					
Date: April 05, 2018					
Date: April 00, 2010	1				
	†				
	1				

08 - Warden					
08b - Warden flex office (REMOVED)					
OOD - Warden hex office (IVEINOVED)					
Section 1- Space Required and Provided					
Section 1- Space Required and Frontied					
A - NUMBER OF ROOMS					
B - NSM REQUIRED PER ROOM		m ²	0	ft ²	
C - TOTAL NSM REQUIRED		m ²		ft ²	
D - NSM PROVIDED PER ROOM		m ²		ft ²	
E - TOTAL NSM PROVIDED		m ²		ft ²	
L TOTAL NOW! NOVIDED	1			1.	
Section 2 - Room Use and Functional Relationshi	ns				
Section 2 - Room OSC and I unctional relationship	<u> </u>				
A - SPACE PURPOSE/ACTIVITY TYPE	Worstation				
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	LE WING O	F ADMIN	BUII DING	<u>. </u>	
D - VISUAL PROXIMITY REQ'S		, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	551251110		
D VIGORET ROXIMIT I REQU					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Secure Cab	inet			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
*Workstation as per PCA Standard					
WP 2.0					
Approved By: Stephen Dicks					
Date: April 05, 2018					
	1				
	1				

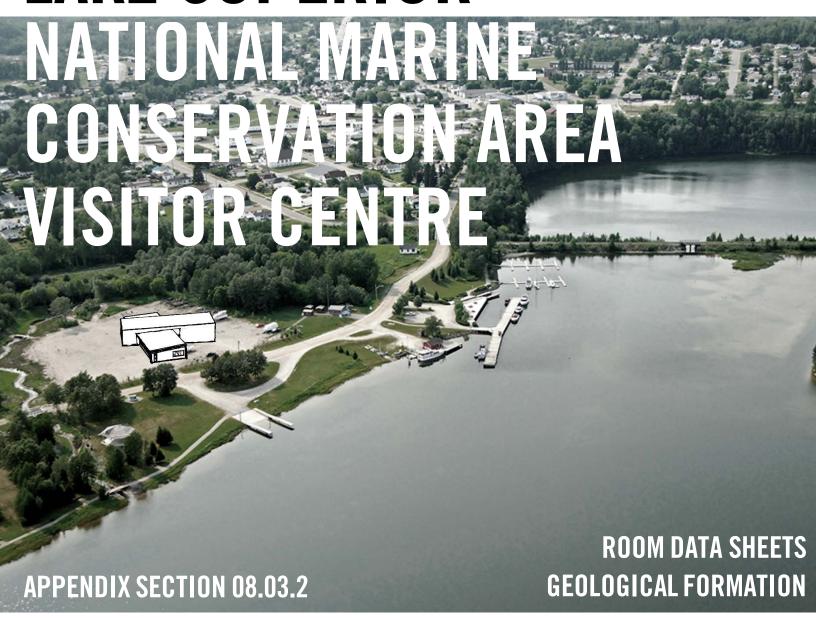
08 - Warden					
08c - Warden Supervisor (REMOVED)					
Ooc - Warden Supervisor (IVEINOVED)					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS					
B - NSM REQUIRED PER ROOM		m ²	0	ft ²	
C - TOTAL NSM REQUIRED		m ²		ft ²	
D - NSM PROVIDED PER ROOM		m ²		ft ²	
E - TOTAL NSM PROVIDED		m ²		ft ²	
L TOTAL NOW! NOVIDED		111		1.	
Section 2 - Room Use and Functional Relationship	<u> </u>				
Section 2 - Room Ose and I unctional Relationship					
A - SPACE PURPOSE/ACTIVITY TYPE	Office				
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	LE WING O	F ADMIN	BUII DING		
D - VISUAL PROXIMITY REQ'S	7711140	, , DIVIIIN			
b vioenter nomini i nego					
Section 3 - Equipment and Furniture					
Cotton o Equipment and Farment					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Door Lockse	et			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
*Workstation as per PCA standard					
WP 2.0					
Approved By: Stephen Dicks					
Date: April 05, 2018					

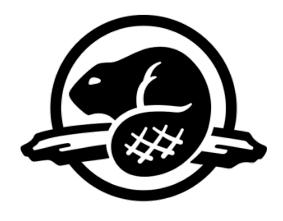
08 - Warden					
08d - LE Equipment Room					
Section 1 Space Deguired and Drawided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	10.00	m ²	107.639	ft2	
C - TOTAL NSM REQUIRED	10.00		107.639		
D - NSM PROVIDED PER ROOM	8.60		92.5695		
E - TOTAL NSM PROVIDED	8.60		92.5695		
Section 2 - Room Use and Functional Relationship)S				
A - SPACE PURPOSE/ACTIVITY TYPE	Storage				
B - OCCUPANT LOAD	0				
C - SPACE PROXIMITY REQ'S	LE WING OF	ADMIN.	BUILDING	<u> </u>	
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	PCA TO CO	VFIRM			
B - NEW FURNITURE (MOVEABLE)	NO				
C - NEW FURNITURE (FIXED/BUILT-IN)	PCA TO CON		E. CABINE	TS,SHEL\	/ING)
D - ACCESSORIES (WHITEBOARDS, ETC.)	PCA TO CON	NFIRM			
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	SWIPE CAR	D ACCES	C/CECLIDE	CADINETO	<u> </u>
M - SPECIAL REQ'S/CONSIDERATIONS	SWIFE CAN	DACCES	3/3ECURE	CADINEL)
N - SPECIAL SYSTEMS					
TO LOIAL STOTEINIS					
Section 4 - Notes					
Approved By: Stephen Dicks					
Date: April 05, 2018					

08 - Warden					
08e - LE Exhibit Room (REMOVED)					
OGE - LE EXHIBIT ROOM (REMOVED)					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS					
B - NSM REQUIRED PER ROOM		m²	0	ft ²	
C - TOTAL NSM REQUIRED		m ²		ft ²	
D - NSM PROVIDED PER ROOM		m ²		ft ²	
E - TOTAL NSM PROVIDED		m ²		ft ²	
Section 2 - Room Use and Functional Relationship	os				
A - SPACE PURPOSE/ACTIVITY TYPE	Storage				
B - OCCUPANT LOAD	0.00				
C - SPACE PROXIMITY REQ'S	LE WING OF	- ADMIN.	BUILDING	ີ່	
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	10cu ft free	zer			
B - NEW FURNITURE (MOVEABLE)	504 70 00	151514 (0)		0.4.5.1.1.5.7.0	,
C - NEW FURNITURE (FIXED/BUILT-IN)	PCA TO CON	VEIRM (S	HELVING,	CABINETS	5)
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE H - DATA					
I - HVAC					
J - PLUMBING	FLOOR DRA	IN			
K - SPECIAL FINISHES	I LOOK DIVA	ATTN			
L - SAFETY/SECURITY REQ'S	SWIPE CAR	D ACCES	S/SECLIR	E SPACE	
M - SPECIAL REQ'S/CONSIDERATIONS	NO WINDOV		37 SLOOK	LOIAGE	
N - SPECIAL SYSTEMS	ING WINDON				
THE OF ESTAL STOTEMS					
Section 4 - Notes					
Approved By: Stephen Dicks					
Date: April 05, 2018					

1.00				
10.00	m²	107.639	ft ²	
10.00	m ²	107.639	ft ²	
9.30	m ²	100.104	ft ²	
nips				
			<u> </u>	
LE WING O	FADMIN. I	ROILDING	а 	
TARIF + 4	CHAIRS			
INDELT				
1 line				
1 line				
			000R	
VISION PAI	NEL IN DO	OR		
	10.00 10.00 9.30 9.30 9.30 Storage 0.00 LE WING O	Storage 0.00 LE WING OF ADMIN. TABLE + 4 CHAIRS 1 line 1 line NO LOCKING HARDW	10.00 m ² 107.639 10.00 m ² 107.639 9.30 m ² 100.104 9.30 m ² 100.104 Storage 0.00 LE WING OF ADMIN. BUILDING TABLE + 4 CHAIRS 1 line 1 line	10.00 m ² 107.639 ft ² 10.00 m ² 107.639 ft ² 9.30 m ² 100.104 ft ² 9.30 m ² 100.104 ft ² 9.30 m ² 100.104 ft ² Storage 0.00 LE WING OF ADMIN. BUILDING TABLE + 4 CHAIRS 1 line 1 line 1 line NO LOCKING HARDWARE ON DOOR

LAKE SUPERIOR





*

Parks Canada Parcs Canada PERKINS+WILL



originstudios

01 - General Office					
01a - Site Manager					
Castian 1 Chara Danvivad and Dyavided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	10.00	m2	107.639	f+2	
C - TOTAL NSM REQUIRED	10.00		107.639		
D - NSM PROVIDED PER ROOM	11.90		128.09		
E - TOTAL NSM PROVIDED	11.90		128.09		
E - TOTAL NOW! TROVIDED	11.50	111	120.03	11	
Section 2 - Room Use and Functional Relationship	ve.				
Section 2 - Room Ose and I unctional Relationship					
A - SPACE PURPOSE/ACTIVITY TYPE	OFFICE				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Main office	SDACE			
D - VISUAL PROXIMITY REQ'S	N/A	Space			
5 HOOKET ROAIMITT REGO	. 1// 1				
Section 3 - Equipment and Furniture					
Cotton C Equipment and Farment					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair /		table / 2 ch	nairs	
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)	1 Whiteboa	rd			
E - LIGHTING		-			
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	2 lines				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Door lockset				
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS	Large, lockii	ng cabine	t for docum	nent securi	ty
Section 4 - Notes					
Design as typical office (WP2.0)					
*Workstations as per PCA standard provided					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01b - Assets Function (EG04/06)					
Castian 1 Conser Demoined and Desoided	_				
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
	1.00	2	40.4076	tro.	
B - NSM REQUIRED PER ROOM	4.50 4.50		48.4376 48.4376		
C - TOTAL NSM REQUIRED D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	4.50		48.4376		
L - TOTAL NOW FROM TROVIDED	4.50	111-	40.4370	11-	
Section 2 - Room Use and Functional Relationship					
Section 2 - Room Ose and Functional Relationship)5				
A - SPACE PURPOSE/ACTIVITY TYPE	WORKSTAT	ION			
B - OCCUPANT LOAD	1.00	1011			
C - SPACE PROXIMITY REQ'S	Main office	L Snace			
D - VISUAL PROXIMITY REQ'S	N/A	Space			
D VIGORET ROMINITT REGO	14/74				
Section 3 - Equipment and Furniture					
Cotton C Equipmont and Farment					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Locking Cab	inet			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Design as typical office (WP2.0)					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01c - Finance					
O1C - Finance					
Castian 1 Chara Danvivad and Dyavided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	4.50	m²	48.4376	f+2	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	4.50		48.4376		
TO THE HOME HOUSES			1011070		
Section 2 - Room Use and Functional Relationship	S				
A - SPACE PURPOSE/ACTIVITY TYPE	OFFICE				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Main Office	Space			
D - VISUAL PROXIMITY REQ'S	N/A				
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA I - HVAC	1 line				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Locking Cab	\int			
M - SPECIAL REQ'S/CONSIDERATIONS	LOCKING CAL	ווונ			
N - SPECIAL SYSTEMS					
TO LOIAL STOTEINIS					
Section 4 - Notes					
Design as typical office (WP2.0)					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01d - 2x Overflow FTE					
Section 1- Space Required and Provided					
A NUMBER OF BOOMS	0.00				
A - NUMBER OF ROOMS	2.00	2	40.4076	610	
B - NSM REQUIRED PER ROOM	4.50		48.4376		
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM E - TOTAL NSM PROVIDED	4.50 9.00		48.4376 96.8751		
E - TOTAL NSW PROVIDED	9.00	1111-	90.0731	11-	
Castian 2 Deam Has and Functional Delationship					
Section 2 - Room Use and Functional Relationship	os I				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Main office	Snace			
D - VISUAL PROXIMITY REQ'S	N/A	Space			
D VIOUNET NOMINITE INLEGO	1 1/ / 1				
Section 3 - Equipment and Furniture					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)	rack chan				
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Design as typical office (WP2.0)					
*Workstation as per PCA standard					
Approved By: Steven Dicks					
Date: April 05, 2018					

01 - General Office					
01e - 2x Flex Overflow FTE					
Section 1- Space Required and Provided					
A NUMBER OF BOOMS	0.00				
A - NUMBER OF ROOMS	2.00		00 0017	610	
B - NSM REQUIRED PER ROOM	3.00		32.2917		
C - TOTAL NSM REQUIRED	3.00		32.2917		
D - NSM PROVIDED PER ROOM	3.00		32.2917 64.5834		
E - TOTAL NSM PROVIDED	6.00	m²	64.5834	IL ²	
Castian 2 Dannellas and Franctional Deletionship					
Section 2 - Room Use and Functional Relationship	os I				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Main office	enace			
D - VISUAL PROXIMITY REQ'S	N/A	space			
D - VISUALT NOAHWITT NEWS	11/7				
Section 3 - Equipment and Furniture					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)	rasit chan				
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Cubicles/Workstations in main office area					
Locate workstations across main wall					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01e - 2x Overflow Workstations					
(tied in to discovery centre)					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	2.00				
		2	40.4076	tro.	
B - NSM REQUIRED PER ROOM	4.50 4.50		48.4376 48.4376		
C - TOTAL NSM REQUIRED D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	9.00		96.8751		
L - TOTAL NOW FROM TROVIDED	9.00	111-	90.0751	11-	
Section 2 - Room Use and Functional Relationship					
Section 2 - Room Ose and Functional Relationship)5				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Discovery Ce	ntre			
D - VISUAL PROXIMITY REQ'S	N/A	5,11,10			
D TOOKET ROAIMITTINEQU	1 1// 1				
Section 3 - Equipment and Furniture					
Cotton o Equipment and Farment					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Tied in to discovery centre					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01g - Reception					
Oig - Neception					
Section 1- Space Required and Provided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	10.00	m ²	107.639	f+2	
C - TOTAL NSM REQUIRED	10.00		107.639		
D - NSM PROVIDED PER ROOM	11.30		121.632		
E - TOTAL NSM PROVIDED	11.30		121.632		
Section 2 - Room Use and Functional Relationship	os				
A - SPACE PURPOSE/ACTIVITY TYPE	RECEPTION	V/WELCO	OME		
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Lobby of Dis	scovery Ce	entre		
D - VISUAL PROXIMITY REQ'S	Lobby of Dis				
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	printer / poi	nt of sale	machine*		
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)	Fixed desk /	integrate	d with exhi	bit	
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING	Task lightin	g			
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES	La alaba ar aluare				
L - SAFETY/SECURITY REQ'S	locking drav		(intogratae	l with avhil	\i+*
M - SPECIAL REQ'S/CONSIDERATIONS	workstation	/ IIIIIIWOFF	integrated	ı willi exilil)IL"
N - SPECIAL SYSTEMS					
Section 4 - Notes					
*PCA to confirm equip. requirements					
**Because this program requirement serves the					
public, it shall be thematically integrated with the					
exhibit space of the Discovery Centre					
Commit space of the Discovery Cellife					
Approved By: Stephen Dicks					
Date: April 05, 2018					

01 - General Office					
01h - Graphics Station					
Section 1- Space Required and Provided					
A NUMBER OF ROOMS	1.00				
A - NUMBER OF ROOMS	1.00	2	16 1450	(1)	
B - NSM REQUIRED PER ROOM	1.50		16.1459		
C - TOTAL NSM REQUIRED	1.50 1.50		16.1459 16.1459		
D - NSM PROVIDED PER ROOM E - TOTAL NSM PROVIDED	1.50		16.1459		
E - TOTAL NSW PROVIDED	1.50	1112	16.1439	11-	
Castian 2 Dannellas and Franctional Deletionakin					
Section 2 - Room Use and Functional Relationship	DS .				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation	*			
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Locate in ge	noral offi	CO STOS		
D - VISUAL PROXIMITY REQ'S	Locate III ge	niciai UIII	ce ai ea		
D - VIOUALI NOXIWITTI NEQ 3					
Section 3 - Equipment and Furniture					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	/ desk*			
B - NEW FURNITURE (MOVEABLE)	Task Chair	/ ucsk			
C - NEW FURNITURE (FIXED/BUILT-IN)	rusit oriun				
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA	1 line				
I - HVAC	1 11110				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS	Existing Ma	c Comput	er		
Section 4 - Notes					
*Workstation as per PCA standard					
PCA to confirm additional requirements					
Approved By: Stephen Dicks					
Date: April 05, 2018					

02 - Resource Conservation					
02a - Resource Conservation Manager					
The state of the s					
Section 1- Space Required and Provided					
Coction 1 Opace Required and Frontaca					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	4.50	m²	48.4376	ft ²	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	4.50		48.4376		
Section 2 - Room Use and Functional Relations	hips				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Access to st	aff / lab /	′ storage/uti	lity buildir	g
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S	1 11				
G - PHONE	1 line				
H - DATA	1 line		<u> </u>		
I - HVAC J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Locking cab	inot			
M - SPECIAL REQ'S/CONSIDERATIONS	LOCKING CAD	Пес			
N - SPECIAL SYSTEMS					
IN - 31 ECIAL STOTEWIS					
Section 4 - Notes					
*Workstation as per PCA standard					
Workstation as per riork standard					
			†		
			1		
Approved By: Stephen Dicks					
Date: April 05, 2018			1		
,					
	•				

02 - Resource Conservation					
02b - Geomatics Officer					
02b - Geomatics Officer					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	4.50	m ²	48.4376	ft ²	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	4.50		48.4376		
Section 2 - Room Use and Functional Relationship)S				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Res Con tea	m / lab			
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A NEW FOURDAMENT					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line 1 line				
I - HVAC	1 IIIIe				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS	Existing Eps	son plotte	r		
		70 p.10110			
Section 4 - Notes					
*Workstation as per PCA standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					

02 - Resource Conservation					
02c - Resource Conservation FTE					
Continual Consess Described and Drawided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	4.50		48.4376	f+2	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	4.50		48.4376		
L TOTAL NOW! NOVIDED	7.50	111	40.4370	11	
Section 2 - Room Use and Functional Relationsh	ins				
Section 2 - Room Ose and Functional Relationsh	lps				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Res Con tea	m / lab			
D - VISUAL PROXIMITY REQ'S	1113 2311 234				
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	Task Chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Locking cab	inet			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
*Workstation as per PCA standard					
	1				
	+				
Approved By, Stephen Dieke	+				
Approved By: Stephen Dicks Date: April 05, 2018	+				
Date. April 03, 2016	+				
	1				
	1				
	+				
]			

02 - Resource Conservation					
02d - Resource Conservation Flex FTE					
02u - Resource Conservation Flex FTE					
Section 1- Space Required and Provided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	2.00				
B - NSM REQUIRED PER ROOM	3.00	m ²	32.2917	f+2	
C - TOTAL NSM REQUIRED	3.00		32.2917		
D - NSM PROVIDED PER ROOM	3.00		32.2917		
E - TOTAL NSM PROVIDED	6.00		64.5834		
L TOTAL HOME HOUSE	0.00	•••	0 11000 1		
Section 2 - Room Use and Functional Relationship	os				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation				
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Res Con Tea	im			
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 Line				
H - DATA	1 Line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
IN - SE ECIAL STSTEMS					
Section 4 - Notes					
*Workstation as per PCA standard					
Workstation as per row standard					
			1		
			<u> </u>		
Approved By: Stephen Dicks					
Date: April 05, 2018					

02 - Resource Conservation					
02e - Quiet Room					
and thom					
Section 1- Space Required and Provided					
occion - opaconos anos anos i consce					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	5.00	m²	53.8195	ft ²	
C - TOTAL NSM REQUIRED	5.00		53.8195		
D - NSM PROVIDED PER ROOM	6.00	m ²	64.5834	ft ²	
E - TOTAL NSM PROVIDED	6.00	m ²	64.5834	ft ²	
Section 2 - Room Use and Functional Relationsh	nips				
A - SPACE PURPOSE/ACTIVITY TYPE	QUIET ROO	M			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S	Main office				
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)	Table w/ 2 c	hairs (PC	A to confir	m size)	
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Continu 4 Notes					
Section 4 - Notes					
Approved By: Stephen Dicks					
Date: April 05, 2018					
5410. April 00, 2010					
<u>L</u>	I		L		

03 - Visitor Experience					
03a - Visitor Experience FTE					
Visitor Experience FTE					
Section 1- Space Required and Provided					
Section 1- Space Required and 1 Tovided					
A - NUMBER OF ROOMS	6.00		1		
B - NSM REQUIRED PER ROOM	4.50	m ²	48.4376	f†2	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	4.50		48.4376		
E - TOTAL NSM PROVIDED	27.00		290.625		
Section 2 - Room Use and Functional Relations	hips				
A - SPACE PURPOSE/ACTIVITY TYPE	OFFICE				
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	Visitor Expe	rience Te	eam		
D - VISUAL PROXIMITY REQ'S	<u> </u>				
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	*Worksation				
B - NEW FURNITURE (MOVEABLE)	Task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES	Danilada	_			
L - SAFETY/SECURITY REQ'S M - SPECIAL REQ'S/CONSIDERATIONS	Door lockset				
N - SPECIAL REQ 5/CONSIDERATIONS N - SPECIAL SYSTEMS					
IN - SPECIAL STSTEIVIS			+		
Section 4 - Notes					
VE manager					
interpretive coordinators					
visitor experience product development			+		
*Workstation as per PCA standard					
Translation do par i art standard					
Approved By: Stephen Dicks					
Date: April 05, 2018					
<u> </u>			-		

03 - Visitor Experience					
03b - Visitor Experience Flex FTE					
OOD - VISITOL EVABLICATION LEY LIE					
Section 1- Space Required and Provided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	4.00				
B - NSM REQUIRED PER ROOM	3.00	m ²	32.2917	f+2	
C - TOTAL NSM REQUIRED	3.00		32.2917		
D - NSM PROVIDED PER ROOM	3.00		32.2917		
E - TOTAL NSM PROVIDED	12.00		129.167		
L TOTAL NOM PROVIDED	12.00	111	123.107	10	
Section 2 - Room Use and Functional Relationship	ns .				
Occion 2 Room Occ and I another Relationship					
A - SPACE PURPOSE/ACTIVITY TYPE	Flex Space	Not offic	e		
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Visitor Expe	rience Tea	am		
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
flex space, not office					
*Workstation as per PCA standard					
A ID OL I D'					
Approved By: Stephen Dicks					
Date: April 05, 2018					

03 - Visitor Experience					
03c - Visitor Experience Free Address FTE					
Visitor Experience Free Address Fre					
Section 1- Space Required and Provided					
Section 1- Space Required and 1 Tovided					
A - NUMBER OF ROOMS	3.00				
B - NSM REQUIRED PER ROOM	1.50		16.1459	f†2	
C - TOTAL NSM REQUIRED	1.50		16.1459		
D - NSM PROVIDED PER ROOM	1.50		16.1459		
E - TOTAL NSM PROVIDED	4.50		48.4376		
Section 2 - Room Use and Functional Relationsh	ips				
	Ί				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation	/ Free Ad	dress		
B - OCCUPANT LOAD	1.00				
C - SPACE PROXIMITY REQ'S	Visitor expe	rience tea	im		
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
IN - SPECIAL STSTEMS					
Section 4 - Notes					
desks, not office					
*Workstations as per PCA standard					
Workstations as per 1 on standard	+				
Approved By: Stephen Dicks					
Date: April 05, 2018					
-	•	ē			

03 - Visitor Experience					
03d - Quiet Room / Meeting Room					
garat reality meeting reality					
Section 1- Space Required and Provided					
Cotton 1 Opace Required and 1 Torraca					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	5.00	m ²	53.8195	ft ²	
C - TOTAL NSM REQUIRED	5.00		53.8195		
D - NSM PROVIDED PER ROOM	6.00		64.5834		
E - TOTAL NSM PROVIDED	6.00	m²	64.5834	ft ²	
Section 2 - Room Use and Functional Relationsh	ips				
A - SPACE PURPOSE/ACTIVITY TYPE	Meeting Roo	om			
B - OCCUPANT LOAD	2-4				
C - SPACE PROXIMITY REQ'S	Visitor Expe	rience Te	am		
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)	Table / 4 Ch	airs			
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)	1 Whiteboa	<u>rd</u>			
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS N - SPECIAL SYSTEMS					
IN - SPECIAL STSTEMS					
Section 4 - Notes					
*PCA to confirm additional equipment requirement	nte				
1 CA to commin additional equipment requireme	11115				
	+				
	+				
Approved By: Stephen Dicks					
Date: April 05, 2018					

04 - Shared Spaces					
04a - Shared Equip. Rooms (REMOVED)					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	15.00	m²	161.459	ft ²	
C - TOTAL NSM REQUIRED	15.00		161.459	ft ²	
D - NSM PROVIDED PER ROOM	17.00		182.986		
E - TOTAL NSM PROVIDED	17.00	m ²	182.986	ft ²	
Section 2 - Room Use and Functional Relationsh	ps				
A - SPACE PURPOSE/ACTIVITY TYPE	EQUIPMEN	IT ROOM /	STORAGE		
B - OCCUPANT LOAD	0.00				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Carling 2 Facility 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					
Section 3 - Equipment and Furniture					
A NEW COLUDMENT		 - - - - - - -			
A - NEW EQUIPMENT B - NEW FURNITURE (MOVEABLE)	printer/copi	er/snread	er I		
C - NEW FURNITURE (FIXED/BUILT-IN)	shelving, ca	hinote we	rk curfoco		
D - ACCESSORIES (WHITEBOARDS, ETC.)	Sileivilig, ca	linets, wo	I Surrace		
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC	15				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	locking key	cabinet			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
IT room, supply room, etc					
PCA to confirm office equipment requirments / sp	ecifications				
12 0 1 1	1				
Approved By: Stephen Dicks	1				
Date: April 05, 2018	1				
		1			

04 - Shared Spaces					
04b - Large Conference Room					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	30.00	m²	322.917	ft ²	
C - TOTAL NSM REQUIRED	30.00		322.917		
D - NSM PROVIDED PER ROOM	24.30	m²	261.563	ft ²	
E - TOTAL NSM PROVIDED	24.30	m ²	261.563	ft ²	
Section 2 - Room Use and Functional Relations	hips				
A - SPACE PURPOSE/ACTIVITY TYPE	CONFEREN	ICE ROO	M		
B - OCCUPANT LOAD	12-15				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Video Confe	rence Sy	ystem · · ·		
B - NEW FURNITURE (MOVEABLE)	Conference		<u>hairs</u>		
C - NEW FURNITURE (FIXED/BUILT-IN)	PCA to conf				
D - ACCESSORIES (WHITEBOARDS, ETC.)	PCA to conf	irm			
E - LIGHTING F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	2 lines				
I - HVAC	Z IIIIes				
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS	Rough-in fo	r IT infra	astructure		
Section 4 - Notes					
Virtual conference room / video calls					
AV consultant					
Rough-ins for AV / IT					
Approved By: Stephen Dicks					
Date: April 05, 2018					

04 - Shared Spaces					
04c - Kitchen					
OTC - MICHEII					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	25.00	m ²	269.098	ft²	
C - TOTAL NSM REQUIRED	25.00		269.098		
D - NSM PROVIDED PER ROOM	22.10		237.882		
E - TOTAL NSM PROVIDED	22.10		237.882		
Section 2 - Room Use and Functional Relationship	S				
A - SPACE PURPOSE/ACTIVITY TYPE	KITCHEN				
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A NEW FOURDMENT					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS				*	
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Kitchen design and quipment as per Workplace 2.0) standards				
Approved By: Stephen Dicks					
Date: April 05, 2018					

04 - Shared Spaces					
04d - Collaborative Work Space					
o ra comazorativo vietik opace					
Section 1- Space Required and Provided					
occion - opaco noquilos ana i romacs					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	16.00	m²	172.222	ft ²	
C - TOTAL NSM REQUIRED	16.00	m²	172.222	ft ²	
D - NSM PROVIDED PER ROOM	14.40		155		
E - TOTAL NSM PROVIDED	14.40	m ²	155	ft ²	
Section 2 - Room Use and Functional Relations	hips				
A - SPACE PURPOSE/ACTIVITY TYPE	WORKSPAC	<u> </u>			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S	Main office s	space			
D - VISUAL PROXIMITY REQ'S					
Coation 2 Equipment and Equitions					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)	2 tables		+		
C - NEW FURNITURE (FIXED/BUILT-IN)	Z tabics				
D - ACCESSORIES (WHITEBOARDS, ETC.)	1 Whiteboar	rd	+		
E - LIGHTING	1 Willieboar	<u>u</u>	1		
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
flexible space / maleable					
informal quick meeting space					
	-		+		
			+		
Approved By: Stephen Dicks					
Date: April 05, 2018					
Dute. April 03, 2010					

04 - Shared Spaces					
04e - Closet Space					
04c Oloset opace					
Section 1- Space Required and Provided					
Section 1 Space Required und 1 forface					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	1.50	m²	16.1459	ft ²	
C - TOTAL NSM REQUIRED	1.50		16.1459		
D - NSM PROVIDED PER ROOM	3.80		40.9028	ft ²	
E - TOTAL NSM PROVIDED	3.80	m ²	40.9028	ft ²	
Section 2 - Room Use and Functional Relationship	os				
A - SPACE PURPOSE/ACTIVITY TYPE	CLOSET/S	ERVICE			
B - OCCUPANT LOAD	0				
C - SPACE PROXIMITY REQ'S	keep toward	s the bac	k of buildir	ng	
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A NEW COLUDATION					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN) D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
staff coats / boots					
Janitorial storage / hazardous cleaning materials					
Approved By: Stephen Dicks					
Date: April 05, 2018					
	ļ				

04 - Shared Spaces					
04f - Telecommunications					
Telegoninianications					
Section 1- Space Required and Provided					
ococion i opubblica una i fortaca					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	16.50	m ²	177.604	ft ²	
C - TOTAL NSM REQUIRED	16.50		177.604		
D - NSM PROVIDED PER ROOM	10.00		107.639		
E - TOTAL NSM PROVIDED	10.00		107.639		
Section 2 - Room Use and Functional Relationship	S				
A - SPACE PURPOSE/ACTIVITY TYPE	IT / TELECO	MMC			
B - OCCUPANT LOAD	0				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
IN - SI ECIAL STOTEMS					
Section 4 - Notes					
file storage					
IT department can provide details					
AC requirement					
High density file storage					
PCA to confirm equipment requirements					
1					
Approved By: Stephen Dicks					
Date: April 05, 2018					
,					

04 - Shared Spaces					
04g - Central Equip. RM					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	90.00	m ²	968.751	ft ²	
C - TOTAL NSM REQUIRED	90.00		968.751		
D - NSM PROVIDED PER ROOM	0.00			ft ²	
E - TOTAL NSM PROVIDED	0.00	m ²	0	ft ²	
Section 2 - Room Use and Functional Relationshi	ps				
A - SPACE PURPOSE/ACTIVITY TYPE	EQUIP./ST	ORAGE / S	SERVICE		
B - OCCUPANT LOAD	0				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S	+				
Continue 2 Familiary at 15 17					
Section 3 - Equipment and Furniture					
A NEW COLUDATION	+				
A - NEW EQUIPMENT B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (MOVEABLE)	cholying				
D - ACCESSORIES (WHITEBOARDS, ETC.)	shelving				
E - LIGHTING					
F - POWER REQ'S	+				
G - PHONE	1				
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
NOTE: THIS SPACE HAS BEEN MERGED WITH T	ELECOM.RM				
Approved By: Stephen Dicks					
Date: April 05, 2018					
	1				
	1				
	1				

04 - Shared Spaces					
04i - Staff Washrooms / Showers					
o ii otali wasiioonis i oliowols					
Section 1- Space Required and Provided					
Section 1 Space Required and 1 Torraca					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	50.00	m ²	538.195	ft ²	
C - TOTAL NSM REQUIRED	50.00		538.195		
D - NSM PROVIDED PER ROOM	7.90		85.0348		
E - TOTAL NSM PROVIDED	7.90		85.0348		
Section 2 - Room Use and Functional Relationsh	ips				
A - SPACE PURPOSE/ACTIVITY TYPE	Washroom /	Showers			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Castion 4 Notes					
Section 4 - Notes					
Include showers					
Universal design					
	+				
Approved By: Stephen Dicks	+				
Date: April 05, 2018	+				
Date: April 03, 2010	+				
	+				
	+				
	+				
	+				

05 - Site Specific Requirements					
05a - Resource Conservation Lab					
OSA - Nesource conscivation Eab					
Section 1- Space Required and Provided					
Section 1 Space Required and 1 Torraca					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	46.00	m ²	495.139	ft ²	
C - TOTAL NSM REQUIRED	46.00		495.139		
D - NSM PROVIDED PER ROOM	44.00	m ²	473.612		
E - TOTAL NSM PROVIDED	44.00	m ²	473.612	ft ²	
Section 2 - Room Use and Functional Relationship	S				
A - SPACE PURPOSE/ACTIVITY TYPE	LABORATO	RY			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S	Res Con Tea				
D - VISUAL PROXIMITY REQ'S	part of the c	liscovery (center expe	rience	
Section 3 - Equipment and Furniture					
A NEW FOLLIDMENT	D () 1				
A - NEW EQUIPMENT	Refer to bel	OW			
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.) E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Freezer, fridege, fume hood, meeting table,					
task lighting, counter height worksurface, eyewash,	,				
safety shower, hazmat cabinet, floor drains,					
wild life samples					
PCA to confirm additional requirements					
Approved By: Stephen Dicks					
Date: April 05, 2018					

05 - Site Specific Requirements					
05b - Public Washrooms					
OSD - FUDIIC WASHIOUTIS					
Section 1 Space Required and Brayided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	40.00	m ²	430.556	f+2	
C - TOTAL NSM REQUIRED	40.00		430.556		
D - NSM PROVIDED PER ROOM	39.90		429.48		
E - TOTAL NSM PROVIDED	39.90		429.48		
L TOTAL NOW! NOVIDED	33.30	111	123.10	1.	
Section 2 - Room Use and Functional Relationsh	ins				
	195				
A - SPACE PURPOSE/ACTIVITY TYPE	PUBLIC WA	SHROOM			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Castion 4 Notes					
Section 4 - Notes					
universal washrooms acess from inside / access from outside	+				
Could be a separate pavilion outside					
Could be a separate paymon outside					
	+				
Approved By: Stephen Dicks					
Date: April 05, 2018					
Date: April 00, 2010					
	+				
	+				
				i e	

OF Discovery Contro					
06 - Discovery Centre					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	200.00		2152.78		
C - TOTAL NSM REQUIRED	200.00		2152.78		
D - NSM PROVIDED PER ROOM	203.50		2190.45		
E - TOTAL NSM PROVIDED	203.50	m ²	2190.45	ft ²	
Section 2 - Room Use and Functional Relationship	os				
A - SPACE PURPOSE/ACTIVITY TYPE	EXHIBIT SF	ACE			
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
VR headsets					
5 year max interpretive change over					
projection screen					
flewible seating					
overall flexibility					
Gift Shop	ļ				
Approved By: Stephen Dicks					
Date: April 05, 2018					

07 - Utility Building					
07 - Othity Building					
Section 1- Space Required and Provided					
A NUMBER OF BOOMS	1.00				
A - NUMBER OF ROOMS	1.00	_			
B - NSM REQUIRED PER ROOM	100.00		1076.39		
C - TOTAL NSM REQUIRED	100.00		1076.39		
D - NSM PROVIDED PER ROOM	100.00		1076.39		
E - TOTAL NSM PROVIDED	100.00	m ²	1076.39	tt ²	
Section 2 - Room Use and Functional Relationsh	lips				
A - SPACE PURPOSE/ACTIVITY TYPE	UTILITY/M	ULII-FU	NCHON		
B - OCCUPANT LOAD	TBC				
C - SPACE PROXIMITY REQ'S					
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)					
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE					
H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S					
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
res con operaitonal building					
ovrhead doors on both sides (16')					
drain / plumbing / oil water separator					
fuel storage cages / staff lockers					
boat washing station (invasive species)					
Additional outdoor secure compound					
Approved By: Stephen Dicks					
Date: April 05, 2018					
					_

08 - Warden					
08a - Warden office					
Value ii office					
Section 1- Space Required and Provided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	3.00				
B - NSM REQUIRED PER ROOM	4.50	m ²	48.4376	ft2	
C - TOTAL NSM REQUIRED	4.50		48.4376		
D - NSM PROVIDED PER ROOM	12.80		137.778		
E - TOTAL NSM PROVIDED	12.80		413.334		
			0.00 1	· ·	
Section 2 - Room Use and Functional Relationship	os				
A - SPACE PURPOSE/ACTIVITY TYPE	Workstation	S			
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	LE WING OF	ADMIN.	BUILDING	ì	
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	Workstation	s*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES	Cooura cab:	not			
L - SAFETY/SECURITY REQ'S M - SPECIAL REQ'S/CONSIDERATIONS	Secure cabi	iiet			
N - SPECIAL REQ 5/CONSIDERATIONS					
IN - SI LOIME SISILIVIS					
Section 4 - Notes					
WP 2.0					
*Workstations as per PCA standard					
Provide separate entrance to LE wing					
Total sopulate sittanes to LE Wing					
Approved By: Stephen Dicks					
Date: April 05, 2018					

08 - Warden					
08b - Warden flex office (REMOVED)					
Warden hex office (NEWOVED)					
Section 1- Space Required and Provided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS					
B - NSM REQUIRED PER ROOM		m ²	0	ft ²	
C - TOTAL NSM REQUIRED		m ²		ft ²	
D - NSM PROVIDED PER ROOM		m ²		ft ²	
E - TOTAL NSM PROVIDED		m ²		ft ²	
L TOTAL NOW! NOVIDED		111	Ŭ	1.	
Section 2 - Room Use and Functional Relationship	\ <u>\</u>				
Section 2 - Room Ose and I unctional Relationship	, <u>s</u> 				
A - SPACE PURPOSE/ACTIVITY TYPE	Worstation				
B - OCCUPANT LOAD	1				
C - SPACE PROXIMITY REQ'S	LE WING O	F ADMIN	BUII DING	<u> </u>	
D - VISUAL PROXIMITY REQ'S		, ADMIN.	DOILDING	<u>-</u> 	
b vioenti nemiii nego					
Section 3 - Equipment and Furniture					
Equipment and Farment					
A - NEW EQUIPMENT	Workstation	*			
B - NEW FURNITURE (MOVEABLE)	task chair				
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	Secure Cab	inet			
M - SPECIAL REQ'S/CONSIDERATIONS					
N - SPECIAL SYSTEMS					
Section 4 - Notes					
*Workstation as per PCA Standard					
WP 2.0					
Approved By: Stephen Dicks					
Date: April 05, 2018					

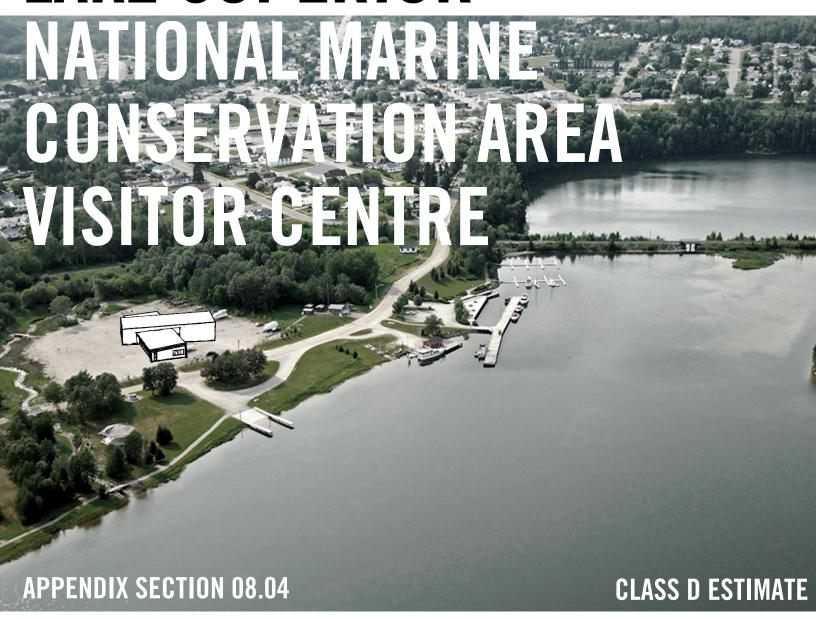
	m²	0	f+2	
	1111		1.	
ns				
<u> </u>				
Office				
1				
I F WING O	F ADMIN	BUII DING		
	. ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	20,201140		
Workstation	۱*			
	<u>. </u>			
1 line				
Door Lockse	et			
		_		
	Workstation task chair 1 line 1 line	Office 1 LE WING OF ADMIN Workstation* task chair 1 line	m² 0 m² 0 m² 0 m² 0 m² 0 m² 0 m² 1 Composite 1 LE WING OF ADMIN BUILDING Workstation* task chair 1 line 1 line	m ²

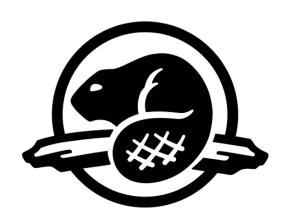
08 - Warden					
08d - LE Equipment Room					
Section 1 Space Deguired and Drawided					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	10.00	m ²	107.639	ft2	
C - TOTAL NSM REQUIRED	10.00		107.639		
D - NSM PROVIDED PER ROOM	9.90		106.563		
E - TOTAL NSM PROVIDED	9.90		106.563		
Section 2 - Room Use and Functional Relationship	S				
A - SPACE PURPOSE/ACTIVITY TYPE	Storage				
B - OCCUPANT LOAD	0				
C - SPACE PROXIMITY REQ'S	LE WING OF	ADMIN.	BUILDING	ì	
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	PCA TO CON	NFIRM			
B - NEW FURNITURE (MOVEABLE)	NO	IEIDAA (I	- 0.4 BINIE	TO 011511	(11.10)
C - NEW FURNITURE (FIXED/BUILT-IN)	PCA TO CON		E. CABINE	IS, SHELV	/ING)
D - ACCESSORIES (WHITEBOARDS, ETC.)	PCA TO CO	NFIRM			
E - LIGHTING					
F - POWER REQ'S					
G - PHONE H - DATA					
I - HVAC					
J - PLUMBING					
K - SPECIAL FINISHES					
L - SAFETY/SECURITY REQ'S	SWIPE CAR	D ACCES	S/SECHRE	CARINETS	3
M - SPECIAL REQ'S/CONSIDERATIONS	OWIT L OAT	MOOLO	O/ OLOONE	ONDINE	,
N - SPECIAL SYSTEMS					
Section 4 - Notes					
Approved By: Stephen Dicks					
Date: April 05, 2018					

08 - Warden					
08e - LE Exhibit Room (REMOVED)					
OGE - LE EXHIBIT ROOM (REMOVED)					
Section 1- Space Required and Provided					
Section 1- Space Required and Florided					
A - NUMBER OF ROOMS					
B - NSM REQUIRED PER ROOM		m²	0	ft ²	
C - TOTAL NSM REQUIRED		m ²		ft ²	
D - NSM PROVIDED PER ROOM		m ²		ft ²	
E - TOTAL NSM PROVIDED		m ²		ft ²	
Section 2 - Room Use and Functional Relationship	os				
A - SPACE PURPOSE/ACTIVITY TYPE	Storage				
B - OCCUPANT LOAD	0.00				
C - SPACE PROXIMITY REQ'S	LE WING OF	- ADMIN.	BUILDING	ີ່	
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT	10cu ft free	zer			
B - NEW FURNITURE (MOVEABLE)	DO4 TO 00	151514 (0)		OA BUNIETO	,
C - NEW FURNITURE (FIXED/BUILT-IN)	PCA TO CON	VEIRM (S	HELVING,	CABINETS	5)
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S					
G - PHONE H - DATA					
I - HVAC					
J - PLUMBING	FLOOR DRA	IN			
K - SPECIAL FINISHES	I LOOK DIVA	ATTN			
L - SAFETY/SECURITY REQ'S	SWIPE CAR	D ACCES	S/SECLIR	E SPACE	
M - SPECIAL REQ'S/CONSIDERATIONS	NO WINDOV		37 SLOOK	LOIAGE	
N - SPECIAL SYSTEMS	ING WINDON				
THE OF ESTAL STOTEMS					
Section 4 - Notes					
Approved By: Stephen Dicks					
Date: April 05, 2018					

08 - Warden					
08f - LE Interview Room					
Section 1- Space Required and Provided					
A - NUMBER OF ROOMS	1.00				
B - NSM REQUIRED PER ROOM	10.00		107.639		
C - TOTAL NSM REQUIRED	10.00		107.639		
D - NSM PROVIDED PER ROOM	10.00		107.639		
E - TOTAL NSM PROVIDED	10.00	m ²	107.639	ft ²	
Section 2 - Room Use and Functional Relationshi	ps				
A - SPACE PURPOSE/ACTIVITY TYPE	Storage				
B - OCCUPANT LOAD	0.00				
C - SPACE PROXIMITY REQ'S	LE WING O	F ADMIN.	BUILDING	à	
D - VISUAL PROXIMITY REQ'S					
Section 3 - Equipment and Furniture					
A - NEW EQUIPMENT					
B - NEW FURNITURE (MOVEABLE)	TABLE + 4	<u>CHAIRS</u>			
C - NEW FURNITURE (FIXED/BUILT-IN)					
D - ACCESSORIES (WHITEBOARDS, ETC.)					
E - LIGHTING					
F - POWER REQ'S	1 11				
G - PHONE	1 line				
H - DATA	1 line				
I - HVAC J - PLUMBING					
K - SPECIAL FINISHES	+				
L - SAFETY/SECURITY REQ'S	NO LOCKIN	IC HARDV	ARE ON D	NOOR	
M - SPECIAL REQ'S/CONSIDERATIONS	VISION PAN			/00IX	
N - SPECIAL SYSTEMS	101011171		JOIL		
Section 4 - Notes					
Approved By: Stephen Dicks					
Date: April 05, 2018					

LAKE SUPERIOR





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Parks Canada

Parcs Canada PERKINS+WILL



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originstudios



17 August 2018

Report

Class D Cost Report

Lake Superior Visitor Centre Perkins+Will

DRAFT

making the **difference**

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Douglas McNeill Director

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COST BREAKDOWN

Lake Superior Visitor Centre - Option 2 (Amethyst)

5 COST SUMMARY

ELEMENTAL SUMMARY

COST BREAKDOWN

Appendices

AREA SUMMARY - Option 1 (Paddle) AREA SUMMARY - Option 2 (Amethyst) DOCUMENTATION LIST

Rev	Status	Prepared by	Checked by	Date	Issued to	Company	Transmission	Date
0	Draft	Nadeera Ubeysiri	Marcos Sibal	20-Jun-18	Jay Lim	Perkins+Will	E-mail	20-Jun-18
					Steven Schuhmann	Perkins+Will	E-mail	20-Jun-18
1	Draft	Nadeera Ubeysiri	Marcos Sibal	17-Aug-18	Jay Lim	Perkins+Will	E-mail	17-Aug-18
					Steven Schuhmann	Perkins+Will	E-mail	17-Aug-18

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F:\Tor\Jobs\2018 Jobs\can18305 - Lake Superior - JG\200 Class D - June 2018\Estimate\August 2018\[[can18305 Lake Superior Calss D Rev1.xdsx] Report

1 EXECUTIVE SUMMARY

1.1 Introduction

Turner & Townsend is retained to provide Cost Planning & Design Cost Control services, including preparation of this Class D Construction Cost Analysis, based on the information listed in Section 5. Our estimate is an Opinion of Probable Cost only and reflects current local market rates based on normal competitive conditions. Our estimate is intended to be comparable to a range of bids received from a number of competitive general contractors and sub-trades.

Turner & Townsend does not guarantee that tenders or actual construction costs will not vary from this estimate. Adverse market conditions, proprietary and/or sole source specifications, single sourcing of materials and equipment or reduced competition among contractors may cause bids to vary from reasonable estimates based on normal competitive conditions.

The purpose of this Cost Plan is to provide Perkins+Will Architects with a budget framework within which the project can be developed and cost managed, from Feasibility to Tender award stage.

The Cost Plan has been prepared solely in accordance with the documentation outlined within this document.

This Cost Plan is subject to review, confirmation and/or amendments following revisions to the information stated and discussion(s) with the Client and Design Consultants at which time this report will be reviewed and may be re-issued if required.

1.2 Procurement and Schedule

The Construction Cost Estimate includes all direct construction costs and contractor's overhead and profit. It assumes that the project will be procured on a **Stipulated Lump sum basis**, and that bids will be received from a minimum of five pre-qualified general contractors. We also assume that the project will be completed in a reasonable time frame and have not included any premiums related to "fast-tracking" the project, if required. The unit rates in our estimate are based on construction activities occurring during normal working hours and proceeding within a non-accelerated schedule.

1.3 Risk Assessment

Pricing reflects 3Q 2018 rates and present market/local conditions. Escalation allowance to the anticipated construction start date has been EXCLUDED from our cost analysis.

The estimate includes an Estimating/Design Contingency Allowance to account for increases in cost as a result of design development through to 100% complete tender documentation.

Post-Contract Contingency (i.e. for Change Directives/Change Orders that may arise during construction) has been excluded from our cost report.

We have not accounted for a construction market allowance within the report.

1.4 Level of Documentation and Assumptions

The estimate is based on the Updated Class D Costing Package drawings. It is supplemented by correspondence and discussions with the Owner and Design Consultants.

We outline some of the major assumptions we have made with respect to this cost analysis: -

- Estimating Contingency is 15%
- General Requirements is 12% & Fee is 3%
- Escalation Allowance is 9%
- Project to be procured via Stipulated Lump Sum contract
- No major site grading allowed; relatively flat site is assumed
- No major phasing requirements
- No 'Accelerated' schedule premiums allowed

1.5 Measurement and Pricing

The estimate has been developed using generally accepted principles on method of measurement as per the Canadian Institute of Quantity Surveyors Elemental Cost Analysis (CIQS).

The rates used for this estimate include labour and material, equipment, and subcontractor's overheads and profit. Pricing developed for this project is based upon our company's experience with similar projects, and/or quotes provided by subcontractors and suppliers as noted within the estimate. It does not take into account extraordinary market conditions, where bidders may be limited and may include in their tenders disproportionate contingencies and profit margins.

1.6 General Conditions and Fee

The fee included within the estimate for the General Contractor is included as a percentage of the hard construction cost. The general requirements are based on our assumptions of the anticipated construction approach and construction schedule for the project (see section 1.2). The general requirements percentage includes the cost associated with bonding and insurance, however excludes development and/or building permit costs.

1.7 Taxes

Our cost estimate excludes HST.

1.8 General Statement of Liability

This report is not intended for general circulation, publication or reproduction for any other person or purpose without prior express written permission to each specific instance. Furthermore, this report was written for the exclusive use of Perkins+Will Architects and is not to be relied upon by any other party. Turner & Townsend does not hold any reporting responsibility to any other party.

Turner & Townsend strongly recommends the owner and/or design team review the cost estimate report including line item descriptions, unit prices, allowances, assumptions, exclusions, and contingencies to ensure the appropriate design intent has been accurately captured within the report.

Project No. can18305						DRAFT
Rev. 1						DIVALI
6-20-18						
·	· Visitor Centre - .ASS D COST ANA	•	Paddle)			
	EVECUTIVE CUMA	4A DV				
	EXECUTIVE SUMN	IARY		I		
				GFA (m2)	\$/m2	Amount
1 Lake Superior Visitor Centre - Option 1 (Paddle) Add for art work				1,154	\$5,827	\$6,726,000 \$33,630
2 Site Works						\$756,000
Sub-Total				1,154	\$6,512	\$7,515,630
3 Escalation Allowance up to Q3 2021				9%		\$677,00
4 Construction Contingency Allowance - Post Contract						Exclude
Total Construction Cos	st			1,154	\$7,098	\$8,192,630
5 Furniture						\$73,700
Workstations	23 ea	1750	40,250			\$73,700
Conference table with 14 chairs	1 sum	10000	10,000			
Visitor storage lockers	included		,			
Circular table with 3 chairs	5 ea	1150	5,750			
Interview room - table with 3 chairs	1 sum	2000	2,000			
Other offices - table with 3 chairs	1 sum	4800	4,800			
Quiet room - circular table with chair	1 sum	900	900			
Collaborative area - circular table with 4 chairs	0 sum	2300				
Allow for other miscellaneous furniture	1 sum	10000	10,000			
Lab	not included					
Exhibit space	not included					
6 Equipment						\$5,300
Kitchen appliances - Stove, Fridge, Microwave, Coffee maker & Water dispenser	1 sum	5300	5,300			
Total Estimated Construction Cos	st			1,154	\$7,167	\$8,271,630

Notes:

- 1 The above is an opinion of Probable Cost Only
- 2 We have assumed the following
 - The building will have a raft foundation
- The building super structure will be using CLT construction 3 We have allocated 15% Design Development and
- 4 Assumed site is fairly level, and no cut and fill costs are included in the estimate

The following have been specifically excluded:

- 1 HST
- 2 Professional Consultant Design Fees
- 3 Specialist Consultant Design Fees
- 4 Legal Fees and Expenses
- 5 Project Management Fees
- 6 Furniture, Furnishings and Equipment (other than detailed in the estimate)
- 7 Owner's Administration Expenses
- 8 Removal of Contaminated Material, if any
- 9 Permits and Development Charges
- 10 Garbage Equipment/Bins
- 11 Land Acquisition Cost
- 12 Construction Price Escalation
- 13 Construction Contingency
- 14 Solar heating system
- 15 Cooling plant
- 16 Incoming services up to site boundary 17 Communications active hardware 18 A/V equipment, devices & wiring

- 19 P.A. equipment, speakers & wiring
- 20 Clock system
- 21 Phasing & Labour premium
 22 Premiums for Single Sourced Materials
- 23 Schedule Acceleration Premium
- 24 LEED Premiums
- 25 Blinds/ window coverings
- 26 3rd Party M&E commissioning

ELEMENTAL ESTIMATE

Ottawa, ON

Parks Canada

Lake Superior Visitor Centre - Option 1 (Paddle)

Project:

Location:

Owner/Client:

ELEMENTAL COST SUMMARY CLASS D COST ANALYSIS

Turner & Townsend

Cat:

MS-NU-R0 File: Date: 2018-06-20 Project Number: can18305

Owner/Client: Parks Canada						roject Number:	can18305	
Architect: Perkins+Will				1		ss Floor Area:	1,154	m2
	Rati		Elemental	Elemental	Elemental			
Element	to GI	FA	Quantity	Unit Rate	Amount	Cost/m2	Amount	
A SHELL								
A1 SUBSTRUCTURE						\$432.33		
A11 Foundation	0	.85	979 m2	\$509.60	\$499,000	\$432.33		
A12 Basement Excavation	0	.00	0 m3	\$0.00	\$0	\$0.00	\$499,000	79
A2 STRUCTURE						\$1,080.40		
A21 Lowest Floor Construction	0	.17	200 m2	\$169.92	\$34,000	\$29.46		
A22 Upper Floor Construction	0	.15	175 m2	\$502.86	\$88,000	\$76.24		
A23 Roof Construction	0	.98	1,126 m2	\$999.04	\$1,125,000	\$974.70	\$1,247,000	199
A3 EXTERIOR ENCLOSURE						\$1,504.07		
A31 Walls Below Grade	0	.00	0 m2	\$0.00	\$0	\$0.00		
A32 Walls Above Grade	1	.06	1,221 m2	\$877.15	\$1,071,000	\$927.92		
A33 Windows & Entrances		.10	115 m2	\$1,973.91	\$227,000	\$196.67		
A34 Roof Covering		.98	1,126 m2	\$298.38	\$336,000	\$291.11		
A35 Projections		.05	55 m2	\$1,854.55	\$102,000	\$88.37	\$1,736,000	269
INTERIORS	<u> </u>	.00	33 IIIZ	Ψ1,004.00	ψ10Z,000	Ψ00.57	\$1,750,000	
B1 PARTITIONS & DOORS						¢220.00		
		20	4 205 0	047/47	4044.000	\$239.99		
B11 Partitions		.20	1,385 m2	\$176.17	\$244,000	\$211.40		
B12 Doors	0	.02	24 No	\$1,375.00	\$33,000	\$28.59	\$277,000	4
B2 FINISHES						\$129.96		
B21 Floor Finishes		.00	1,154 m2	\$66.71	\$77,000	\$66.71		
B22 Ceiling Finishes		.00	1,154 m2	\$14.73	\$17,000	\$14.73		
B23 Wall Finishes	3	.25	3,751 m2	\$14.93	\$56,000	\$48.52	\$150,000	2
B3 FITTINGS & EQUIPMENT						\$45.92		
B31 Fittings & Fixtures	1	.00	1,154 m2	\$45.92	\$53,000	\$45.92		
B32 Equipment	0	.00	0 m2	\$0.00	\$0	\$0.00		
B33 Conveying Systems	0	.00	0 Stp	\$0.00	\$0	\$0.00	\$53,000	19
SERVICES								
C1 MECHANICAL						\$629.01		
C11 Plumbing & Drainage	1	.00	1,154 m2	\$142.09	\$164,000	\$142.09		
C12 Fire Protection		.00	1,154 m2	\$34.66	\$40,000	\$34.66		
C13 H.V.A.C.		.00	1,154 m2	\$395.95	\$457,000	\$395.95		
C14 Controls		.00	1,154 m2	\$56.32	\$65,000	\$56.32	\$726,000	119
C2 ELECTRICAL		.00	1,134 1112	\$30.3Z	Ψ03,000	\$344.83	\$720,000	- ''
C21 Service & Distribution	1	.00	1 1E4 m2	\$110.03	\$127,000	\$110.03		
			1,154 m2		\$145,000			
C22 Lighting, Devices & Heating		.00	1,154 m2	\$125.63		\$125.63	****	
C23 Systems & Ancillaries		.00	1,154 m2	\$109.17	\$126,000	\$109.17	\$398,000	6
ET BUILDING COST (Excluding Site)						\$4,406.52	\$5,086,000	76°
SITE & ANCILLARY WORK								
D1 SITE WORK						\$0.00		
D11 Site Development	0	.00	0 m2	\$0.00	\$0	\$0.00		
D12 Mechanical Site Services	0	.00	0 m2	\$0.00	\$0	\$0.00		
D13 Electrical Site Services	0	.00	0 m2	\$0.00	\$0	\$0.00	\$0	O,
D2 ANCILLARY WORK						\$0.00		
D21 Demolition	0	.00	0 m2	\$0.00	\$0	\$0.00		
D22 Alterations	0	.00	0 m2	\$0.00	\$0	\$0.00	\$0	O ^c
ET BUILDING COST (Including Site)						\$4,406.52	\$5,086,000	
GENERAL REQUIREMENTS & ALLOWA	ICES					.,,	4-77	
Z1 GEN. REQ. & FEE	15.0%					¢441.04		
					¢410.000	\$661.06		
Z11 General Requirements	12.0%				\$610,000	\$528.50	¢7/2.000	
Z12 Fee	3.0%	-			\$153,000	\$132.56	\$763,000	11
OTAL CONSTRUCTION ESTIMATE (Exclu		ces))				\$5,849,000	87
Z2 ALLOWANCES	15.0%					\$759.83		
Z21 Estimating Allowance	15.0%				\$877,000	\$759.83		
Z22 Escalation Allowance	0.0%	- 1	Refer to Executiv	e Summary	\$0	\$0.00		
Z23 Construction Allowance	0.0%		Refer to Executiv	ve Summary	\$0	\$0.00	\$877,000	139
ST	0.0%		EXCLUDED		\$0	\$0.00	\$0	0
OTAL CONSTRUCTION ESTIMATE (Inclu	ding Allowan	ces))				\$6,726,000	100
							Cost/unit	
GFA 1,154 m	2						\$5,827	m2
GFA 12,424 sf							\$5,827 \$541	
GFA 12,424 ST							\$341	31

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-RO Date: 6/20/18 Project Number: can18305 Gross Floor Area: 1154.2 m2

Description	Quantity Unit	Rate	Amount
A1 SUBSTRUCTURE			
A11 Foundations			
Note: No Geotechnical Report provided or foundation design. Assumed foundations to be confirmed by Consultants.			
Strip topsoil and stockpile	+ 979 m²	10.00	9,792
Excavate for foundations	205 m ³	30.00	6,149
Cart material off site	205 m ³	15.00	3,075
Raft foundation 500mm thick	979 m²	316.89	310,296
concrete - supply 32 Mpa	490 m3	205.00	
concrete - place	490 m3	65.00	
concrete - accessories	490 m3	15.00	
concrete - finishing levelling	979 m2	15.00	
formwork edge of slab on grade	92 m2	500.00	
reinforcement, allow 75kg/m3 - material	36,720 kg	1.80	
reinforcement, allow 75kg/m3 - labour	36,720 kg	1.00	
reinforcement, allow 75kg/m3 - accessories	36,720 kg	0.20	
Allow for raft foundation thickening	91 m²	316.89	28,954
Allowance for under slab drainage and vapour barrier	979 m2	25.00	24,480
Allowance for under slab insulation 200 mm thick	979 m2	100.00	97,920
Granular - 200mm thk (incl. labour)	196 m3	45.00	8,813
Miscellaneous foundations	1 sum	10000.00	10,000
Assumed no allowance for temporary shoring			
Assumed no allowance for rock excavation			
TOTAL A11 Foundations	979 m2	509.60	499,000
A12 Basement Excavation			
No work required			

TOTAL A12 Basement Excavation	0 m3	0.00	0

TOTAL A1 SUBSTRUCTURE 499,000

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-R0 Date: 6/20/18 Project Number: can18305 Gross Floor Area: 1154.2 m2

Description		Quantity Unit	Rate	Amount
A2 STRUCTURE				
A21 Lowest Floor Construction	•			
Floor build-up on raft foundation - only in Exhibit space	+	200 m²	170.00	34,017
2 layers of 13mm plywood		200 m²	30.00	,-
6mm acoustic matt		200 m²	15.00	
19mm plywood floor sheathing		200 m²	25.00	
100mm floor framing		200 m²	100.00	
TOTAL A21 Lowest Floor Construction		200 m2	169.92	34,000
A22 Upper Floor Construction				
Mezzanine floor construction	+	175 m²	500.00	87,500
TOTAL A22 Upper Floor Construction		175 m2	502.86	88,000
A23 Roof Construction				
Roof Construction	+	1,126 m²	990.00	1,114,819
Plywood sheathing		1,126 m ²	640.00	
Larsen truss		included		
Insulation		included		
Timber trusses		1,126 m ²	250.00	
2 x Plywood sheathing		2,252 m ²	15.00	
Air/vapour barrier		1,126 m ²	10.00	
Wood furring		1,126 m ²	40.00	
Gypsum board		1,126 m²	20.00	
Allowance for miscellaneous framing		1 sum	10000.00	10,000
TOTAL A23 Roof Construction		1,126 m2	999.04	1,125,000
TOTAL A2 STRUCTURE				1,247,000
A3 EXTERIOR ENCLOSURE				
A31 Walls Below Grade				
No work required				
TOTAL A31 Walls Below Grade		0 m2	0.00	0

File: MS-NU-RO Location: Ottawa, ON Date: 6/20/18 Owner/Client: Parks Canada Project Number: can18305 Architect: Perkins+Will Gross Floor Area: 1154.2 m2

Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss Insulation Exterior wall, wood siding Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	1,112 m ² 1,112 m ² 1,112 m ² 1,112 m ² 1,112 m ² 1,112 m ² 1,112 m ²	650.00 650.00 included included included included	723,060
Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss Insulation Exterior wall, wood siding Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	1,112 m ² 1,112 m ² 1,112 m ² 1,112 m ² 1,112 m ²	650.00 included included included	723,060
Wood strapping Weather barrier Plywood sheathing Larsen truss Insulation Exterior wall, wood siding Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	1,112 m ² 1,112 m ² 1,112 m ² 1,112 m ²	included included included	
Weather barrier Plywood sheathing Larsen truss Insulation Exterior wall, wood siding Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	1,112 m² 1,112 m² 1,112 m²	included included	
Weather barrier Plywood sheathing Larsen truss Insulation Exterior wall, wood siding Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	1,112 m² 1,112 m² 1,112 m²	included	
Plywood sheathing Larsen truss Insulation Exterior wall, wood siding Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	1,112 m² 1,112 m²		
Larsen truss Insulation Exterior wall, wood siding Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	1,112 m²	included	
Exterior wall, wood siding Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm			
Painted wood siding Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm		included	
Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	109 m2	600.00	65,160
Wood strapping Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	109 m²	600.00	
Weather barrier Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	109 m²	included	
Plywood sheathing Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	109 m²	included	
Larsen truss CLT Mass timber structure - Assumed 25% of exterior walls CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	109 m²	included	
CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	109 m²	included	
CLT - 140mm Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	305 m2	365.00	111,416
Air/vapour barrier Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	305 m ²	290.00	111,410
Wood furring 16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	305 m ²	10.00	
16mm X gypsum board Light wood infill framing - Wood studs -140mm - Batt insulation 140mm	305 m ²	40.00	
- Wood studs -140mm - Batt insulation 140mm	305 m ²	25.00	
- Batt insulation 140mm	916 m²	120.00	109,890
	916 m2	75.00	
	916 m2	20.00	
- 16mm X gypsum board	916 m2	25.00	
Premium for insulation for passive building	1,221 m²	50.00	61,050
TOTAL A32 Walls Above Grade	,221 m2	877.15	1,071,000
A33 Windows & Entrances			
Triple-glazed windows, 2 layers low-e coating and argon or krypton glass filled tilt and turn +	75 m2	2000.00	150,000
Curtain walls at vestibule including doors +	20 m2	2000.00	40,000
High performance insulated single exterior doors	2 no	5000.00	10,000
Automatic opener at main entries	4 no	3500.00	14,000
Door to the utility storage	1 sum	12500.00	12,500
TOTAL A33 Windows & Entrances			

Location: Ottawa, ON
Owner/Client: Parks Canada
Architect: Perkins+Will

File: MS-NU-RO
Date: 6/20/18
Project Number: can18305
Gross Floor Area: 1154.2 m2

Description	Quantity Unit	Rate	Amount
A34 Roof Covering			
Roof covering	+ 1,126 m2	235.00	264,629
Roofing layer	1,126 m²	200.00	
Wood strapping	1,126 m²	25.00	
Weather barrier	1,126 m²	10.00	
Premium for insulation for passive building	1,126 m²	50.00	56,304
Roof ladder - allowance	1 sum	5000.00	5,000
Allowance for accessories	1 sum	10000.00	10,000
TOTAL A34 Roof Covering	1,126 m2	298.38	336,000
A35 Projections			336,000
A35 Projections	1,126 m2 55 m²	298.38 1225.00	
A35 Projections Roof overhang			67,380
-	55 m²	1225.00	67,380
A35 Projections Roof overhang Allowance for miscellaneous projections	55 m² 1 sum	1225.00 10000.00	67,380 10,000 25,000
A35 Projections Roof overhang Allowance for miscellaneous projections Bay Window	55 m² 1 sum 1 sum	1225.00 10000.00 25000.00	67,380 10,000 25,000
A35 Projections Roof overhang Allowance for miscellaneous projections Bay Window	55 m² 1 sum 1 sum	1225.00 10000.00 25000.00	67,380 10,000 25,000

Location: Ottawa, ON
Owner/Client: Parks Canada
Architect: Perkins+Will

File: MS-NU-R0 Date: 6/20/18 Project Number: can18305 Gross Floor Area: 1154.2 m2

Description		Quantity Unit	Rate	Amount
B1 PARTITIONS & DOORS				
B11 Partitions				
Interior insulated walls	+	240 m²	150.00	36,000
- 16mm X gypsum board		240 m2	25.00	33,333
- 92mm batt insulation		240 m2	15.00	
- wood studs		240 m2	35.00	
- wood studs		240 m2	35.00	
- 92mm batt insulation		240 m2	15.00	
- 16mm X gypsum board		240 m2	25.00	
Other interior insulated walls	+	1,025 m²	100.00	102,500
- 16mm X gypsum board		1,025 m2	25.00	
- wood studs		1,025 m2	35.00	
- 92mm batt insulation		1,025 m2	15.00	
- 16mm X gypsum board		1,025 m2	25.00	
Glazed partitions	+	120 m²	750.00	90,000
Folding partitions		m	10,000.00	
Retractable glass partitions		m	2,500.00	
Rough carpentry		1 sum	5000.00	5,000
Sealing and caulking		1 sum	5000.00	5,000
Boxing and furring		1 sum	5000.00	5,000
TOTAL B11 Partitions		1,385 m2	176.17	244,000
B12 Doors				
Interior doors - painted hollow core wood doors c/w hardware	+	22 no	1200.00	26,400
Interior glazed doors	+	2 no	3500.00	7,000
TOTAL B12 Doors		24 No	1375.00	33,000
TOTAL B1 PARTITIONS & DOORS				277,000

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will

TOTAL B2 FINISHES

File: MS-NU-R0
Date: 6/20/18
Project Number: can18305
Gross Floor Area: 1154.2 m2

150,000

Description		Quantity Unit	Rate	Amount
B2 FINISHES				
B21 Floor Finishes				
Ceramic tile flooring - to vestibule, kitchen and washrooms	+	88 m2	150.00	13,250
Carpet tile / VCT flooring to other areas	+	780 m2	65.00	50,670
Exposed floors in Telecom Room, Utility/Storage Room and Mezzanine Storage	+	286 m2		0
Extra over for lab flooring		46 m2	50.00	2,300
Foot grilles - to entrance vestibule		2 no	2000.00	4,000
Bases Allow for bases		1 sum	6600.00	6,600
TOTAL B21 Floor Finishes		1,154 m2	66.71	77,000
B22 Ceiling Finishes				
Assumed exposed painted ceiling	+	1,154 m2	15.00	17,310
TOTAL B22 Ceiling Finishes		1,154 m2	14.73	17,000
B23 Wall Finishes				
Paint	+	3,751 m2	15.00	56,270
		3,751 m2	14.93	56,000

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-RO Date: 6/20/18 Project Number: can18305 Gross Floor Area: 1154.2 m2

Description	Quantity Unit	Rate	Amount
B3 FITTINGS & EQUIPMENT			
331 Fittings & Fixtures			
Closet rod and shelving	9 m	300.00	2,70
Kitchen countertop w/ upper and base cabinets	5 m	2000.00	10,00
Shared equipment upper and lower cabinets	8 m	1500.00	12,00
Reception millwork	4 m	2000.00	8,00
Lockers	10 ea.	400.00	4,00
Allowance for signage	1 sum	5000.00	5,00
Washroom accessories - allowance	8 units	750.00	6,00
Allow for other miscellaneous fittings and fixtures	1 sum	5000.00	5,00
Furniture - included in summary			
TOTAL B31 Fittings & Fixtures	1,154 m2	45.92	53,000
B32 Equipment			
Equipment - included in summary			
TOTAL B32 Equipment	0 m2	0.00	
B33 Conveying Systems			
No work required			
TOTAL B33 Conveying Systems	0 Stp	0.00	ı
TOTAL B3 FITTINGS & EQUIPMENT			53,00
TOTAL BUNITEDIODS		<u> </u>	
TOTAL B INTERIORS			480,000

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-RO Date: 6/20/18 Project Number: can18305 Gross Floor Area: 1154.2 m2

Description	Quantity Unit	Rate	Amount
C1 MECHANICAL			
C11 Plumbing & Drainage			
Equipment			
water meter and back flow preventer	1 sum	5,000.00	5,000
domestic water heater	1 sum	5,000.00	5,000
(Subtotal Equipment \$10,000)		.,	.,
Piping			
cold water	180 m	75.00	13,500
hot water	120 m	75.00	9,000
hot water recirculation	120 m	70.00	8,400
sanitary and vents storm drainage	240 m 190 m	90.00 95.00	21,600 18,050
(Subtotal Piping \$70,550)	190 111	95.00	16,030
Fixtures			
Water closet	6 no	1,500	9,000
Lavatory	6 no	1,400	8,400
kitchen sink	6 no	1,000	6,000
roof drain -new roof, based on architectural drawing	6 no	600	3,600
floor drain -allowance	6 no	600	3,600
hose bib -allowance (Subtotal Fixtures \$31,300)	2 no	350	700
ADD for the Mezzanine level	175 m2	300.00	52,500
TOTAL C11 Plumbing & Drainage	1,154 m2	142.09	164,000
C12 Fire Protection			
Sprinkler			
Full sprinkler coverage (Subtotal Sprinkler \$39,200)	980 m2	40.00	39,200
Standpipe			
not required (Subtotal Standpipe \$0)			
Miscellaneous	_		
fire extinguishers (Subtotal Miscellaneous \$1,000)	1 sum	1,000.00	1,000
TOTAL C12 Fire Protection	1,154 m2	34.66	40,000
TOTAL OTZ THE PROCESSION	1,134 1112	34.00	40,000

File: MS-NU-R0 Location: Ottawa, ON Date: 6/20/18 Owner/Client: Parks Canada Project Number: can18305 Architect: Perkins+Will Gross Floor Area: 1154.2 m2

Description	Quantity Unit	Rate	Amount
C13 HVAC			
Air Handling			
Roof top unit- DX cooling, gas fired heating, assume 4000cfm miscellaneous exhaust fan (Subtotal Air Handling \$55,000)	2 no 1 no	25,000.00 5,000.00	50,000 5,000
Cooling plant no works (Subtotal Cooling plant \$0)			
Heating plant gas fired boiler, condensing, assume 300MBH	2 no	7,500.00	15,000
heating pumps	2 no	3,500.00	7,000
chemical treatment and expansion tank	1 sum	4,000.00	4,000
boiler venting	1 sum	4,000.00	4,000
(Subtotal Heating plant \$30,000)			
Miscellaneous			
testing and balancing	1 sum	4,000.00	4,000
Passive House requirements. Need HRV/ERV, and reduced sizes of mech units, ductwork distribution, etc.	980 m2	180.00	176,400
fuel oil system- not required	900 1112	160.00	176,400
(Subtotal Miscellaneous \$180,400)			
Piping	4.00	05.00	0.500
natural gas	100 m	85.00	8,500
hot water supply and return to heating coil and FFH's refrigerant piping	140 m 80 m	85.00 65.00	11,900 5,200
hot water supply and return to perimeter radiation- not	00 111	03.00	3,200
required per engineer			
(Subtotal Piping \$25,600)			
Durch and Ale Distribution			
Ductwork and Air Distribution galvanized steel ductwork	3,800 kg	18.00	68,400
differs, grilles and registers	3,800 kg 70 no	150.00	10,500
exterior duct insulation- Assume not required	70 110	130.00	10,300
silencers- allowance	1 sum	5,000.00	5,000
fire dampers	1 sum	1,500.00	1,500
(Subtotal Ductwork and Air Distribution \$85,400)			
Heating Devices			
radiant floor heating	784 m2	100.00	78,400
entrance heaters (Subtotal Heating Devices \$80,900)	2 no	1,250.00	2,500
TOTAL C13 HVAC	1,154 m2	395.95	457,000
	,		,

File: MS-NU-RO Location: Ottawa, ON Date: 6/20/18 Owner/Client: Parks Canada Project Number: can18305 Architect: Perkins+Will Gross Floor Area: 1154.2 m2

Description	Quantity Unit	Rate	Amount	
C14 Controls				
Standalone controls				
Roof top unit	2 no	7,500.00	15,000	
radiant floor manifold	10 no	2,500.00	25,000	
exhaust fans	2 no	550.00	1,100	
heating plant	1 no	7,500.00	7,500	
exhaust fans, assumed by electrical switch				
unit heaters, thermostat control	2 no	550.00	1,100	
computer software, hardware and programming (Subtotal Standalone controls \$64,700)	1 sum	15,000.00	15,000	
TOTAL C14 Controls	1,154 m2	56.32	65,000	

TOTAL C1 MECHANICAL 726,000

C2 ELECTRICAL

C21 Service & Distribution

Normal Power			
112.5kVA power transformer - assume by hydro	no	\$0.00	\$0
400A 208V service entrance rated disconnect switch	1 no	\$2,500.00	\$2,500
400A 120/208V main distribution panel	1 no	\$7,400.00	\$7,400
Meter cabinet c/w empty conduit	1 no	\$800.00	\$800
Hangers	1 no	\$150.00	\$200
Allowance for feeders for above	1 sum	\$1,500.00	\$1,500
(Subtotal Normal Power \$12,400)			
Emergency Power			
25kW 120/208V natural gas generator	1 no	\$16,250.00	\$16,300
100A 120/208V distribution panel	1 no	\$2,790.00	\$2,800
100A 120/208V ATS c/w bypass	2 no	\$9,580.00	\$19,200
ATS control wiring	2 no	\$300.00	\$600
Concrete base and grounding	1 sum	\$1,000.00	\$1,000
Allowance for feeders for above	1 sum	\$1,100.00	\$1,100
(Subtotal Emergency Power \$41,000)			
Distribution Allowance for normal and emergency power branch panels c/w feeders	979 m2	\$25.00	\$24,500
(Subtotal Distribution \$24,500)			
Motor Controls & Wiring Power connections to mechanical equipment c/w line and load side wiring and disconnect switches	979 m2	\$12.00	\$11,700
(Subtotal Motor Controls & Wiring \$11,700)			

Project: Lake Superior Visitor Centre - Option 1 (Paddle)

Location: Ottawa, ON

File: MS-NU-R0

Date: 6/20/18

Owner/Client:Parks CanadaProject Number:can18305Architect:Perkins+WillGross Floor Area:1154.2 m2

Description	Quantity Unit	Rate	Amount
Miscellaneous			
Grounding & isolate technical grounding	1 sum	\$5,600.00	\$5,600
Permits, inspection & job setup	1 sum	\$5,100.00	\$5,100
(Subtotal Miscellaneous \$10,700)			. ,
ADD for the Mezzanine level	175 m2	150.00	26,250
TOTAL C21 Service & Distribution	1,154 m2	110.03	127,000

C22 Lighting, Devices & Heating

TOTAL C22 Lighting, Devices & Heating	1,154 m2	125.63	145,000
(Subtotal Heating \$0)	sum	ΦΟ.ΟΟ	\$0
Heating By division 15	cum	\$0.00	\$0
(Subtotal Dialicit Devices \$17,700)			
Reception/circulation area (Subtotal Branch Devices \$19,900)	224 m2	\$15.00	\$3,400
Lab Recention / circulation area	46 m2	\$40.00	\$1,800
Kitchen	20 m2	\$40.00	\$800
Storage/service area	137 m2	\$10.00	\$1,400
Washroom	55 m2	\$10.00	\$600
Office/meeting room	62 m2	\$25.00	\$1,600
Conference room	36 m2	\$35.00	\$1,300
Open office area	201 m2	\$30.00	\$6,000
Exhibit space	198 m2	\$15.00	\$3,000
Branch Devices Receptacles and power connections c/w branch wiring:			
Proposition Continues			
(Subtotal Lighting \$125,500)			. ,
sensors	781 m2	\$15.00	\$11,700
Building lighting controls c/w local switching and occupancy	. , 02	400.00	45,700
Exhibit space lighting controls c/w scene controls etc.	198 m2	\$30.00	\$5,900
Reception/circulation area	224 m2	\$120.00	\$26,900
Lab	46 m2	\$150.00	\$6,900
Kitchen	20 m2	\$70.00	\$1,400
Storage/service area	137 m2	\$50.00	\$6,900
Washroom	55 m2	\$70.00 \$70.00	\$3,900
Office/meeting room	62 m2	\$80.00	\$5,200 \$5,000
Conference room	36 m2	\$70.00 \$90.00	\$3,200
Open office area	201 m2	\$200.00 \$70.00	\$39,600 \$14,100
Energy efficient LED lighting c/w branch wiring: Exhibit space	198 m2	\$200.00	¢20.400
Energy officient LED lighting also brough wiring.			

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-R0 Date: 6/20/18 Project Number: can18305 Gross Floor Area: 1154.2 m2

Description	Quantity Unit	Rate	Amount
C23 Systems & Ancillaries			
Fire Alarm System			
Addressable fire alarm system	979 m2	\$25.00	\$24,500
(Subtotal Fire Alarm System \$24,500)			
Security System			
Access control and CCTV system head end equipment,			
devices and wiring	979 m2	\$25.00	\$24,500
Conduit rough-in to security system devices (Subtotal Security System \$34,300)	979 m2	\$10.00	\$9,800
Communications			
Communications active hardware - by others	m2	\$0.00	\$0
Communications cabling, racks and wire management	979 m2	\$30.00	\$29,400
Conduit rough-in to voice and data outlets c/w sleeves and			, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
cable tray	979 m2	\$15.00	\$14,700
(Subtotal Communications \$44,100)			
Paging/Intercom/Program System			
Assume none required	no	\$0.00	\$0
(Subtotal Paging/Intercom/Program System \$0)			
AV System			
AV devices, head end equipment and wiring - by others	no	\$0.00	\$0
AV empty conduit outlets	1 sum	\$15,000.00	\$15,000
(Subtotal AV System \$15,000)			
Miscellaneous	4	#0.000.00	#0.000
Allowance for miscellaneous systems (Subtotal Miscellaneous \$8,000)	1 sum	\$8,000.00	\$8,000
(Subtotal Miscellaneous \$6,000)			
TOTAL C23 Systems & Ancillaries	1,154 m2	109.17	126,000
TOTAL C2 ELECTRICAL			398,000
			378,000
TOTAL C SERVICES			1,124,000
NET BUILDING COST (EXCLUDING SITE)			5,086,000
		<u> </u>	3/000/000
D1 SITE WORK			
D11 Site Development			
See Site Development Works Estimate			
TOTAL D11 Site Development	0 m2	0.00	0
D12 Mechanical Site Services			
See Site Development Works Estimate			
TOTAL D12 Mechanical Site Services	0 m2	0.00	0
10 1712 D 12 Miconamical one del vices	O IIIZ	0.00	U

Location: Ottawa, ON
Owner/Client: Parks Canad

Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-R0
Date: 6/20/18
Project Number: can18305
Gross Floor Area: 1154.2 m2

Description	Quantity Unit	Rate	Amount
D13 Electrical Site Services			
See Site Development Works Estimate			
TOTAL D13 Electrical Site Services	0 m2	0.00	0
TOTAL D1 SITE WORK			0
D2 ANCILLARY WORK			
D21 Demolition			
No work required			
TOTAL D21 Demolition	0 m2	0.00	0
D22 Alterations			
No work required			
TOTAL D22 Alterations	0 m2	0.00	0
TOTAL D2 ANCILLARY WORK			0
TOTAL D SITE & ANCILLARY WORK			0
NET BUILDING COST (INCLUDING SITE)			5,086,000
Z1 GENERAL REQUIREMENTS & FEE			
Z11 General Requirements			
General Requirements	Is		610,000
TOTAL Z11 General Requirements			610,000

Location: Ottawa, ON
Owner/Client: Parks Canad

Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-RO Date: 6/20/18 Project Number: can18305 Gross Floor Area: 1154.2 m2

Description	Quantity Unit	Rate	Amount
Z12 Fee			
Fee	ls		153,000
TOTAL Z12 Fee			153,000
TOTAL Z1 GENERAL REQUIREMENTS & FEE			763,000
TOTAL CONSTRUCTION ESTIMATE EXCLUDING ALLOWANCES			5,849,000
Z2 CONTINGENCIES			
Z21 Estimating Contingency			
Estimating Contingency	ls		877,000
TOTAL Z21 Estimating Contingency			877,000
Z22 Escalation Contingency			
Escalation Contingency - See Executive Summary	Is		0
TOTAL Z22 Escalation Contingency			0
Z23 Construction Contingency			
Construction Contingency - See Executive Summary	ls		0
Total Z23 Construction Contingency			0
TOTAL Z2 CONTINGENCIES			877,000
TOTAL Z GENERAL REQUIREMENTS & CONTINGENCIES			1,640,000
TOTAL BUILDING COST INCLUDING ALLOWANCES			6,726,000

ELEMENTAL COST SUMMARY CLASS D COST ANALYSIS

Cat:

File:

\$23.94

\$23.94

\$0.00

\$0.00

\$99,000

\$0

\$0

MS-NU-R0

Date: Project Number: 2018-06-20 can18305

ocation:	Ottawa
Owner/Client:	Parks Canada
\ male ! & a a & .	Deviletor - MARIE

Z2 ALLOWANCES

Site Works

Project:

Architect: Perkins+Will					G	ross Site Area:	4,135	m2
		Ratio	Elemental	Elemental	Elemental			
Element		to GSA	Quantity	Unit Rate	Amount	Cost/m2	Amount	
D SITE & ANCILLARY WORK								
D1 SITE WORK						\$138.09		
D11 Site Development		1.00	4,135 m2	\$58.52	\$242,000	\$58.52		
D12 Mechanical Site Services		1.00	4,135 m2	\$43.53	\$180,000	\$43.53		
D13 Electrical Site Services		1.00	4,135 m2	\$36.03	\$149,000	\$36.03	\$571,000	76%
D2 ANCILLARY WORK						\$0.00		
D21 Demolition		0.00	0 m2	\$0.00	\$0	\$0.00		
D22 Alterations		0.00	0 m2	\$0.00	\$0	\$0.00	\$0	0%
NET BUILDING COST (Including Site)						\$138.09	\$571,000	
Z GENERAL REQUIREMENTS & ALLOW	/ANCES							
Z1 GEN. REQ. & FEE	15.0%					\$20.80		
Z11 General Requirements	12.0%				\$69,000	\$16.69		
712 Foo	3.0%				\$17,000	\$1.11	000 882	11%

Refer to Executive Summary

Refer to Executive Summary

HST 0.0% EXCLUDED \$0 \$0.00 TOTAL CONSTRUCTION ESTIMATE (Including Allowances)

15.0%

15.0%

0.0%

0.0%

GSA 4,135 m2

TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances)

Cost/unit \$183 m2

GSA 44,510 sf

Z21 Estimating Allowance

Z22 Escalation Allowance

Z23 Construction Allowance

\$0

\$17 sf

\$657,000

\$99,000

\$756,000

87%

13%

0%

100%

Project: Site Works

Location: Ottawa

Date: Jun 20 2018

Owner/Client: Parks Canada

Architect: Perkins+Will

File: MS-NU-R0

Date: Jun 20 2018

Project Number: can18305

Gross Site Area: 4135.1 m2

Quantity

Unit

Rate

200.00

4,000.00

5,000.00

4,500.00

200.00

100 m

2 no

1 sum

1 no

100 m

20,000

8,000

5,000

4,500

20,000

Amount

Description

piping

piping

manhole/catch basin

(Subtotal Sanitary Service \$33,000)

(Subtotal Water Service \$29,500)

existing to remain

Water Service connect to existing

fire hydrant

			7
D1 SITE WORK	\neg		
	_		
D11 Site Development			
Clear & grub site	4,135 m2	10.00	41,35
Add for 1.5m berm under the building and sloping to site	1,809 m3	45.00	81,43
Parking and roadways - gravel	617 m2	20.00	12,34
Access paths - gravel	821 m2	25.00	20,53
Walking path - clear water creek	494 m2	25.00	12,35
Landscape island	50 m2	35.00	1,75
Out door storage compound 8' chain link fence	67 m	200.00	13,40
Trees	7 no	500.00	3,50
Allowance for shrubs	1 sum	1000.00	1,00
Outdoor interpretive areas - assumed topsoil and sod	2,153 m2	15.00	32,30
Other treed site areas - assumed no work required	8,324 m2		
Line markings	1 sum	2000.00	2,00
Outdoor seating	10 ea.	500.00	5,00
Bicycle storage	5 ea.	500.00	2,50
Allowance for erosion & sedimentation control	1 sum	1500.00	1,50
Allowance for furniture and waste receptacles	1 sum	1500.00	1,50
Allowance for miscellaneous site development	1 sum	10000.00	10,000
TOTAL D11 Site Development	4,135 m2	58.52	242,000
D12 Mechanical Site Services			
Storm Service			
connect to existing	1 sum	5,000.00	5,00
piping	250 m	200.00	50,000
manhole/catch basin	8 no	4,000.00	32,000
stormceptor	1 no	30,000.00	30,000
(Subtotal Storm Service \$117,000)			
Sanitary Service connect to existing	1 sum	5,000.00	5,000
nining	100 m	3,000.00	3,000

Project: Site Works

Location: Ottawa

Date: Jun 20 2018

Owner/Client: Parks Canada

Architect: Perkins+Will

File: MS-NU-R0

Date: Jun 20 2018

Project Number: can18305

Gross Site Area: 4135.1 m2

Quantity	Unit	Rate	Amount
	Quantity	Quantity Unit	Quantity Unit Rate

4,135 m2

180,000

149,000

36.03

43.53

D13 Electrical Site Services

TOTAL D12 Mechanical Site Services

TOTAL D13 Electrical Site Services

Incoming Power Incoming overhead H.V. cabling & termination - by Hydro	1 sum	\$0.00	\$0
Allowance for hydro charges	1 sum	\$20,000.00	\$20,000
Allowance for flydro charges	i suiii	\$20,000.00	\$20,000
Concrete pad for transformer including bollards & grounding	1 sum	\$7,500.00	\$7,500
2 cell concrete encased duct bank - primary	25 m	\$200.00	\$5,000
2 cell concrete encased duct bank - secondary	15 m	\$200.00	\$3,000
#500mcm rwu90 wire	80 m	\$50.00	\$4,000
#1/0 rwu90 wire	20 m	\$20.00	\$400
(Subtotal Incoming Power \$39,900)			
Incoming Communications	1 cum	\$3,000.00	¢2 000
Allowance for Utility charges 4-103mm PVC DB for communication and cable TV	1 sum 25 m	\$3,000.00	\$3,000 \$5,700
Incoming communication and Cable TV cabling by Services	23 111	\$220.00	\$3,700
provider	sum	\$0.00	\$0
(Subtotal Incoming Communications \$8,700)	Sum	Ψ0.00	ΨΟ
(canadag cag			
Site Lighting, Power & Security - allowance			
Pole mounted LED fixture, double heads	3 no	\$5,340.00	\$16,000
Pole mounted LED fixture, single head	5 no	\$3,535.00	\$17,700
Type W1 LED wall pack	16 no	\$575.00	\$9,200
Fixture wiring, pole lights	8 no	\$500.00	\$4,000
Fixture wiring, wall packs	16 no	\$325.00	\$5,200
Concrete base	8 no	\$500.00	\$4,000
Allowance for landscape lighting	1 sum	\$25,000.00	\$25,000
Lighting controls	1 no	\$2,270.00	\$2,300
Power connection to signage	1 no	\$2,120.00	\$2,100
Communications conduit & cabling to signage	1 no	\$2,560.00	\$2,600
Pole mounted CCTV, pole included above	3 no	\$1,700.00	\$5,100
CCTV wiring	3 no	\$600.00	\$1,800
Excavation & backfill	1 sum	\$5,000.00	\$5,000
(Subtotal Site Lighting, Power & Security - allowance			

TOTAL D1 SITE WORK 571,000

4,135 m2

Project: Site Works Location: Ottawa Owner/Client: Parks Canada

Architect: Perkins+Will

File: MS-NU-R0 Date: Jun 20 2018 Project Number: can18305 Gross Site Area: 4135.1 m2

Description	Quantity Unit	Rate	Amount
D2 ANCILLARY WORK			
D21 Demolition			
No work required			
TOTAL D21 Demolition	0 m2	0.00	0
D22 Alterations			
No work required			
TOTAL D22 Alterations	0 m2	0.00	0
TOTAL D2 ANCILLARY WORK			o
TOTAL D SITE & ANCILLARY WORK			571,000
NET BUILDING COST (INCLUDING SITE)			571,000
Z1 GENERAL REQUIREMENTS & FEE			
Z11 General Requirements			
General Requirements	ls		69,000
TOTAL Z11 General Requirements			69,000
Z12 Fee			
Fee	Is		17,000
TOTAL Z12 Fee			17,000
TOTAL Z1 GENERAL REQUIREMENTS & FEE			86,000
TOTAL CONSTRUCTION ESTIMATE EXCLUDING ALLOWANCES			657,000

Project: Site Works
Location: Ottawa
Owner/Client: Parks Canada
Architect: Perkins+Will

File: MS-NU-R0 Date: Jun 20 2018 Project Number: can18305 Gross Site Area: 4135.1 m2

Description	Quantity Unit	Rate	Amount
Z2 CONTINGENCIES			
Z21 Estimating Contingency			
Estimating Contingency	Is		99,000
TOTAL Z21 Estimating Contingency			99,000
Z22 Escalation Contingency			
Escalation Contingency - See Executive Summary	Is		0
TOTAL Z22 Escalation Contingency			0
Z23 Construction Contingency			
Construction Contingency - See Executive Summary	ls		0
Total Z23 Construction Contingency			0
TOTAL Z2 CONTINGENCIES			99,000
		<u></u>	
TOTAL Z GENERAL REQUIREMENTS & CONTINGENCIES			185,000
TOTAL BUILDING COST INCLUDING ALLOWANCES			756,000
			-

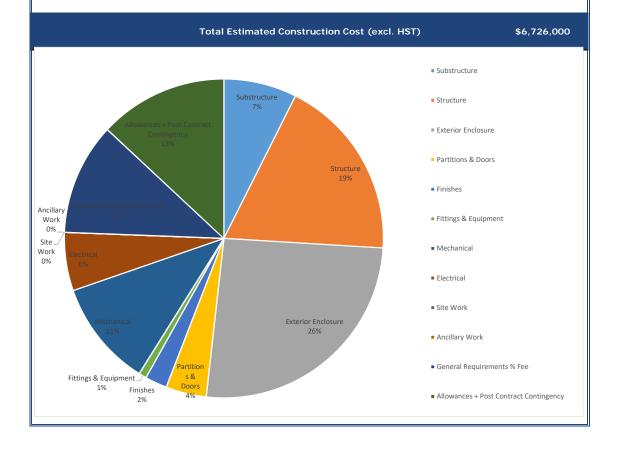
4 COST BREAKDOWN

Project No. can18305
Gross Floor Area: 1154.2 m2
Rev. 1
6-20-18

Turner & Townsend

LAKE SUPERIOR VISITOR CENTRE - OPTION 1 (PADDLE)
CLASS D COST ANALYSIS

Executive Summary - Cost Breakdown Construction Cost only (exclude Cash Allowances) 1 Substructure \$499,000 2 Structure \$1,247,000 3 Exterior Enclosure \$1,736,000 \$277,000 4 Partitions & Doors 5 Finishes \$150,000 6 Fittings & Equipment \$53,000 7 Mechanical \$726,000 8 Electrical \$398,000 9 Site Work \$0 10 Ancillary Work \$0 11 General Requirements % Fee \$763,000 12 Allowances + Post Contract Contingency \$877,000



Project No. can18305 Gross Site Area: 4135.1 m2 Rev. 0

6-20-18



SITE WORKS **CLASS D COST ANALYSIS**

Executive Summary - Cost Breakdown

Construction Cost only (exclude Cash Allowances)

9 Site Work

10 Ancillary Work

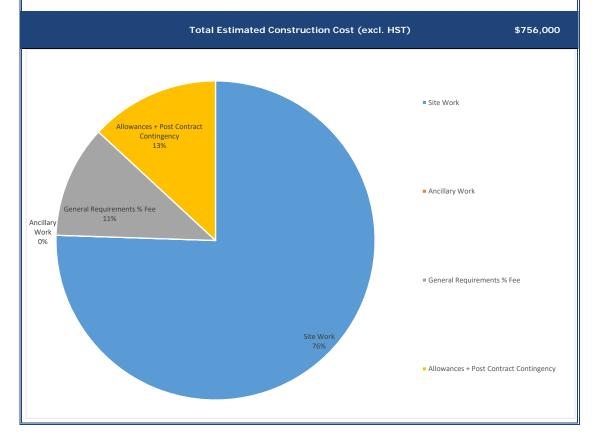
11 General Requirements % Fee

\$86,000 \$99,000

\$571,000

12 Allowances + Post Contract Contingency

\$0



Project No. can18305 Rev. 1							DRAFT
6-20-18							
Lake Superior Vi	sitor Cer SS D CO			nethyst)	•		
E)	KECUTIV	E SUMMA	RY				
	 GFA (m2 	 			GFA (m2)	\$/m2	Amount
1 Lake Superior Visitor Centre - Option 2 (Amethyst) Add for art work	1,154				983	\$6,729	\$6,615,000 \$33,075
2 Site Works							\$781,000
Sub-Total	1,154				983	\$7,557	\$7,429,075
3 Escalation Allowance up to Q3 2021					9%		\$669,000
4 Construction Contingency Allowance - Post Contract							Exclude
Total Construction Cost	1,154				983	\$8,237	\$8,098,075
5 Furniture							\$78,950
Workstations	26	ea	1750	45,500			Ψ70,730
Conference table with 14 chairs	1	sum	10000	10,000			
Visitor storage lockers	included						
Circular table with 3 chairs	3	ea	1150	3,450			
Interview room - table with 3 chairs	1	sum	2000	2,000			
Other offices - table with 3 chairs	1	sum	4800	4,800			
Quiet room - circular table with chair	1	sum	900	900			
Collaborative area - circular table with 4 chairs	1	sum	2300	2,300			
Allow for other miscellaneous furniture	1	sum	10000	10,000			
Lab		not includ	ed				
Exhibit space		not includ	ed				
6 Equipment Kitchen appliances - Stove, Fridge, Microwave, Coffee maker & Water dispenser	1	sum	5300	5,300			\$5,30
Total Estimated Construction Cost					983	\$8,323	\$8,182,325

Notes:

- 1 The above is an opinion of Probable Cost Only
- We have assumed the following
 The building will have a raft foundation
- The building super structure will be using CLT construction

 3 We have allocated 15% Design Development and Estimating Contingency

 4 Assumed site is fairly level, and no cut and fill costs are included in the estimate

The following have been specifically excluded:

- 1 HST
- 2 Professional Consultant Design Fees
- 3 Specialist Consultant Design Fees
- 4 Legal Fees and Expenses
- 5 Project Management Fees
- 6 Furniture, Furnishings and Equipment (other than detailed in the estimate)
- 7 Owner's Administration Expenses
- 8 Removal of Contaminated Material, if any
- 9 Permits and Development Charges
- 10 Garbage Equipment/Bins
- 11 Land Acquisition Cost
- 12 Construction Price Escalation
- 13 Construction Contingency 14 Solar heating system
- 15 Cooling plant
- 16 Incoming services up to site boundary
- 17 Communications active hardware
- 18 A/V equipment, devices & wiring 19 P.A. equipment, speakers & wiring
- 20 Clock system
- 21 Phasing & Labour premium
 22 Premiums for Single Sourced Materials
- 23 Schedule Acceleration Premium
- 24 LEED Premiums
- 25 Blinds/ window coverings
- 26 3rd Party M&E commissioning

6 ELEMENTAL ESTIMATE

Lake Superior Visitor Centre - Option 2 (Amethyst)

ELEMENTAL COST SUMMARY CLASS D COST ANALYSIS

"ii∵ Turner & Townsend

983 m2

\$6,842 m2

\$636 sf

Cat:

 File:
 MS-NU-R0

 Date:
 2018-06-20

 Project Number:
 can18305

Location: Ottawa, ON
Owner/Client: Parks Canada

Project:

Architect:

Perkins+Will Gross Floor Area:

Elemental Ratio Elemental Elemental **Unit Rate** Cost/m2 Quantity Element to GFA **Amount Amount** A SHELL A1 SUBSTRUCTURE \$517.24 0.85 983 m2 \$607.26 \$597,000 \$517.24 A11 Foundation A12 Basement Excavation 0.00 0 m3 \$0.00 \$0 \$0.00 \$597,000 9% A2 STRUCTURE \$1,007.62 A21 Lowest Floor Construction 0.17 200 m2 \$169.83 \$34,000 \$29.46 A22 Upper Floor Construction 0.00 0 m2 \$0.00 \$0.00 \$0 1,131 m2 \$998.62 \$1,129,000 A23 Roof Construction 0.98 \$978.17 \$1,163,000 17% A3 EXTERIOR ENCLOSURE \$1,461.62 A31 Walls Below Grade 0.00 0 m2 \$0.00 \$0 \$0.00 \$872,000 A32 Walls Above Grade 0.79 916 m2 \$951.65 \$755.50 A33 Windows & Entrances 0.07 86 m2 \$2,267.44 \$195,000 \$168.95 A34 Roof Covering 0.98 1,131 m2 \$298.08 \$337,000 \$291.98 A35 Projections 1.00 1,154 m2 \$245.19 \$283,000 \$245.19 \$1,687,000 25% B INTERIORS **B1 PARTITIONS & DOORS** \$268.58 **B11 Partitions** 1 07 1 237 m2 \$210.19 \$260,000 \$225.26 B12 Doors 0.02 23 No \$2,173.91 \$50,000 \$43.32 \$310,000 5% **B2 FINISHES** \$118.70 B21 Floor Finishes 0.85 983 m2 \$78.32 \$77,000 \$66.71 B22 Ceiling Finishes 0.85 983 m2 \$15.26 \$15,000 \$13.00 B23 Wall Finishes 3,026 m2 \$45,000 2.62 \$14.87 \$38.99 \$137,000 2% **B3 FITTINGS & EQUIPMENT** \$50.25 B31 Fittings & Fixtures 0.85 983 m2 \$59.00 \$58,000 \$50.25 \$0.00 \$0.00 **B32** Equipment 0.00 0 m2 \$0 0.00 \$0.00 \$0.00 \$58,000 1% **B33 Conveying Systems** 0 Stp \$0 C SERVICES C1 MECHANICAL \$583.95 C11 Plumbing & Drainage 0.85 983 m2 \$113.93 \$112,000 \$97.04 \$34.66 C12 Fire Protection 0.85 983 m2 \$40.69 \$40,000 0.85 983 m2 \$457,000 C13 H.V.A.C. \$464.86 \$395.95 C14 Controls 0.85 983 m2 \$66.12 \$65,000 \$56.32 \$674,000 10% C2 ELECTRICAL \$325.77 C21 Service & Distribution 0.85 983 m2 \$102.74 \$101,000 \$87.51 C22 Lighting, Devices & Heating 0.85 983 m2 \$151.56 \$149,000 \$129.09 983 m2 \$128.17 0.85 \$126,000 C23 Systems & Ancillaries \$109.17 \$376,000 6% NET BUILDING COST (Excluding Site) \$4,333.74 \$5,002,000 74% D SITE & ANCILLARY WORK D1 SITE WORK \$0.00 D11 Site Development 0.00 0 m2 \$0.00 \$0 \$0.00 D12 Mechanical Site Services 0.00 \$0.00 0 m2 \$0.00 \$0 D13 Electrical Site Services 0.00 0 m2 \$0.00 \$0 \$0.00 \$0 0% D2 ANCILLARY WORK \$0.00 D21 Demolition 0.00 0 m2 \$0.00 \$0 \$0.00 D22 Alterations 0.00 \$0.00 \$0 \$0.00 0% 0 m2 \$0 NET BUILDING COST (Including Site) \$4,333.74 \$5,002,000 Z GENERAL REQUIREMENTS & ALLOWANCES Z1 GEN. REQ. & FEE 15.0% \$649.80 Z11 General Requirements 12.0% \$600,000 \$519.84 Z12 Fee 3.0% \$150,000 \$129.96 \$750,000 11% TOTAL CONSTRUCTION ESTIMATE (Excluding Allowances) \$5,752,000 86% \$747.70 **Z2 ALLOWANCES** 15.0% Z21 Estimating Allowance 15.0% \$863,000 \$747.70 Z22 Escalation Allowance 0.0% Refer to Executive Summary \$0 \$0.00 Z23 Construction Allowance 0.0% Refer to Executive Summary \$0 \$0.00 \$863,000 13% HST 0.0% EXCLUDED \$0 \$0.00 \$0 0% TOTAL CONSTRUCTION ESTIMATE (Including Allowances) 98% \$6,615,000 Cost/unit

GFA 983 m2 GFA 10,582 sf

Location: Ottawa, ON

Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-RO
Date: 6/20/18
Project Number: can18305
Gross Floor Area: 983.1 m2

Description	Quantity Unit	Rate	Amount
A4 CURCTURE			
A1 SUBSTRUCTURE			
A11 Foundations			
Note: No Geotechnical Report provided or foundation desig Assumed foundations to be confirmed by Consultants.	n.		
Strip topsoil and stockpile	+ 983 m²	10.00	9,83
Excavate for foundations	236 m ³	30.00	7,072
Cart material off site	236 m ³	15.00	3,536
Raft foundation 500mm thick	983 m²	316.70	311,349
concrete - supply 32 Mpa	492 m3	205.00	
concrete - place	492 m3	65.00	
concrete - accessories	492 m3	15.00	
concrete - finishing levelling	983 m2	15.00	
formwork edge of slab on grade	92 m2	500.00	
reinforcement, allow 75kg/m3 - material	36,866 kg	1.80	
reinforcement, allow 75kg/m3 - labour	36,866 kg	1.00	
reinforcement, allow 750kg/m3 - accessories	36,866 kg	0.20	
Allow for raft foundation thickening	391 m²	316.70	123,882
Allowance for under slab drainage and vapour barrier	983 m2	25.00	24,578
Allowance for under slab insulation 200 mm thick	983 m2	100.00	98,310
Granular - 200mm thk (incl. labour)	197 m3	45.00	8,848
Miscellaneous foundations	1 sum	10000.00	10,000
Assumed no allowance for temporary shoring			
Assumed no allowance for rock excavation			
TOTAL A11 Foundations	983 m2	607.26	597,000
A12 Basement Excavation			
No work required			

TOTAL A1 SUBSTRUCTURE

TOTAL A12 Basement Excavation

597,000

0.00

0 m3

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will

File: MS-NU-R0 Date: 6/20/18 Project Number: can18305 Gross Floor Area: 983.1 m2

Description		Quantity Unit	Rate	Amount
A2 STRUCTURE				
A21 Lowest Floor Construction	-			
Floor build-up on raft foundation - only in Exhibit space	+	200 m²	170.00	34,034
2 layers of 13mm plywood		200 m²	30.00	
6mm acoustic matt		200 m ²	15.00	
19mm plywood floor sheathing		200 m²	25.00	
100mm floor framing		200 m²	100.00	
TOTAL A21 Lowest Floor Construction		200 m2	169.83	34,000
A22 Upper Floor Construction				
No work required				
TOTAL A22 Upper Floor Construction		0 m2	0.00	0
A23 Roof Construction				
Roof Construction	+	1,131 m²	990.00	1,119,259
Plywood sheathing		1,131 m ²	640.00	
Larsen truss		included		
Insulation		included		
Timber trusses		1,131 m²	250.00	
2 x Plywood sheathing		2,261 m ²	15.00	
Air/vapour barrier		1,131 m²	10.00	
Wood furring		1,131 m²	40.00	
Gypsum wall board		1,131 m²	20.00	
Allowance for miscellaneous framing		1 sum	10000.00	10,000
TOTAL A23 Roof Construction		1,131 m2	998.62	1,129,000
TOTAL A2 STRUCTURE				1,163,000
A3 EXTERIOR ENCLOSURE				
A31 Walls Below Grade				
No work required				
TOTAL A31 Walls Below Grade		0 m2	0.00	0

Location: Ottawa, ON
Owner/Client: Parks Canada
Architect: Perkins+Will

File: MS-NU-RO
Date: 6/20/18
Project Number: can18305
Gross Floor Area: 983.1 m2

Description		Quantity Unit	Rate	Amount
A32 Walls Above Grade				
Exterior wall, wood siding - insulated	+	759 m²	650.00	493,350
Painted wood siding		759 m²	650.00	
Weather barrier		759 m²	included	
Plywood sheathing		759 m²	included	
Larsen truss		759 m²	included	
Insulation		759 m²	included	
Extra over for exterior wall for architectural shape		240 m²	250.00	60,000
Exterior wall, wood siding	+	157 m²	600.00	94,380
Painted wood siding		157 m²	600.00	
Weather barrier		157 m²	included	
Plywood sheathing		157 m²	included	
Larsen truss		157 m²	included	
Insulation				
Extra over for exterior wall for architectural shape		60 m²	200.00	12,000
CLT Mass timber structure - Assumed 25% of exterior walls		229 m2	365.00	83,612
CLT - 140mm		229 m²	290.00	
Air/vapour barrier		229 m²	10.00	
Wood furring		229 m²	40.00	
16mm X gypsum board		229 m²	25.00	
Light wood infill framing		687 m²	120.00	82,467
- Wood studs -140mm		687 m2	75.00	
- Batt insulation 140mm		687 m2	20.00	
- 16mm X gypsum board		687 m2	25.00	
Premium for insulation for passive building		916 m²	50.00	45,815
TOTAL A32 Walls Above Grade		916 m2	951.65	872,000

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will Date: 6/20/18 Project Number: can18305 Gross Floor Area: 983.1 m2

File: MS-NU-R0

Description		Quantity Unit	Rate	Amount
A33 Windows & Entrances				
Triple-glazed windows, 2 layers low-e coating and argon or krypton glass filled tilt and turn	+	34 m2	2000.00	68,000
Clerestory glazing 700mm high	'	18 m	1500.00	27,000
cierestory grazing 700mm nigh		10 111	1500.00	27,000
Curtain walls at vestibule including doors	+	34 m2	2000.00	68,000
High performance insulated single exterior doors		1 no	5000.00	5,000
Automatic opener at main entries		4 no	3500.00	14,000
Door to the utility storage		1 sum	12500.00	12,500
TOTAL A33 Windows & Entrances		86 m2	2267.44	195,000
A34 Roof Covering				
Roof covering	+	1,131 m2	235.00	265,683
Roofing layer		1,131 m²	200.00	
Wood strapping		1,131 m²	25.00	
Weather barrier		1,131 m²	10.00	
Premium for insulation for passive building		1,131 m²	50.00	56,528
Roof ladder - allowance		1 sum	5000.00	5,000
Allowance for accessories		1 sum	10000.00	10,000
TOTAL A34 Roof Covering		1,131 m2	298.08	337,000
A35 Projections				
Roof overhang		223 m²	1225.00	273,180
Allowance for miscellaneous projections		1 sum	10000.00	10,000
TOTAL A35 Projections		1,154 m2	245.19	283,000
				,
TOTAL A3 EXTERIOR ENCLOSURE				1,687,000
TOTAL A SHELL				3,447,000

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will

File: MS-NU-R0 Date: 6/20/18 Project Number: can18305 Gross Floor Area: 983.1 m2

Description		Quantity Unit	Rate	Amoun
B1 PARTITIONS & DOORS				
B11 Partitions				
Interior insulated walls	+	60 m ²	150.00	9,00
- 16mm X gypsum board		60 m2	25.00	
- 92mm batt insulation		60 m2	15.00	
- wood studs		60 m2	35.00	
· wood studs		60 m2	35.00	
92mm batt insulation		60 m2	15.00	
16mm X gypsum board		60 m2	25.00	
Other interior insulated walls	+	995 m²	100.00	99,50
- 16mm X gypsum board		995 m2	25.00	
- wood studs		995 m2	35.00	
- 92mm batt insulation		995 m2	15.00	
16mm X gypsum board		995 m2	25.00	
Glazed partitions	+	182 m²	750.00	136,50
Folding partitions		m	10,000.00	
Retractable glass partitions		m	2,500.00	
Rough carpentry		1 sum	5000.00	5,00
Sealing and caulking		1 sum	5000.00	5,00
Boxing and furring		1 sum	5000.00	5,00
TOTAL B11 Partitions		1,237 m2	210.19	260,00
B12 Doors				
		47	1000.00	20.46
nterior doors - painted hollow core wood doors c/w hardware	+	17 no	1200.00	20,40
nterior glazed doors	+	4 no	3500.00	14,00
Glazed vestibule double doors	+	2 prs	8000.00	16,00
TOTAL B12 Doors		23 No	2173.91	50,00
TOTAL B1 PARTITIONS & DOORS				310,00

Location: Ottawa, ON Owner/Client: Parks Canada

TOTAL B2 FINISHES

Architect: Perkins+Will

File: MS-NU-R0 Date: 6/20/18 Project Number: can18305 Gross Floor Area: 983.1 m2

137,000

Description		Quantity Unit	Rate	Amount
B2 FINISHES				
B21 Floor Finishes				
Ceramic tile flooring - to vestibule, kitchen and washrooms	+	91 m2	150.00	13,610
Carpet tile / VCT flooring to other areas	+	783 m2	65.00	50,860
Exposed floors in Telecom/Services/Mech. and Utility/Storage Room	+	110 m2		0
Extra over for lab flooring		44 m2	50.00	2,200
Foot grilles - to entrance vestibule		2 no	2000.00	4,000
Bases Allow for bases		1 sum	6700.00	6,700
TOTAL B21 Floor Finishes		983 m2	78.32	77,000
B22 Ceiling Finishes				
Assumed exposed painted ceiling	+	983 m2	15.00	14,750
TOTAL B22 Ceiling Finishes		983 m2	15.26	15,000
B23 Wall Finishes				
Paint	+	3,026 m2	15.00	45,390
TOTAL B23 Wall Finishes		3,026 m2	14.87	45,000

Location: Ottawa, ON
Owner/Client: Parks Canada
Architect: Perkins+Will

File: MS-NU-RO
Date: 6/20/18
Project Number: can18305
Gross Floor Area: 983.1 m2

Description	Quantity Unit	Rate	Amoun
33 FITTINGS & EQUIPMENT			
B31 Fittings & Fixtures			
Closet rod and shelving -allow	5 m	300.00	1,50
Kitchen countertop w/ upper and base cabinets	7 m	2000.00	14,00
Shared equipment upper and lower cabinets	6 m	1500.00	9,00
Reception millwork	4 m	2000.00	8,00
Lockers	11 ea.	400.00	4,40
Allowance for signage	1 sum	5000.00	5,00
Washroom accessories - allowance	8 units	750.00	6,00
Allow for other miscellaneous fittings and fixtures	1 sum	10000.00	10,00
Furniture - included in summary			
TOTAL B31 Fittings & Fixtures	983 m2	59.00	58,00
B32 Equipment			
Equipment - included in summary			
TOTAL B32 Equipment	0 m2	0.00	
B33 Conveying Systems			
No work required			
TOTAL B33 Conveying Systems	0 Stp	0.00	
TOTAL B3 FITTINGS & EQUIPMENT			58,00
· · · · · · · · · · · · · · · · · · ·			30,00
TOTAL B INTERIORS			505,00

File: MS-NU-R0 Location: Ottawa, ON Date: 6/20/18 Owner/Client: Parks Canada Project Number: can18305 Architect: Perkins+Will Gross Floor Area: 983.1 m2

Description	Quantity Unit	Rate	Amount
C1 MECHANICAL			
C11 Plumbing & Drainage			
Equipment			
water meter and back flow preventer	1 sum	5,000.00	5,000
domestic water heater	1 sum	5,000.00	5,000
(Subtotal Equipment \$10,000)			
Piping			
cold water	180 m	75.00	13,500
hot water	120 m	75.00	9,000
hot water recirculation	120 m	70.00	8,400
sanitary and vents storm drainage	240 m 190 m	90.00 95.00	21,600
(Subtotal Piping \$70,550)	190 111	95.00	18,050
Fixtures Water closet	6 no	1 500	9,000
Lavatory	6 no	1,500 1,400	8,400
kitchen sink	6 no	1,000	6,000
roof drain -new roof, based on architectural drawing	6 no	600	3,600
floor drain -allowance	6 no	600	3,600
hose bib -allowance	2 no	350	700
(Subtotal Fixtures \$31,300)			
TOTAL C11 Plumbing & Drainage	983 m2	113.93	112,000
C12 Fire Protection			
Sprinkler			
Full sprinkler coverage	980 m2	40.00	39,200
(Subtotal Sprinkler \$39,200)			
Standpipe			
not required			
(Subtotal Standpipe \$0)			
Miscellaneous			
fire extinguishers	1 sum	1,000.00	1,000
(Subtotal Miscellaneous \$1,000)	ı suili	1,000.00	1,000
(,			

Location: Ottawa, ON
Owner/Client: Parks Canada
Architect: Perkins+Will

File: MS-NU-R0 Date: 6/20/18 Project Number: can18305 Gross Floor Area: 983.1 m2

Description	Quantity Unit	Rate	Amount
C13 HVAC			
Air Handling			
Roof top unit- DX cooling, gas fired heating, assume 4000cfm miscellaneous exhaust fan (Subtotal Air Handling \$55,000)	2 no 1 no	25,000.00 5,000.00	50,000 5,000
Cooling plant no works (Subtotal Cooling plant \$0)			
Heating plant gas fired boiler, condensing, assume 300MBH heating pumps	2 no 2 no	7,500.00 3,500.00	15,000 7,000
chemical treatment and expansion tank boiler venting (Subtotal Heating plant \$30,000)	1 sum 1 sum	4,000.00 4,000.00	4,000 4,000
Miscellaneous testing and balancing Passive House requirements. Need HRV/ERV, and reduced	1 sum	4,000.00	4,000
sizes of mech units, ductwork distribution, etc. fuel oil system- not required (Subtotal Miscellaneous \$180,400)	980 m2	180.00	176,400
Piping natural gas	100 m	85.00	8,500
hot water supply and return to heating coil and FFH's refrigerant piping hot water supply and return to perimeter radiation- not required per engineer (Subtotal Piping \$25,600)	140 m 80 m	85.00 65.00	11,900 5,200
Ductwork and Air Distribution galvanized steel ductwork differs, grilles and registers	3,800 kg 70 no	18.00 150.00	68,400 10,500
exterior duct insulation- Assume not required silencers- allowance fire dampers	1 sum 1 sum	5,000.00 1,500.00	5,000 1,500
(Subtotal Ductwork and Air Distribution \$85,400)			
Heating Devices radiant floor heating entrance heaters (Subtotal Heating Devices \$80,900)	784 m2 2 no	100.00 1,250.00	78,400 2,500
TOTAL C13 HVAC	983 m2	464.86	457,000
TOTAL OTO HVAO	703 IIIZ	70 7 .00	+37,000

TOTAL C21 Service & Distribution

Location: Ottawa, ON Owner/Client: Parks Canada Project Number: can18305 Architect: Perkins+Will Gross Floor Area: 983.1 m2

File: MS-NU-R0

Date: 6/20/18

Description	Quantity Unit	Rate	Amount
C14 Controls			
Standalone controls			
Roof top unit	2 no	7,500.00	15,000
radiant floor manifold	10 no	2,500.00	25,000
exhaust fans	2 no	550.00	1,100
heating plant	1 no	7,500.00	7,500
exhaust fans, assumed by electrical switch unit heaters, thermostat control	2 no	550.00	1,100
computer software, hardware and programming (Subtotal Standalone controls \$64,700)	1 sum	15,000.00	15,000
TOTAL C14 Controls	983 m2	66.12	65,000
TOTAL C1 MECHANICAL			674,000
			27 1,222
C2 ELECTRICAL			
C21 Service & Distribution			
Normal Power			
112.5kVA power transformer - assume by hydro	no	\$0.00	\$0
400A 208V service entrance rated disconnect switch	1 no	\$2,500.00	\$2,500
400A 120/208V main distribution panel	1 no	\$7,400.00	\$7,400
Meter cabinet c/w empty conduit	1 no	\$800.00	\$800
Hangers	1 no	\$150.00	\$200
Allowance for feeders for above	1 sum	\$1,500.00	\$1,500
(Subtotal Normal Power \$12,400)			
Emergency Power	1	¢1/ 250 00	¢1/ 200
25kW 120/208V distribution panel	1 no	\$16,250.00	\$16,300
100A 120/208V distribution panel	1 no 2 no	\$2,790.00	\$2,800
100A 120/208V ATS c/w bypass ATS control wiring	2 no	\$9,580.00 \$300.00	\$19,200 \$600
Concrete base and grounding	2 110 1 sum	\$1,000.00	\$1,000
Allowance for feeders for above	1 sum	\$1,100.00	\$1,100
(Subtotal Emergency Power \$41,000)	1 34111	\$1,100.00	Ψ1,100
Distribution			
Allowance for normal and emergency power branch panels			
c/w feeders	983 m2	\$25.00	\$24,600
(Subtotal Distribution \$24,600)			
Motor Controls & Wiring			
Power connections to mechanical equipment c/w line and load side wiring and disconnect switches	002	¢12.00	¢11 000
(Subtotal Motor Controls & Wiring \$11,800)	983 m2	\$12.00	\$11,800
Miscellaneous			
Grounding & isolate technical grounding	1 sum	\$5,600.00	\$5,600
Permits, inspection & job setup	1 sum	\$5,100.00	\$5,100
(Subtotal Miscellaneous \$10,700)			

983 m2

102.74

101,000

Description

File: MS-NU-R0 Location: Ottawa, ON Date: 6/20/18 Owner/Client: Parks Canada Project Number: can18305 Architect: Perkins+Will Gross Floor Area: 983.1 m2

Quantity Unit

Amount

Rate

C22 Lighting, Devices & Heating			
Lighting Energy efficient LED lighting c/w branch wiring:			
Exhibit space	200 m2	\$200.00	\$40,000
Open office area	189 m2	\$70.00	\$13,200
Conference room	25 m2	\$90.00	\$2,300
Office/meeting room	57 m2	\$80.00	\$4,600
Washroom	50 m2	\$70.00	\$3,500
Storage/service area	112 m2	\$50.00	\$5,600
Kitchen	22 m2	\$70.00	\$1,500
Lab	44 m2	\$150.00	\$6,600
Reception/circulation area	284 m2	\$120.00	\$34,100
Exhibit space lighting controls c/w scene controls etc. Building lighting controls c/w local switching and occupancy	200 m2	\$30.00	\$6,000
sensors (Subtotal Lighting \$129,100)	783 m2	\$15.00	\$11,700
Branch Devices			
Receptacles and power connections c/w branch wiring:			
Exhibit space	200 m2	\$15.00	\$3,000
Open office area	189 m2	\$30.00	\$5,700
Conference room	25 m2	\$35.00	\$900
Office/meeting room	57 m2	\$25.00	\$1,400
Washroom	50 m2	\$10.00	\$500
Storage/service area Kitchen	112 m2 22 m2	\$10.00	\$1,100 \$900
Lab	44 m2	\$40.00 \$40.00	\$900 \$1,800
Reception/circulation area	284 m2	\$40.00 \$15.00	\$4,300
(Subtotal Branch Devices \$19,600)	204 1112	ψ13.00	ψ 4 ,300
Heating		40.00	**
By division 15 (Subtotal Heating \$0)	sum	\$0.00	\$0
TOTAL C22 Lighting, Devices & Heating	983 m2	151.56	149,000
C23 Systems & Ancillaries			
Fine Alexan Cychema			
Fire Alarm System Addressable fire alarm system (Subtotal Fire Alarm System \$24,600)	983 m2	\$25.00	\$24,600
Security System Access control and CCTV system head end equipment,			
devices and wiring	983 m2	\$25.00	\$24,600
Conduit rough-in to security system devices (Subtotal Security System \$34,400)	983 m2	\$10.00	\$9,800

Project: Lake Superior Visitor Centre - Option 2 (Amethyst) File: MS-NU-R0 Location: Ottawa, ON Date: 6/20/18 Owner/Client: Parks Canada Project Number: can18305 Architect: Perkins+Will

Gross Floor Area: 983.1 m2

Description	Quantity Unit	Rate	Amount
Communications Communications active hardware - by others Communications cabling, racks and wire management Conduit rough-in to voice and data outlets c/w sleeves and cable tray	m2 983 m2 983 m2	\$0.00 \$30.00 \$15.00	\$0 \$29,500 \$14,700
(Subtotal Communications \$44,200)		*	7 ,
P.A. & Intercom System Assume none required (Subtotal P.A. & Intercom System \$0)	no	\$0.00	\$0
AV System AV devices, head end equipment and wiring - by others AV empty conduit outlets (Subtotal AV System \$15,000)	no 1 sum	\$0.00 \$15,000.00	\$0 \$15,000
Miscellaneous Allowance for miscellaneous systems (Subtotal Miscellaneous \$8,000)	1 sum	\$8,000.00	\$8,000
TOTAL C23 Systems & Ancillaries	983 m2	128.17	126,000
TOTAL C2 ELECTRICAL			376,000
TOTAL C SERVICES			1,050,000
NET BUILDING COST (EXCLUDING SITE)			5,002,000
D1 SITE WORK			
D11 Site Development			
See Site Development Works Estimate			
TOTAL D11 Site Development	0 m2	0.00	0
D12 Mechanical Site Services			
See Site Development Works Estimate			
TOTAL D12 Mechanical Site Services	0 m2	0.00	0
D13 Electrical Site Services			
See Site Development Works Estimate			
TOTAL D13 Electrical Site Services	0 m2	0.00	0

TOTAL D1 SITE WORK 0

Location: Ottawa, ON

Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-RO
Date: 6/20/18
Project Number: can18305
Gross Floor Area: 983.1 m2

Description	Quantity Unit	Rate	Amount
D2 ANCILLARY WORK			
D21 Demolition			
No work required			
TOTAL D21 Demolition	0 m2	0.00	0
D22 Alterations			
No work required			
TOTAL D22 Alterations	0 m2	0.00	0
TOTAL D2 ANCILLARY WORK			0
TOTAL D SITE & ANCILLARY WORK			0
NET BUILDING COST (INCLUDING SITE)			5,002,000
Z1 GENERAL REQUIREMENTS & FEE			
Z11 General Requirements			
General Requirements	Is		600,000
TOTAL Z11 General Requirements			600,000
Z12 Fee			
Fee	Is		150,000
TOTAL Z12 Fee			150,000
TOTAL Z1 GENERAL REQUIREMENTS & FEE			750,000
TOTAL CONSTRUCTION ESTIMATE EXCLUDING ALLOWANCES			5,752,000

Location: Ottawa, ON Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-RO
Date: 6/20/18
Project Number: can18305
Gross Floor Area: 983.1 m2

Description	Quantity Unit	Rate	Amount
Z2 CONTINGENCIES]		
Z21 Estimating Contingency			
Estimating Contingency	Is		863,000
TOTAL Z21 Estimating Contingency			863,000
Z22 Escalation Contingency			
Escalation Contingency - See Executive Summary	Is		0
TOTAL Z22 Escalation Contingency			o
Z23 Construction Contingency			
Construction Contingency - See Executive Summary	Is		0
Total Z23 Construction Contingency			o
TOTAL Z2 CONTINGENCIES			863,000
TOTAL Z GENERAL REQUIREMENTS & CONTINGENCIES			1,613,000
TOTAL BUILDING COST INCLUDING ALLOWANCES			6,615,000

ELEMENTAL COST SUMMARY CLASS D COST ANALYSIS

Cat:

							out.		
Project:	Site Works						File:	MS-NU-R0	
Location:	Ottawa						Date:	2018-06-20	
Owner/Client:	Parks Canada					P	roject Number:	can18305	
Architect:	Perkins+Will					Gr	oss Site Area:	3,964	m2
			Ratio	Elemental	Elemental	Elemental			
Element			to GSA	Quantity	Unit Rate	Amount	Cost/m2	Amount	
D SITE & ANCI	LLARY WORK								
D1 SITE WOR	RK						\$142.68		
D11 Si	ite Development		0.96	3,964 m2	\$65.34	\$259,000	\$62.63		
D12 M	echanical Site Services		0.96	3,964 m2	\$45.41	\$180,000	\$43.53		
D13 EI	ectrical Site Services		0.96	3,964 m2	\$38.09	\$151,000	\$36.52	\$590,000	78%
D2 ANCILLAR	RY WORK						\$0.00		
D21 D	emolition		0.00	0 m2	\$0.00	\$0	\$0.00		
D22 Al	Iterations		0.00	0 m2	\$0.00	\$0	\$0.00	\$0	0%
NET BUILDING	COST (Including Site)						\$142.68	\$590,000	
Z GENERAL RE	QUIREMENTS & ALLOW	ANCES							
Z1 GEN. REQ.	& FEE	15.0%					\$21.52		
Z11 G	eneral Requirements	12.0%				\$71,000	\$17.17		
Z12 Fe	ee	3.0%				\$18,000	\$4.35	\$89,000	12%
TOTAL CONSTR	UCTION ESTIMATE (Exc	cluding Allo	wances)					\$679,000	90%
Z2 ALLOWAN	ICES	15.0%					\$24.67		
Z21 Es	stimating Allowance	15.0%				\$102,000	\$24.67		
Z22 Es	scalation Allowance	0.0%		Refer to Executiv	e Summary	\$0	\$0.00		
Z23 Co	onstruction Allowance	0.0%		Refer to Executiv	e Summary	\$0	\$0.00	\$102,000	13%
HST		0.0%		EXCLUDED		\$0	\$0.00	\$0	0%
TOTAL CONSTR	UCTION ESTIMATE (Inc	luding Allo	wances)					\$781,000	103%

TOTAL CONSTRUCTION ESTIMATE (Including Allowances)

Cost/unit

3,964 m2 GSA GSA 42,668 sf

\$191 m2

\$18 sf

Project: Site Works Location: Ottawa

fire hydrant

(Subtotal Water Service \$29,500)

Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-R0 Date: Jun 20 2018 Project Number: can18305 Gross Site Area: 3964 m2

Description	Quantity Unit	Rate	Amount
D1 SITE WORK			
D11 Site Development			
Clear & grub site	+ 3,964 m2	10.00	39,640
Add for 1.5m berm under the building and sloping to site	2,212 m3	45.00	99,540
Parking and roadways - gravel	617 m2	20.00	12,340
Access paths - gravel	821 m2	25.00	20,530
Walking path - clear water creek	494 m2	25.00	12,350
Landscape island	50 m2	35.00	1,750
Out door storage compound 8' chain link fence	67 m	200.00	13,400
Trees	7 no	500.00	3,500
Allowance for shrubs	1 sum	1000.00	1,000
Outdoor interpretive areas - assumed topsoil and sod	2,153 m2	15.00	32,300
Other treed site areas - assumed no work required	8,495 m2		
Line markings	1 sum	2000.00	2,000
Outdoor seating	10 ea.	500.00	5,000
Bicycle storage	5 ea.	500.00	2,500
Allowance for erosion & sedimentation control	1 sum	1500.00	1,500
Allowance for furniture and waste receptacles	1 sum	1500.00	1,500
Allowance for miscellaneous site development	1 sum	10000.00	10,000
TOTAL D11 Site Development	3,964 m2	65.34	259,000
D12 Mechanical Site Services			
Storm Service			
connect to existing	1 sum	5,000.00	5,000
piping manhole/catch basin	250 m 8 no	200.00 4,000.00	50,000 32,000
stormceptor	1 no	30,000.00	30,000
(Subtotal Storm Service \$117,000)		00,000.00	33,333
Sanitary Service		5 000 00	F 000
connect to existing piping	1 sum 100 m	5,000.00 200.00	5,000 20,000
manhole/catch basin	2 no	4,000.00	8,000
existing to remain	2 110	1,000.00	3,300
(Subtotal Sanitary Service \$33,000)			
Water Service	1 0.100	E 000 00	E 000
connect to existing piping	1 sum 100 m	5,000.00 200.00	5,000 20,000
pipilig fire hydrant	100 m	200.00 4.500.00	20,000 4 500

1 no

4,500.00

4,500

Project: Site Works

Location: Ottawa

Date: Jun 20 2018

Owner/Client: Parks Canada

Architect: Perkins+Will

File: MS-NU-R0

Date: Jun 20 2018

Project Number: can18305

Gross Site Area: 3964 m2

Description Quantity Unit Rate Amount
Miscellaneous
irrigation- Not included

gas incoming -by utility (Subtotal Miscellaneous \$0)

TOTAL D12 Mechanical Site Services 3,964 m2 45.41 180,0	echanical Site Services 3,964 m2 45.41	Site Services 3,964 m2 45.41 180,000
---	--	--------------------------------------

D13 Electrical Site Services

Incoming Power			
Incoming rower Incoming overhead H.V. cabling & termination - by Hydro	1 sum	\$0.00	\$0
Allowance for hydro charges	1 sum	\$20,000.00	\$20,000
Concrete pad for transformer including bollards & grounding	1 sum	\$7,500.00	\$7,500
2 cell concrete encased duct bank - primary	20 m	\$200.00	\$4,000
2 cell concrete encased duct bank - secondary	15 m	\$200.00	\$3,000
#500mcm rwu90 wire #1/0 rwu90 wire	80 m	\$50.00	\$4,000
(Subtotal Incoming Power \$38,900)	20 m	\$20.00	\$400
(Subtotal fricoffling Power \$36,900)			
Incoming Communications			
Allowance for Utility charges	1 sum	\$3,000.00	\$3,000
4-103mm PVC DB for communication and cable TV	20 m	\$226.00	\$4,500
Incoming communication and Cable TV cabling by Services			
provider	sum	\$0.00	\$0
(Subtotal Incoming Communications \$7,500)			
Site Lighting, Power & Security - allowance			
Pole mounted LED fixture, double heads	3 no	\$5,340.00	\$16,000
Pole mounted LED fixture, single head	6 no	\$3,535.00	\$21,200
Type W1 LED wall pack	16 no	\$575.00	\$9,200
Fixture wiring, pole lights	9 no	\$500.00	\$4,500
Fixture wiring, wall packs	16 no	\$325.00	\$5,200
Concrete base	9 no	\$500.00	\$4,500
Allowance for landscape lighting	1 sum	\$25,000.00	\$25,000
Lighting controls	1 no	\$2,270.00	\$2,300
Power connection to signage	1 no	\$2,120.00	\$2,100
Communications conduit & cabling to signage	1 no	\$2,560.00	\$2,600
Pole mounted CCTV, pole included above	3 no	\$1,700.00	\$5,100
CCTV wiring	3 no	\$600.00	\$1,800
Excavation & backfill	1 sum	\$5,000.00	\$5,000
(Subtotal Site Lighting, Power & Security - allowance			

TOTAL D13 Electrical Site Services	3,964 m2	38.09	151,000

TOTAL D1 SITE WORK 590,000

Project: Site Works Location: Ottawa

Owner/Client: Parks Canada Architect: Perkins+Will File: MS-NU-RO Date: Jun 20 2018 Project Number: can18305 Gross Site Area: 3964 m2

Description	Quantity Unit	Rate	Amount
D2 ANCILLARY WORK	-		
D21 Demolition			
No work required			
No work required			
TOTAL D21 Demolition	0 m2	0.00	0
D22 Alterations			
DZZ AITERATIONS			
No work required			
TOTAL D22 Alterations	0 m2	0.00	0
TOTAL D2 ANCILLARY WORK			0
TOTAL D SITE & ANCILLARY WORK			590,000
NET BUILDING COST (INCLUDING SITE)			590,000
Z1 GENERAL REQUIREMENTS & FEE			
Z11 General Requirements			
General Requirements	le		71 000
General Requirements	ls		71,000
TOTAL Z11 General Requirements			74 000
TOTAL 211 General Requirements			71,000
Z12 Fee			
Fee	ls		18,000
TOTAL Z12 Fee			18,000
TOTAL Z1 GENERAL REQUIREMENTS & FEE			89,000
TOTAL CONSTRUCTION ESTIMATE EXCLUDING ALLOWANCES			679,000
		<u> </u>	

Project: Site Works
Location: Ottawa
Owner/Client: Parks Canada
Architect: Perkins+Will

File: MS-NU-R0 Date: Jun 20 2018 Project Number: can18305 Gross Site Area: 3964 m2

Description	Quantity Unit	Rate	Amount
Z2 CONTINGENCIES			
Z21 Estimating Contingency			
Estimating Contingency	Is		102,000
TOTAL Z21 Estimating Contingency			102,000
Z22 Escalation Contingency			
Escalation Contingency - See Executive Summary	Is		0
TOTAL Z22 Escalation Contingency			0
Z23 Construction Contingency			
Construction Contingency - See Executive Summary	Is		0
Total Z23 Construction Contingency			0
TOTAL Z2 CONTINGENCIES			102,000
TOTAL Z GENERAL REQUIREMENTS & CONTINGENCIES			191,000
		<u></u>	
TOTAL BUILDING COST INCLUDING ALLOWANCES			781,000

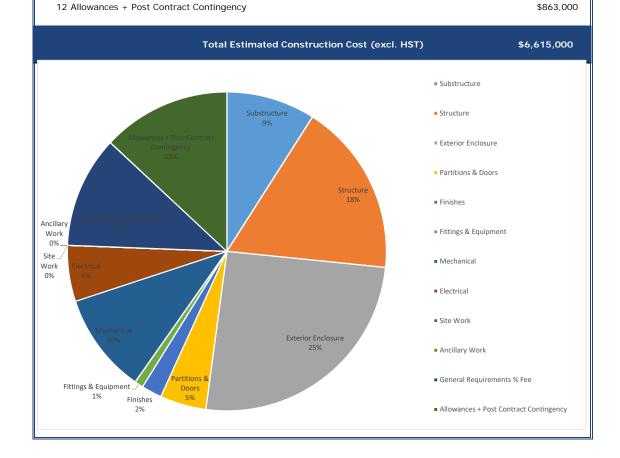
7 COST BREAKDOWN

Project No. can18305 Gross Floor Area: 983.1 m2 Rev. 1 6-20-18



Lake Superior Visitor Centre - Option 2 (Amethyst)
CLASS D COST ANALYSIS

Executive Summary - Cost Breakdown Construction Cost only (exclude Cash Allowances) 1 Substructure \$597,000 2 Structure \$1,163,000 3 Exterior Enclosure \$1,687,000 \$310,000 4 Partitions & Doors 5 Finishes \$137,000 6 Fittings & Equipment \$58,000 7 Mechanical \$674,000 8 Electrical \$376,000 9 Site Work \$0 10 Ancillary Work \$0 11 General Requirements % Fee \$750,000



Project No. can18305 Gross Site Area: 4135.1 m2 Rev. 0



6-20-18

SITE WORKS **CLASS D COST ANALYSIS**

Executive Summary - Cost Breakdown

Construction Cost only (exclude Cash Allowances)

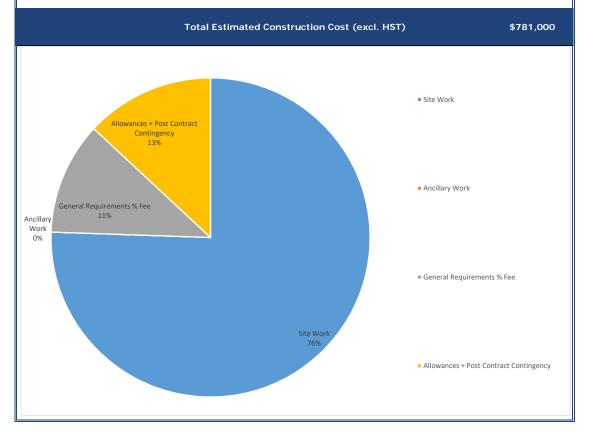
- 9 Site Work
- 10 Ancillary Work
- 11 General Requirements % Fee

\$89,000 \$102,000

\$590,000

\$0

12 Allowances + Post Contract Contingency



A AREA SUMMARY - Option 1 (Paddle)

Lake Superior - Option 1

	Enclosed (m2)	Void (m2)	Area (m2)	Area (sf)	Perimeter (m)	Height (m)	Parking (Nr)	Handicap parking (Nbr)	Bicycles (Nr)
Underground Parking Parking Level 1	0	0	0	0	0	0.00	0	0	0
TOTAL	0	0	0	0	0.00	0.00	0	0	0

	Enclosed (m2)	Void (m2)	Area (m2)	Area (sf)	Perimeter (m)	Height (m)	Balconies (m2)
ve Grade							
Ground Floor	979	0	979	10,540	184	6.75	
Mezzanine	175		175	1,884			
TOTAL	1,154	0	1,154	12,424	183.65	6.75	0.0
TOTAL PROJECT GFA	1,154	0	1,154	m2 12,424		7	

	m2	sf %
lation		
Service/Custodial Room	9	98 0.8%
Telecom Room	11	113 0.9%
Utility/Storage Room	101	1,085 8.7%
Mezzanine Storage	175	1,884 15.2%
Vestibule	4	39 0.3%
Interview Room	9	100 0.8%
Secure Strong Room	9	93 0.7%
Warden Office	18	196 1.6%
Res Con Lab	46	494 4.0%
Staff WR	13	137 1.1%
Site Manager	11	118 1.0%
Staff/Visitors Washrooms	43	457 3.7%
Shared Equipment Room	17	183 1.5%
Staff Closet	4	46 0.4%
Quiet Room	6	65 0.5%
Meeting Room	9	97 0.8%
Open Collaboration Area	15	159 1.3%
Staff Kitchen	20	220 1.8%
Conference Room	36	386 3.1%
Entrance	8	84 0.7%
Entrance	5	58 0.5%
Reception	11	114 0.9%
Merchandise Display	1	14 0.1%
Merchandise Display	1	14 0.1%
Entrance Hall	39	424 3.4%
Exhibit Space	198	2,132 17.2%
Corridor/Coats/Lockers	16	170 1.4%
Office Work Area	186	2,006 16.1%

B AREA SUMMARY - Option 2 (Amethyst)

Lake Superior - Option 2

TOTAL PROJECT GFA

	Enclosed (m2)	Void (m2)	Area (m2)	Area (sf)	Perimeter (m)	Height (m)	Parking (Nr)	Handicap parking (Nbr)	Bicycles (Nr)
Underground Parking									
Parking Level 1	0	0	0	0	0	0.00	0	0	
TOTAL	0	0	0	0	0.00	0.00	0	0	
	Enclosed (m2)	Void (m2)	Area (m2)	Area (sf)	Perimeter (m)	Height (m)	Balconies (m2)		
Above Grade		Void (m2)	Area (m2)	Area (sf)	Perimeter (m)	Height (m)			
		Void (m2)	Area (m2)	Area (sf)	Perimeter (m)	Height (m) 4.50			

10,582

983 m2

		m2	sf	%
ulat	tion			
Re	eception	11	121 1	.1%
Ex	thibit Space	200	2,155 2	0.4%
Ve	estibule	10	102 1	.0%
Ve	estibule	10	102 1	.0%
Er	ntrance Hall	5	50 C	.5%
W	ashroom & WR Corridor	42	448 4	.2%
St	taff WR	8	85 C	.8%
Te	elecom/Services/Mech.	10	107 1	.0%
Si	te Manager Room	12	128 1	.2%
Er	ntrance Corridor	14	145 1	.4%
CI	oset	2	23 C	.2%
In	iterview Room	10	108 1	.0%
Se	ecure Strong Room	10	107 1	.0%
W	arden Office	13	138 1	.3%
Me	eeting Room	6	65 C	0.6%
Qı	uiet Room	6	65 C	0.6%
Sh	nared Service Corridor	14	145 1	.4%
O	pen Collaboration Area	13	139 1	.3%
St	taff Kitchen	22	239 2	.3%
Co	onference Room	25	268 2	.5%
Re	es Con Lab	44	473 4	.5%
Ut	tility Building/Storage	100	1,076 1	0.2%
Er	ntrance Hall	73	788 7	.4%
Of	ffice Work Area	176	1,892 1	7.9%

983

Perkins+Will Lake Superior Visitor Centre

C DOCUMENT LIST

Dwg no.	Document	Prepared By	Dated	Date Received
	<u>ARCHITECTURAL</u>			
	Updated Class D Costing Package	Perkins+Will	24-May-2018	6-Jun-2018
	LSNMCA - Final Concept Presentation	Perkins+Will	24-May-2018	6-Jun-2018
	Wall Assembly draft	Perkins+Will		14-Aug-2018



Lake Superior RISK and OPPORTUNITY Register

Project:	Laka Superior	Project Phase		Risk Type	Risk Level (* see tab)		
Froject.	Project: Lake Superior		D	Sch Schedule	High Risk	P1	Status
Facilitator:	Douglas McNeill	Construction	С	Cos Cost	Medium Risk	P2	Open O
Stage:	Design	Operation	0	Rep Reputation	Low Risk	P3	Closed C
Date:	4-Jul-18	Procurement	Р	H&S Health & Safety			

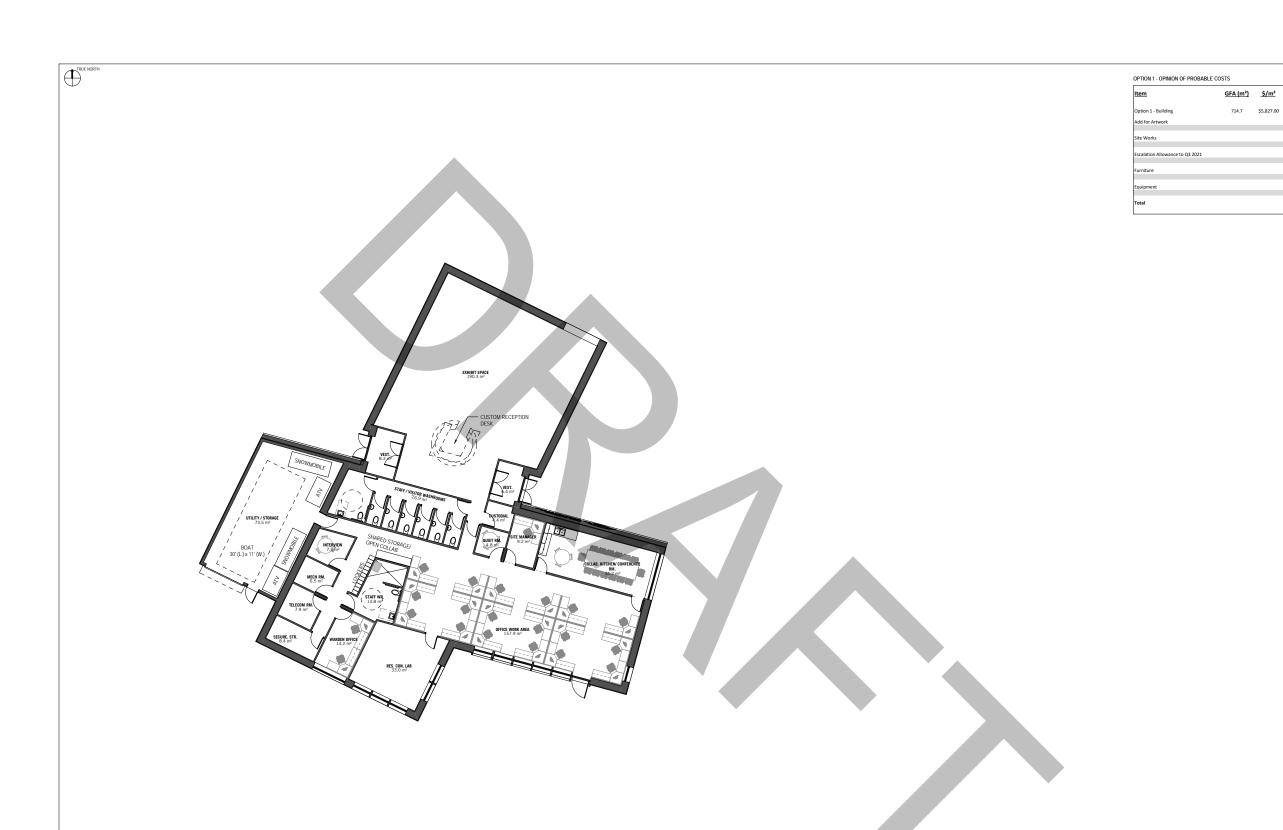
No.	Risk or Opp	Description: General	Project Phase	Туре	Probability	Impact	Risk Level	Proposed Solution	Action Taken (if different to proposed solution) Owner		Residual Risk	Status
1	Risk	Discovery of unfavourable ground conditions	С	Cos	Low	High	P2	Perform adequate bore hole or trial pits. If building footprint changes carry out further samples to align with building.	C	Client	(Open
2	Risk	Uncompetitive pricing due to lack of industry interest in bidding on construction contract	t P	Cos	Low	High	P2	Early communication to market to gain interest. Possibility to go out to market with an 'Expression of Interest' to gain insight of interest. Review procurement route options to make sure assessment considers market acceptance/preference.	C	Client	ı	Open
3	Risk	Cost of complying with City Inspectors interpretation of the O.B.C. should it differ from design team's	D	Cos	High	Low	Р3	Construction budget and contract to include adequate allowances for this common occurrence GC to request unit rates for common alterations to comply with Life Safety concerns of inspector.	C	Client		Open
4	Risk	Unacceptable onsite Health and safety	С	H&S	Low	High	P2	H&S past performance to be included in the procurement process. Review contractor's H&S plans in detail to make sure they are comprehensive.	C	Client	(Open
5	Risk	Schedule impact due to delay in contractor appointment as a result of poor documentation	Р	Sch	Low	Medium	Р3	Design team to allocate sufficient time for thorough review and coordination. Limit the number of addendums.	Desig	sign Team	(Open
6	Risk	Higher than expected changes to contract due to quality of design documents	С	Cos	Low	High	P2	Appoint competent design team. Design team to adequately resource and provide robust QA/QC across all design disciplines. Design team to hold regular design coordination meetings.	Desi	sign Team	(Open
7	Risk	Acceptance of alternative products to those specified may require unforeseen design changes which could result in additional consulting fees	Р	Cos	Medium	Medium	P2	Design team to carefully review impact of alternatives. Review to be carried out across all disciplines not just one in question.	Desig	sign Team	(Open
8	Risk	Continuity of project team	С	Rep	Low	Low	Р3	Appoint competent design team. Have a succession plan in place for team members.	C	Client	(Open
9	Risk	Long delivery times causing delays	С	Sch	Low	High	P2	Review of potential long lead time items. Look for alternatives to reduce risk. Pre order understanding risks in doing so.	Desig	sign Team		Open
10	Risk	Discovery of protected wildlife (animals or trees etc.)	C	Cos	Low	High	P2	Carry out thorough assessment on wildlife in a timely manner.	C	Client		Open
11	Risk	Lack of construction expertise in the local market for passive buildings.	С	Cos	High	High	P1	Consider including passive house/material specific construction subject matter experts as part of the consultants construction supervision team required on site for this project. Design team to look at prefabrication options. Look at training options to train contractors and subcontractors.	C	Client	(Open
12	Risk	Lack of understanding of passive and the importance of the quality of work and integrity of envelope airtightness.	C	Cos	High	High	P1	Design team to look at prefabrication options. Look at training options to train contractors and subcontractors. Increased site presence. Early pressure testing. Look at simple assembly options over complicated ones.	Desi	sign Team	(Open
13	Risk	Possible requirement to work around summer tourism season peak months (June-Aug) for the Township. Possible delays or stop work days/time.	С	Sch	Low	Medium	P3	Plan ahead during design for construction schedule and put considerations into cost estimate. Early discussion with township to manage expectations. Build any restrictions into the construction contract.	C	Client	(Open
14	Risk	Land transfer delays could delay construction start time.	D	Sch	Low	High	P2	A land transfer schedule should match the design/tender schedule for completion (land must be transferred before tender process). Construction expected to start in 2021.	C	Client	(Open
15	Risk	Access to the site is restrictive and this can impact equipment needed on site, as well as overhead electrical restrictions.	С	H&S	Low	Medium	Р3	Constructability constraints must be included during design, and removal of these constraints may need to be incorporated into construction stage. RFP to request a logistic and traffic management plan.	Desi	sign Team	ı	Open



Lake Superior RISK and OPPORTUNITY Register

Project:	Laka Superior	Project Phase			Risk Type	Risk Level (* see tab)			
Froject.	Project: Lake Superior		D	Sch	Schedule	High Risk	P1	Status	
Facilitator:	Douglas McNeill	Construction	С	Cos	Cost	Medium Risk	P2	Open	0
Stage:	Design	Operation	0	Rep	Reputation	Low Risk	P3	Closed	С
Date:	4-Jul-18	Procurement	Р	H&S	Health & Safety				

No.	Risk or Opp	Description: General Project	ct Phase	Туре	Probability	Impact	Risk Level	Proposed Solution	Action Taken (if different to proposed solution)	Owner	Residual Risk	Status
16	Risk	Budget may not be adequate to fulfill all exterior and interior goals.	D	Cos	Low	High	P2	Focus on interior exhibits as a priority as exterior exhibits are easier to phase in at a later date. Design team to focus on envelope, windows, and door solution as these will be considerable cost driver to building.		Design Team		Open
17	Risk	Trying to align architectural and exhibit design processes can lead to significant abortive work. The architectural process is too long for the exhibit process, especially when the construction process is considered. This can lead to additional project management, and meeting costs.	D	Cos	Low	Low	P3	Exhibit design is ideally 1 full phase behind the architects. Concept design generally does not begin until the exhibit floor plan is frozen. Exhibit process should lead with content development which architectural CD is produced. Meetings with exhibit design team should be held at specific times and should not be held on a biweekly or monthly basis. Changes during construction could impact the exhibit design. Agree the exhibit narrative early.		Client		Open
18	Risk	Exhibit lighting can only be done once the exhibit floorplan is frozen and this is often too late to be integrated with the architectural lighting.	D	Cos	Low	Low	P3	Exhibit lighting designers should provide a preliminary lighting plan with proposed equipment and loads. Architectural budget should provide for power runs, junction boxes (with allowance for some variance), and emergency lighting. Exhibit budget should be adequate to provide all exhibit track, fixtures, lamps and aiming and focusing allowance. Due to slab on grade solution, conduit runs should be planned early. Look at putting in a conduit grid in floor to allow flexibility.		Design Team		Open
19	Risk	Too great a focus on digital interactives can lead to significant issues during operation if an IT specialist is not present on site, even if remote access is granted to a third party IT developer.	0	Rep	Medium	Medium	P2	Only develop digital interactives that your site team can support. Keep in mind that both hardware and software issues can occur. Design team to review non digital interactive content. Use of standard equipment and software.		Design Team		Open
20	Risk	UNDERQUALIFIED GENERAL CONTRACTOR AND SUB TRADES	С	Sch	Medium	Medium	P2	Look at procurement methodology. Lump sum does not promote quality sub trades. Look at using Construction Management to be more selective on sub trades.		Client		Open
21	Risk	PASSIVE HOUSE CERTIFICATION FAIL	С	Rep	Low	High	P2	Appoint a competent design team and contractor. Perform pressure testing as early as possible. Increased onsite presence from design team and contractor. Frequent field reports and reviews by team. Early identification of issues. Stick with design as much as possible and be careful about accepting alternatives due to possible knock-on effects.		Design Team		Open
22	Risk	PROJECT ASPIRATIONS VS BUDGET ALIGNMENT	С	Rep	Low	Medium	P3	Carry out early and frequent cost estimates to understand cost of design. Limited communication of concepts to stakeholders until costing established.		Client		Open
23	Risk	SHOP FABRICATION ERRORS	С	Sch	Low	Medium	P3	Team to visit shop during fabrication to witness production and QA/QC process. Look at complexities with integration of prefab and built onsite elements. Watch out for tolerances of materials. Applies to exhibit as well. Due diligence on shop drawings sign off.		Design Team		Open
24	Risk	INTERNATIONAL SHIPPING DELAYS	С	Sch	Medium	High	P1	Assess requirement for international supply chain. Look for Canadian solutions where possible. Look at spares for international items in case of damaged goods. Secure fabrication time early to create contingency in schedule.		Design Team		Open
25	Risk	Exhibit use of energy may create higher power and heat loads than can be accommodated by building (to get passive certification).	С	Rep	Low	High	P2	Add power and heat load limits to design within. Regular conversations with the exhibit designers to make sure they are designing within heat and power targets. Look at certification process and allowances for this type of building. Understand 'rules' and also whether there may be any changes to the 'rules that could impact you before certification ins complete.		Design Team		Open



GROUND FLOOR PLAN

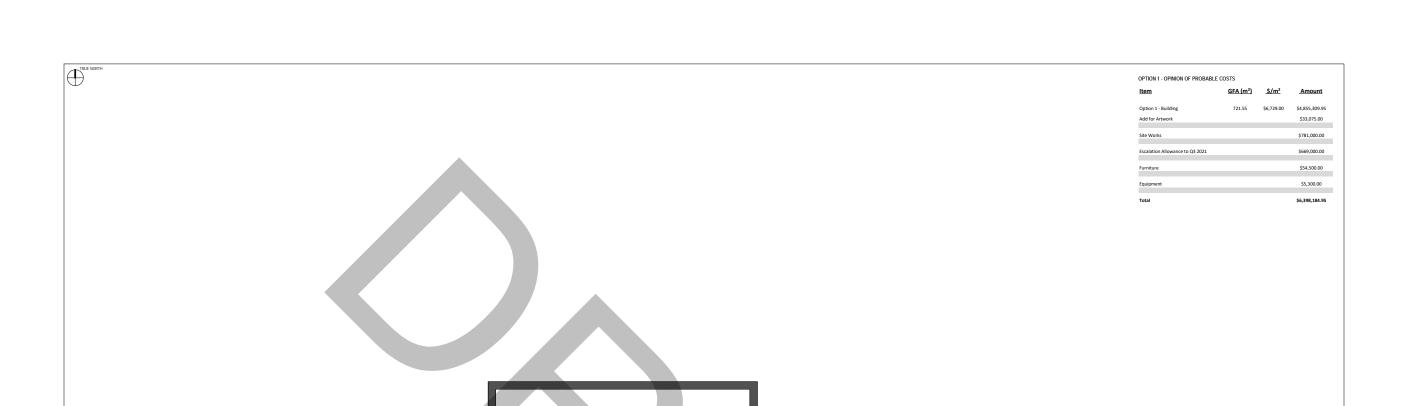
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0m 2m 4m 6m 8m 1





\$5,690,356.90

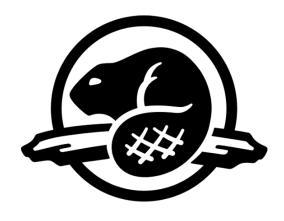


GROUND FLOOR PLAN











Parks Canada Parcs Canada PERKINS+WILL



Stantec

PERKINS+WILL

${\bf Meeting\ Minutes-Sustainability\ Workshop}$

By:	Steven Schuhmann	Date:	February 8, 2018
Meeting Date:	2018-02-08	Project Name:	LS NMCA – Discovery Centre
Meeting Time:	1:30pm - 5:00pm	Project Number:	441761
Meeting Location:	Nipigon Curling Club, Nipigon, ON		
Next Meeting Date:	TBD		
Attendees:	Sylvio Pelletier (PCA) Stephen Dicks (PCA) Corey Gaudet (PCA) Lisa Nyman (PCA) Sarah Shruiff (PCA) Sarah Crowell (PCA) Colin Crowell (PCA) Petri Bailey (PCA) Doug Tate (PCA) Anthony Schirru (PCA) Jay Lim (P+W) Robert Van Lin Steven Schuhmann (P+W) Jay Lim (P+W) Robert Van Lin Steven Schuhmann (P+W) Andrea Frisque (STAN) Marc Trudeau (STAN) Skype Maguy Eustache (PCA) Scott Parker (PCA) Sebastien Caty (PCA)	Cc:	Sinan Husic (P+W) Jon Gilford (T&T) Douglas McNeill (T&T) Michael Plamondon (OS) Robert Evans (OS)

Discussion

Item No. Description		Assigned	Status	
	1.	Introductions (Jay Lim)		
2018-02-08.01		1.1. JL introduced the consulting team		Info

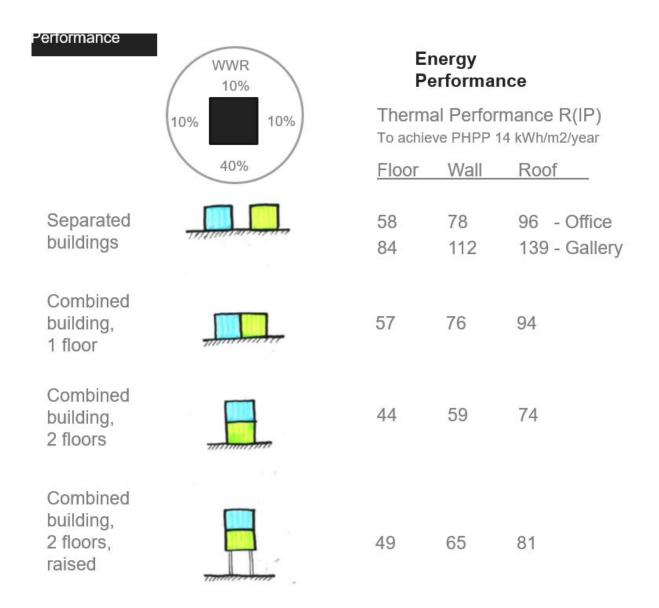
The foregoing constitutes our understanding of matters discussed and conclusions reached. Other participants are requested to review these items and advise the originator in writing of any errors or omissions.

	1.2. Round table introductions between PCA, Stantec, and Perkins+Will		
	2. Architectural Concept Overview (Jay Lim)		
2018-02-08.02	2.1. JL delivered architectural concept overview 2.1.1. Amethyst Concept 2.1.2. Paddle Concept 2.1.3. Community is supportive of moving the boat lunch, but may not support removal of access road. P+W will need to demonstrate how access could still be achieved 2.1.3.1. P+W informed the PCA group the decision to	P+W	Info Open
	eliminate the access was informed by the safety hazard identified by having a road divide the park from the Discovery Centre 2.1.3.2. SD noted that there is a culture of vehicular circulation, not pedestrian circulation		
	2.1.3.3. AF proposed a public consultation to gauge the values of the local inhabitants. PCA to confirm if public consultation will be required	PCA	Open
	2.1.3.4. LN noted there may be additional exterior storage required. PCA to confirm exterior storage requirements.	PCA	Open
	2.1.3.5. SD noted that a back-of-house, front-of-house strategy would benefit the overall site development 2.1.3.6. SP proposed to use the area of brush just north of		Info
2018-02-08.03	the site for public boat storage as a possible source of revenue for the facility 2.2. CD requested consensus from the group.		Info
2010-02-06.03	2.2.1. Overall, the PCA user group supported the two concepts presented by Perkins+Will and encouraged the team to continue developing		iiio
	3. PCA Overview (Sonia Zouari)		
2018-02-08.04	3.1. SZ delivered PCA sustainability objectives presentation to the group 3.1.1. PCA goals are in energy efficiency, not on-site renewables		Info
2018-02-08.05	3.2. SZ noted the visionary nature of the northern Ontario field unit and expressed the importance of having such a field unit with an important project as the first Passive House project for parks Canada		Info
2018-02-08.06	3.3. Climate Change Trend in Nipigon (Scott Parker) 3.3.1. Overview of <i>Nipigon Climate Supplemental</i> provided by Parks Canada		Info
	3.3.2. Generally, the climate trend for Nipigon is warmer weather with more precipitation.		
	4. Energy Goals (Andrea Frisque)		
2018-02-08.07	4.1. Core Passive House requirements were presented to the workshop group		Info
2018-02-08.08	4.2. AF presented precedent projects recently completed 4.2.1. UNBC Wood Innovation Lab 4.2.2. Gastown Daycare		Info
2018-02-08.09	4.2.2.1. 1000m ² @ \$6Million 4.3. Windows/Glazing 4.3.1. AF noted the considerable costs associated with large windows		Info
	5. Site Analysis / Orientation /		
2018-02-08.10	5.1. MT presented massing and siting options and trade-offs		Info

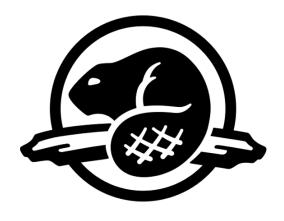
	6.	PH D	Design Concepts Discussion	
2018-02-08.11		6.1.	The PCA group and consultant team broke out into mini charrette groups to discuss possible massing options and the trade-offs and opportunities with each	Info

Workshop Massing Discussion	Workshop Massing Discussion - Summary							
manaman	amannina.	minimin	maarran					
Pros:	Pros:	Pros:	Pros:					
Discovery centre could be placed on north side to limit glares in exhibit space	Connected buildings are easier to manage Better workflow, more functional	Smaller surface area to volume ratio Opportunities for better views on second floor	Great to have covered amphitheater below building Flood Considerations Cons:					
Allows discovery centre component to operate separately from admin	Cons: Discovery centre will be conditioned all year / no shut down option	Open concept discovery centre (open 2 levels) Possible roof terrace	Risk of unwanted loitering activity below building Underside of building requires more insulation than if it were on grade					
Option to pursue PH certification for only 1 building	Larger surface area to volume ratio	Office on ground floor / Discovery Centre on second	Accessibility issues					
Discovery centre can be shut down during winter months		Accessibility concerns with second floor (ramps require a lot of space)						
Security of staff space								
Cons:								
Inefficient building envelope								
Difficult for programming and difficult for supervision								
Staff will need to walk outside between buildings								
Duplication of required systems								
Could not have Res Con lab as part of discovery centre								

PERKINS+WILL





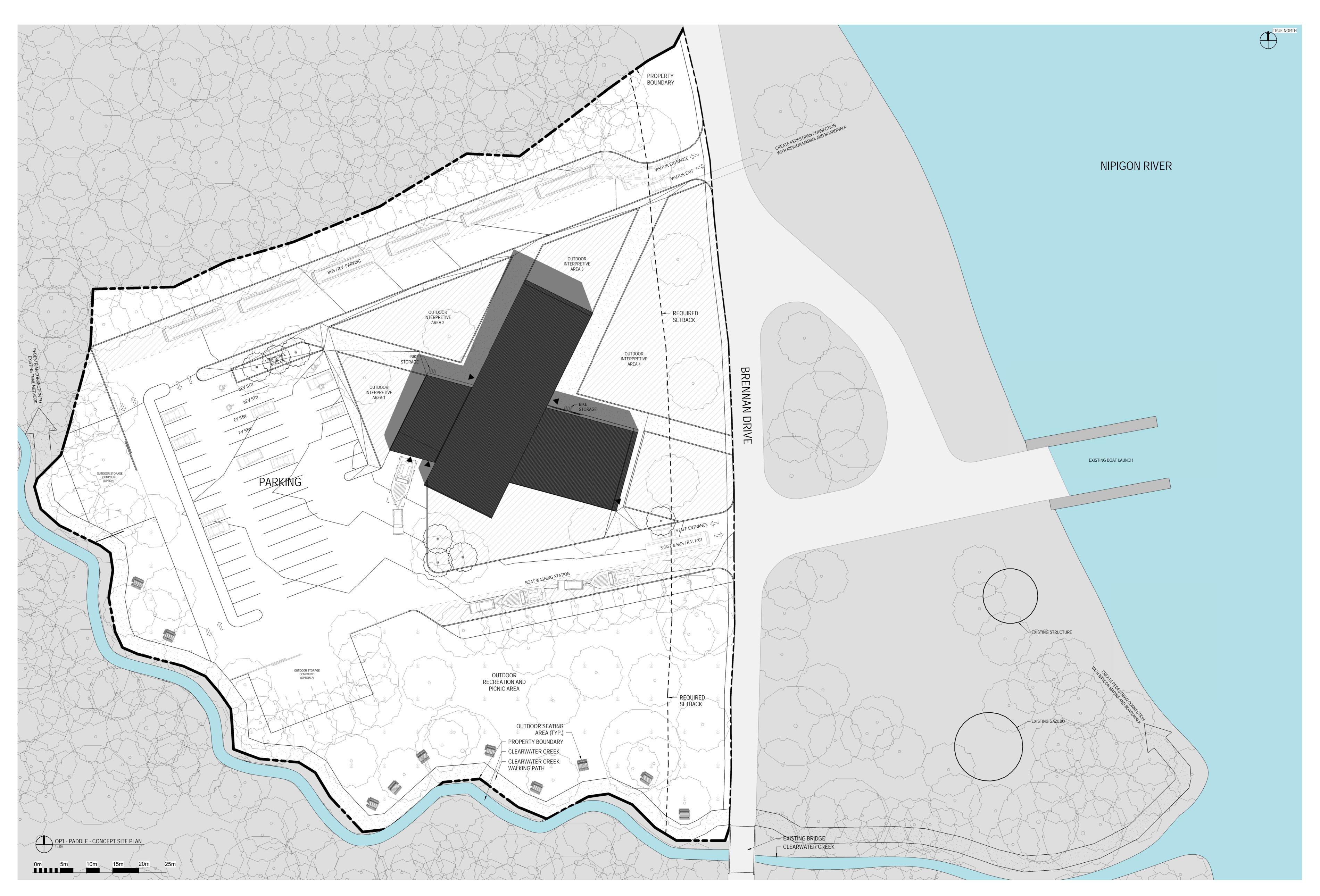


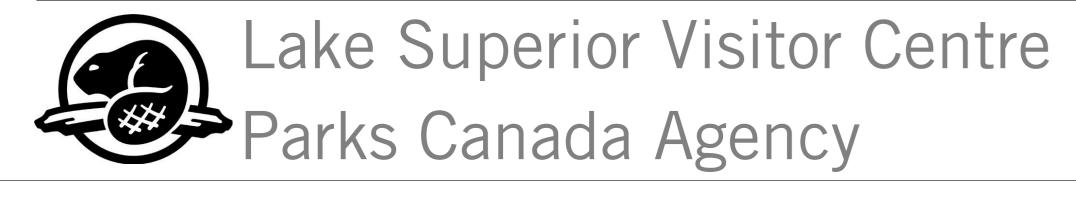


Parks Canada Parcs Canada PERKINS+WILL

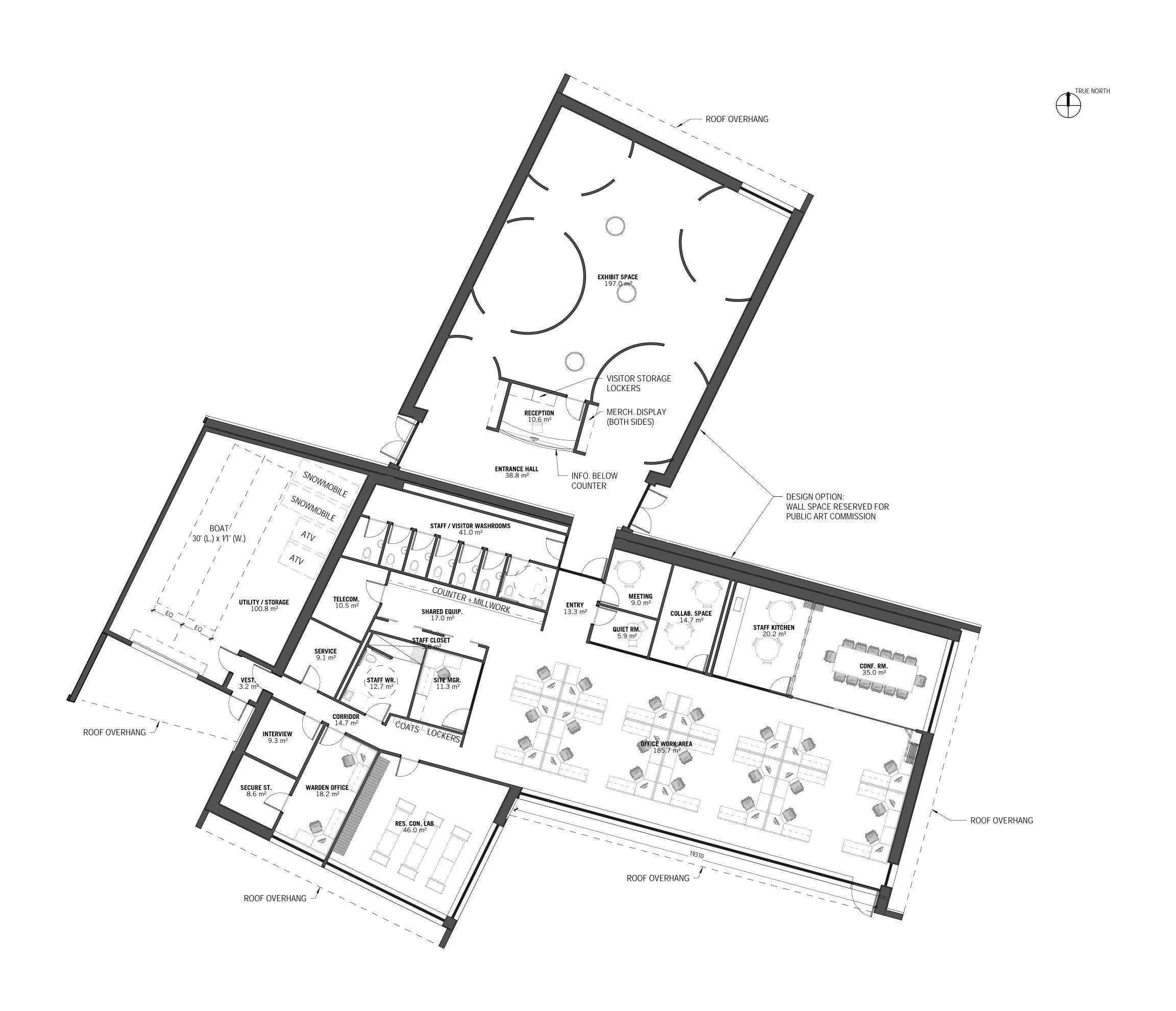


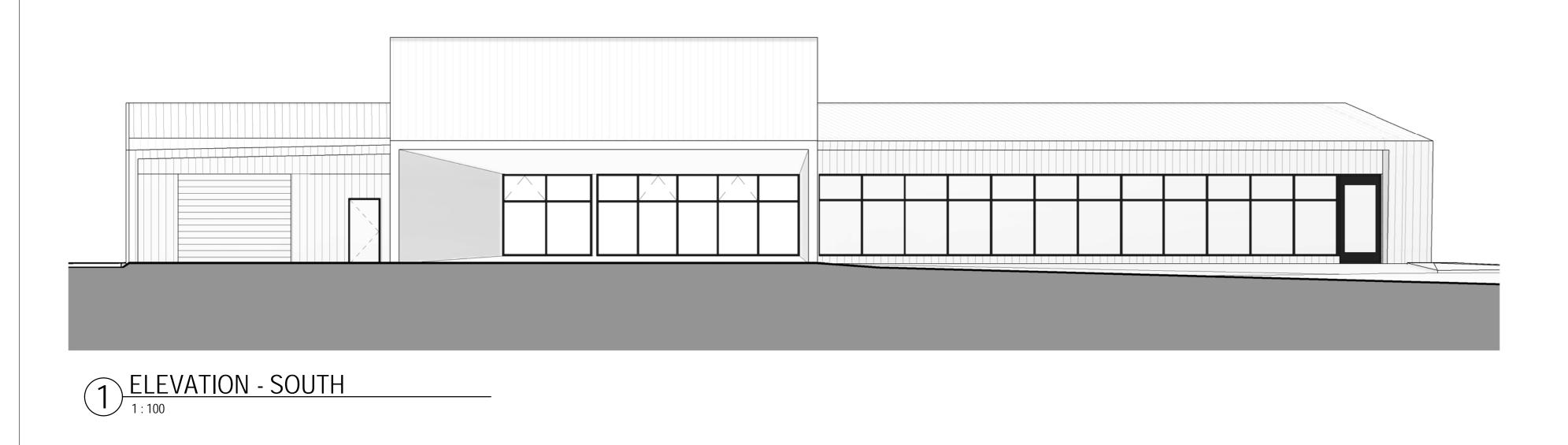
Stantec

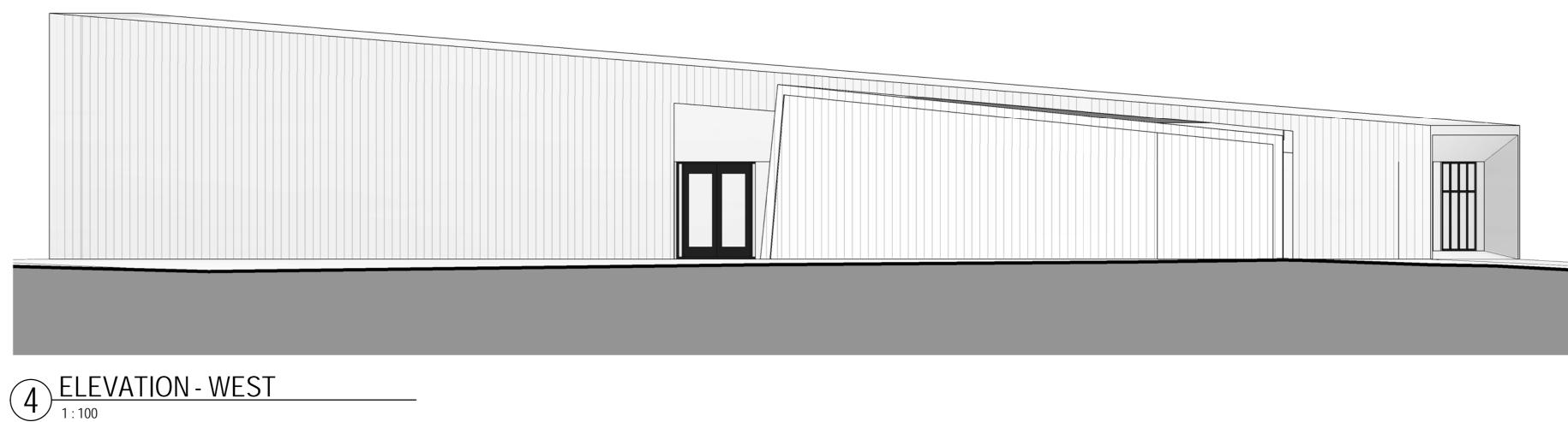


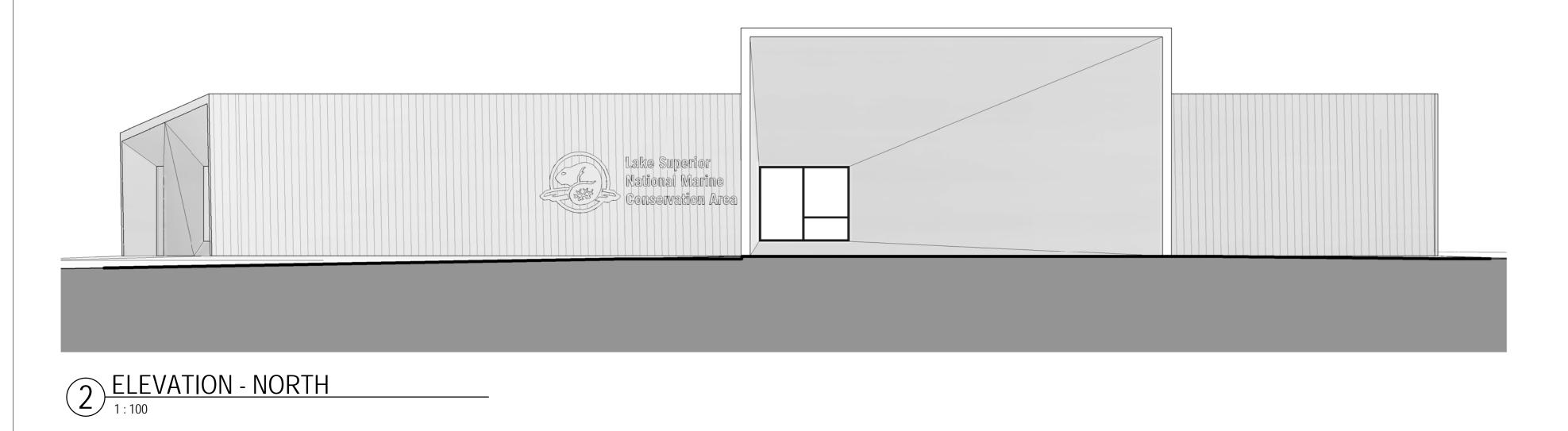


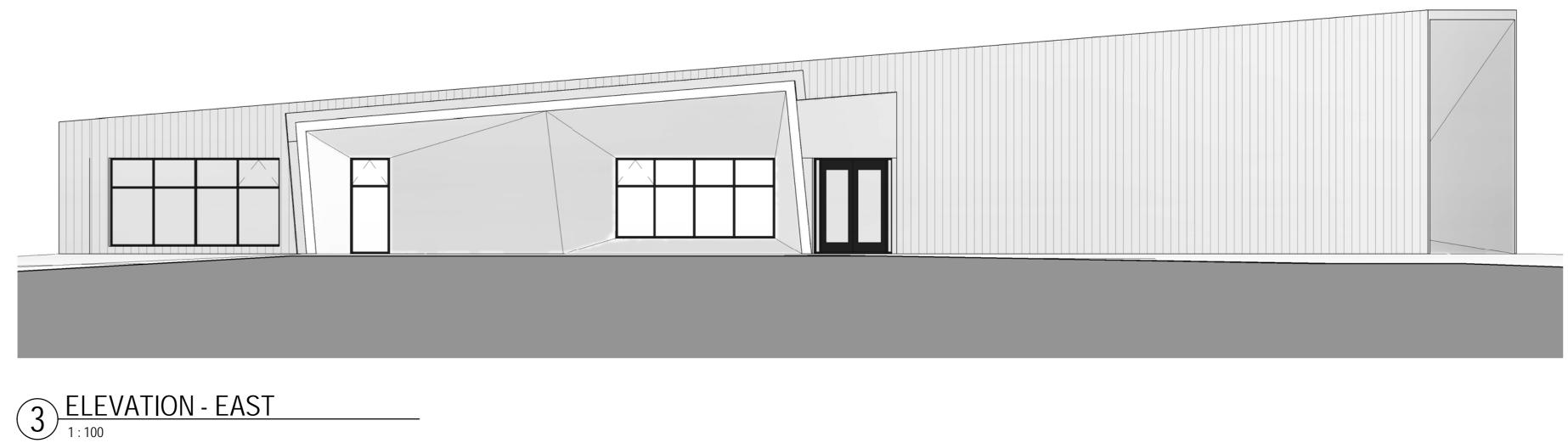


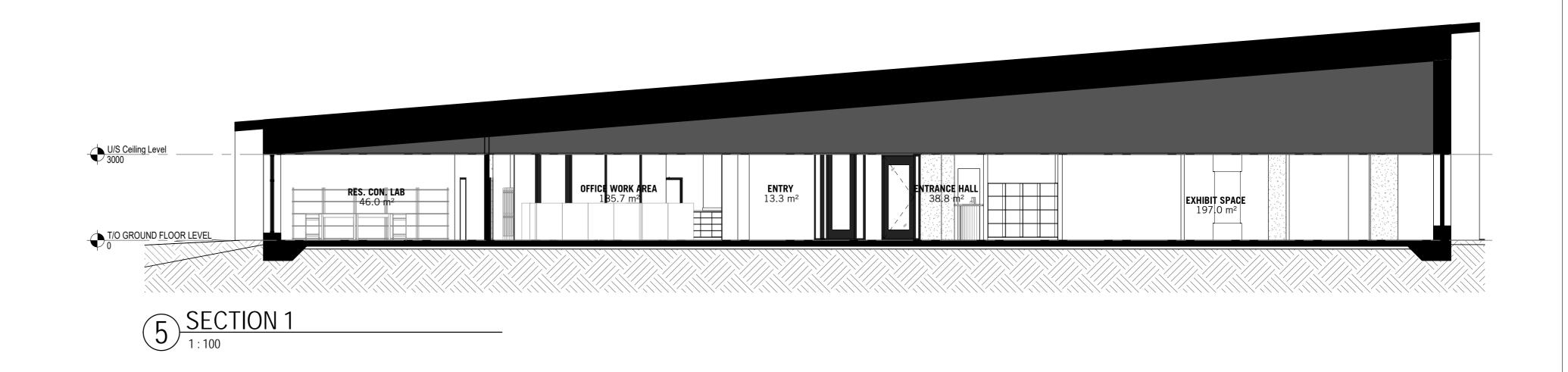


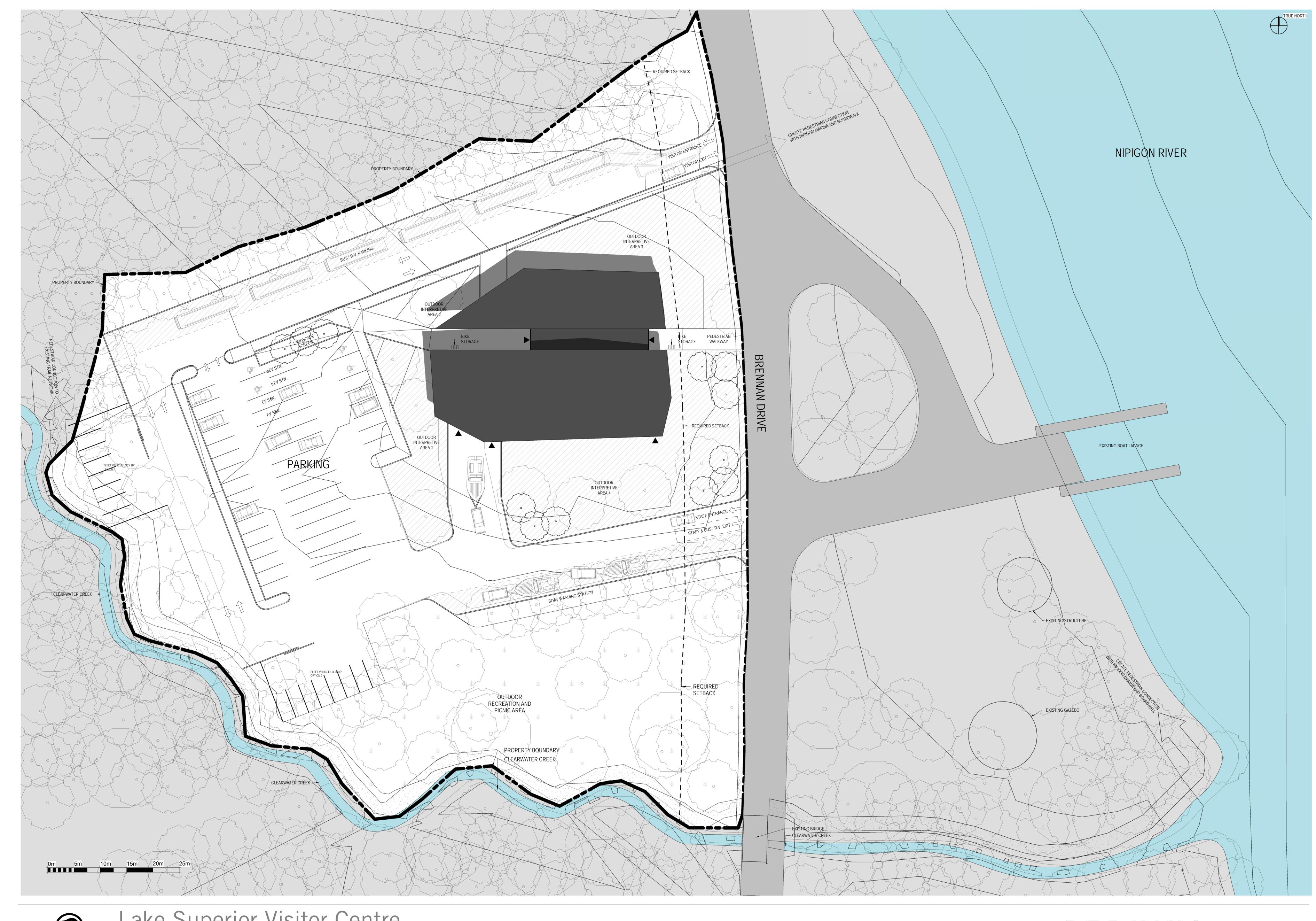


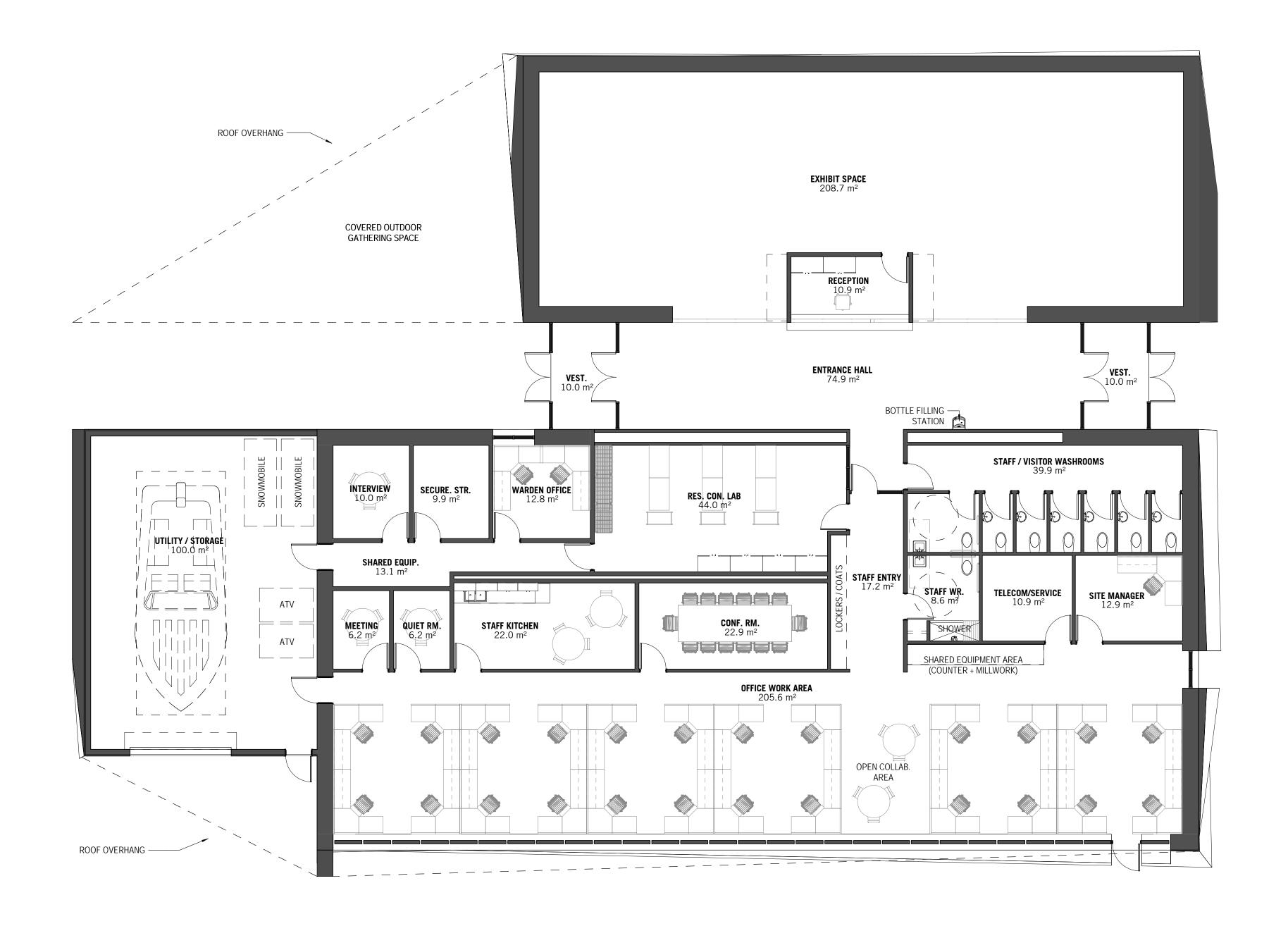


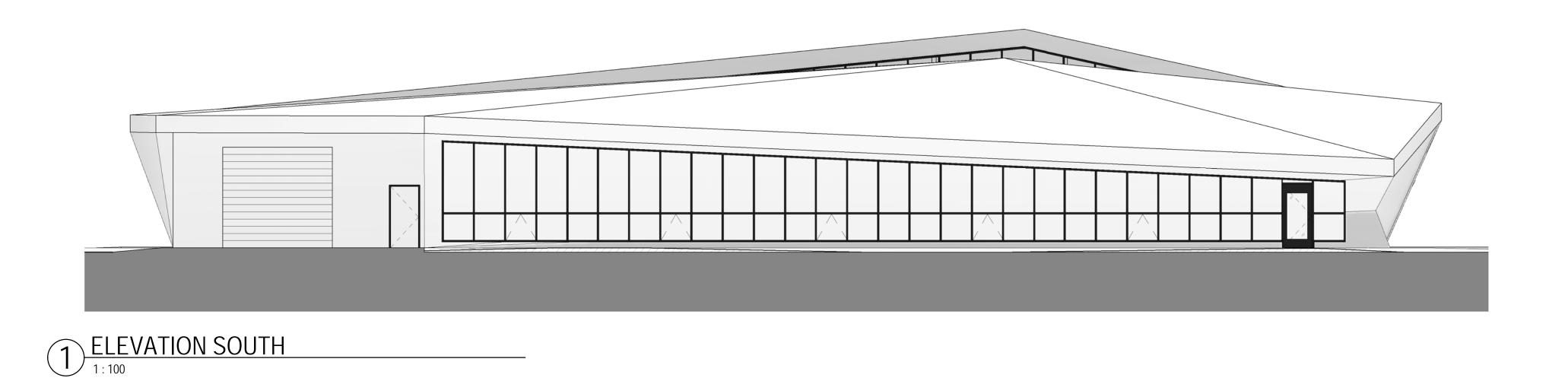


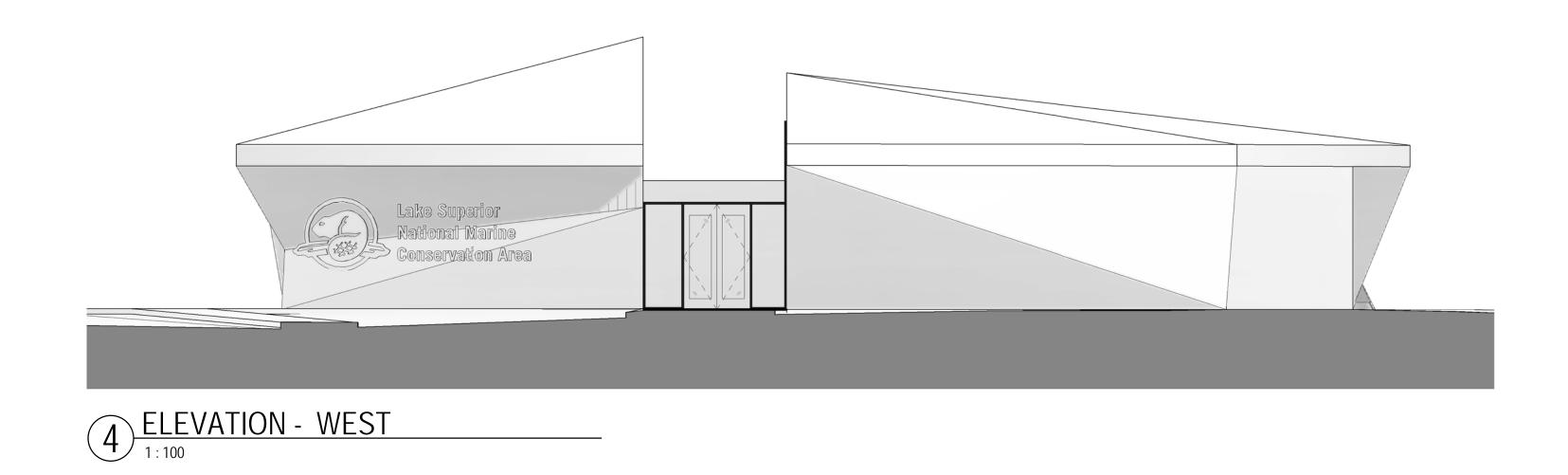


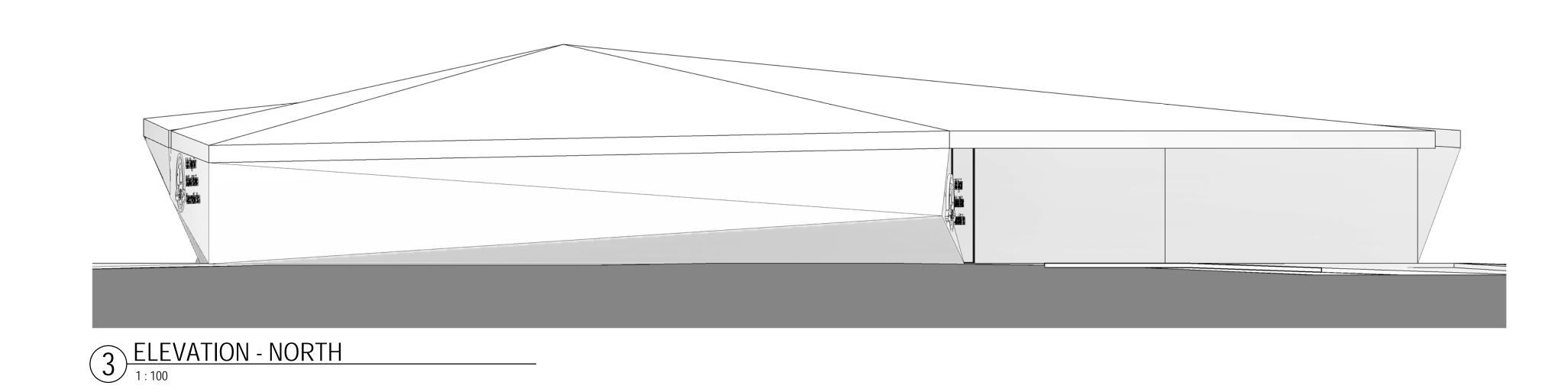


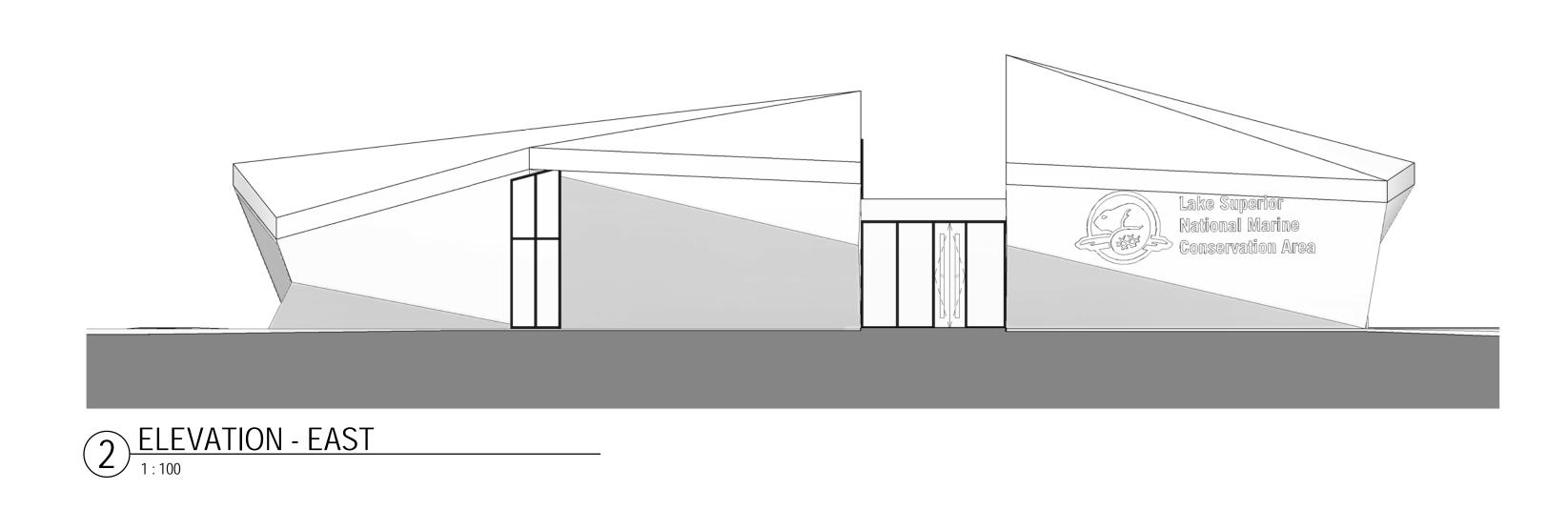


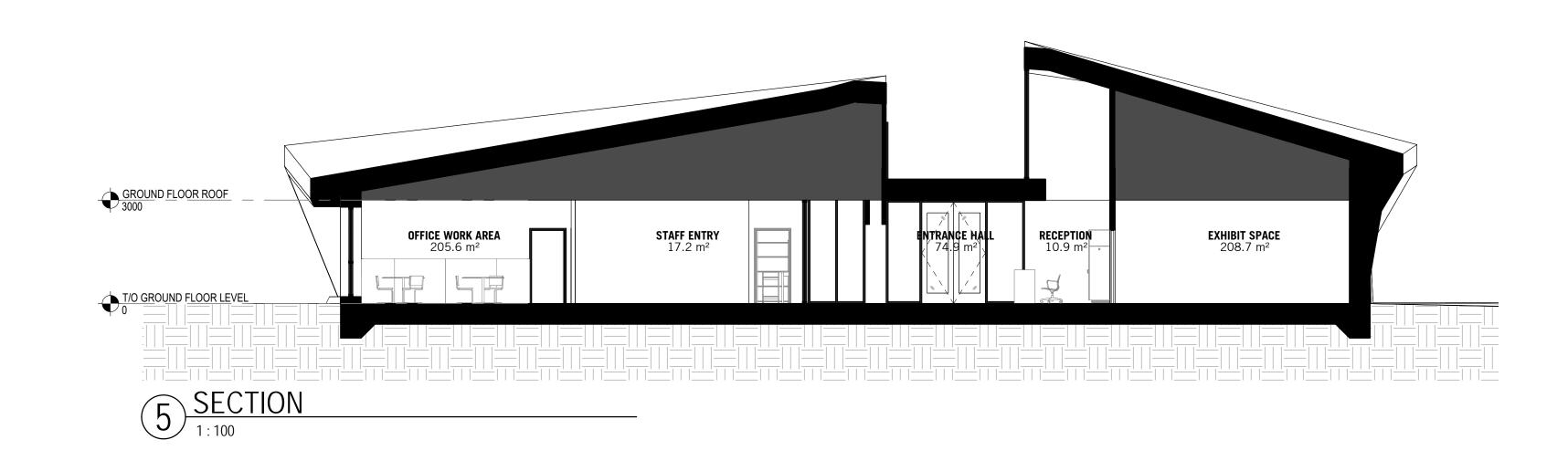




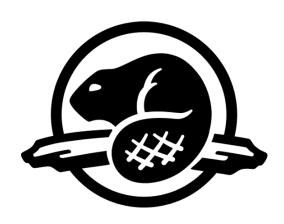








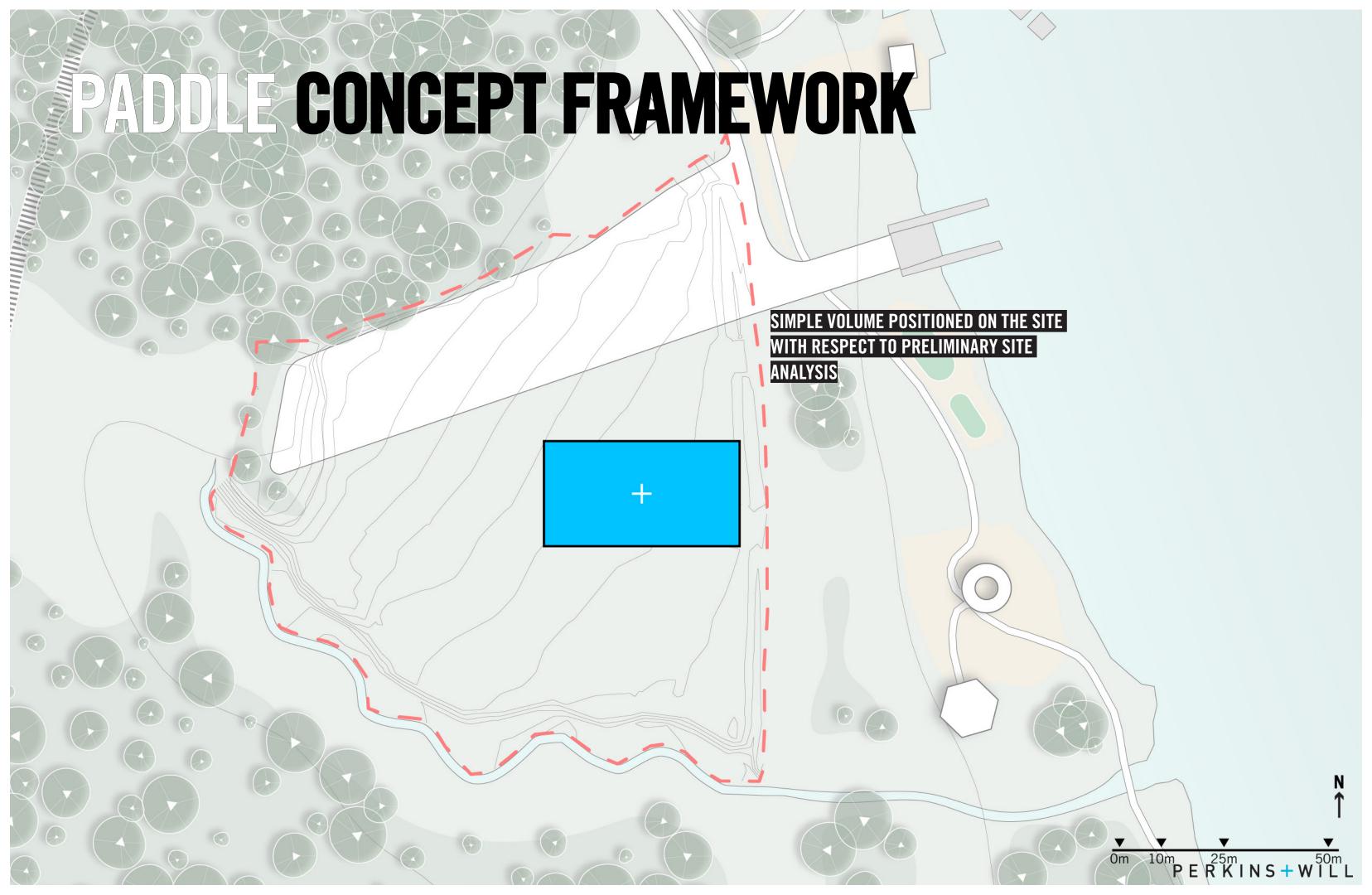


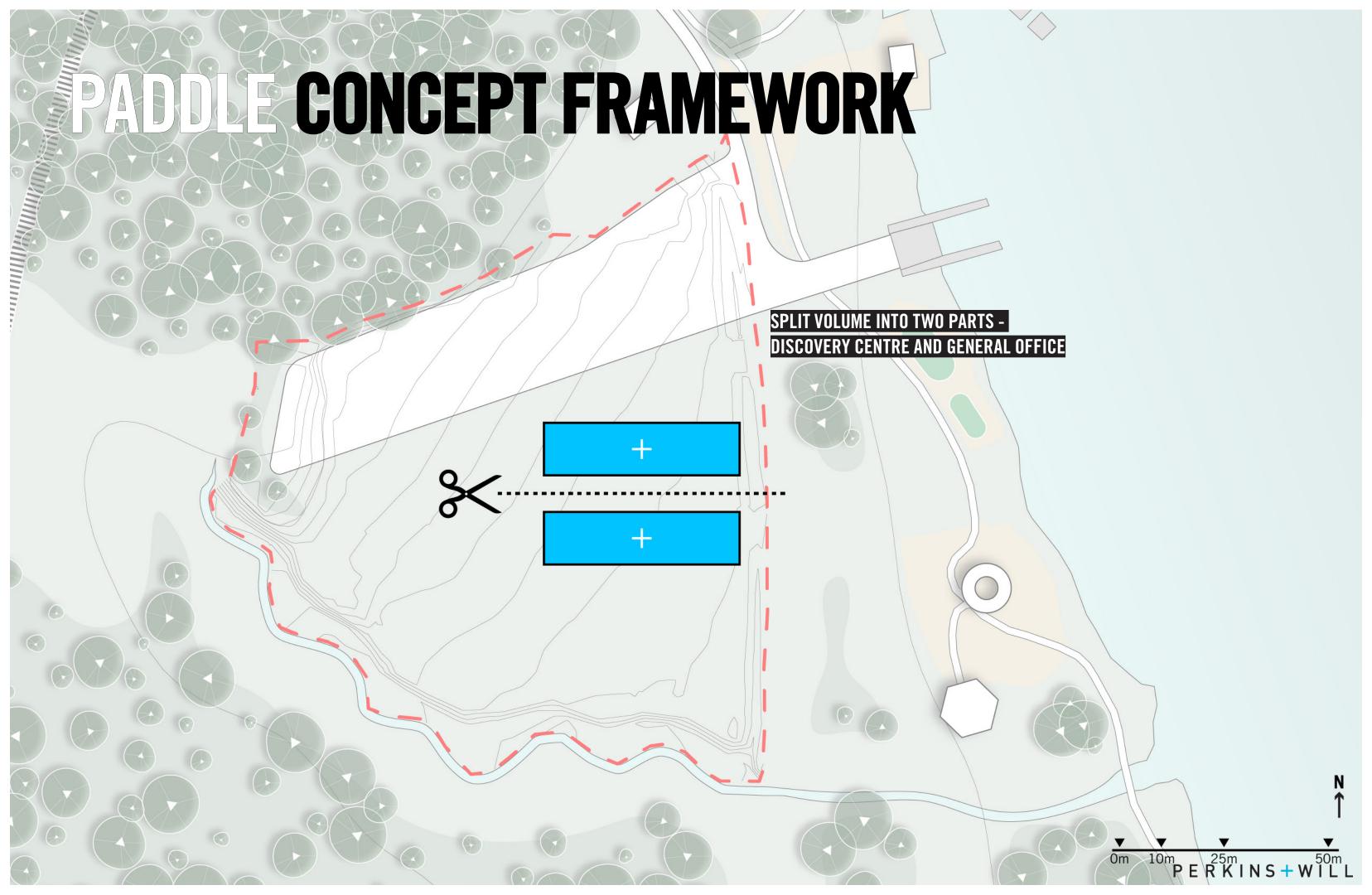


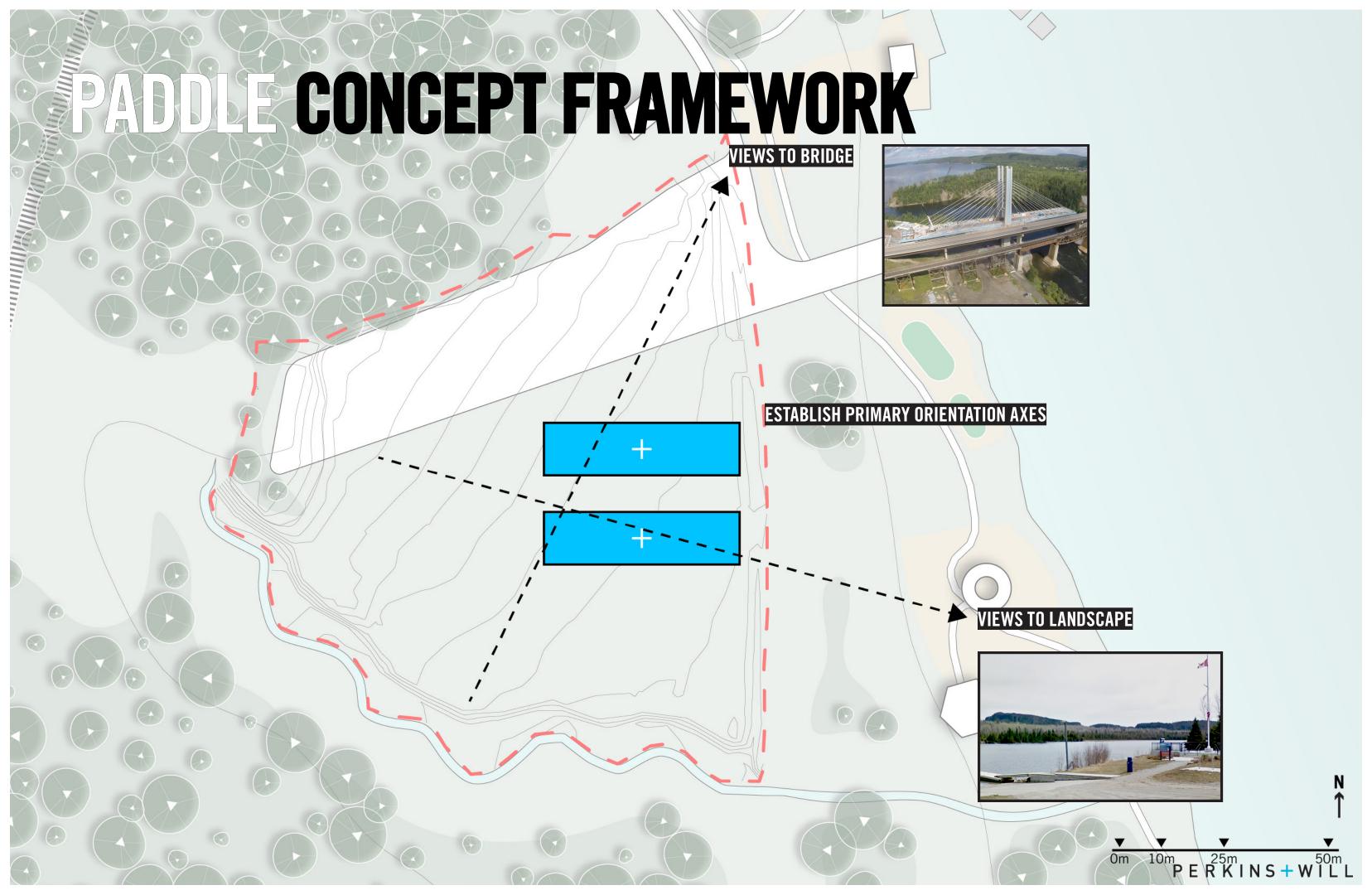
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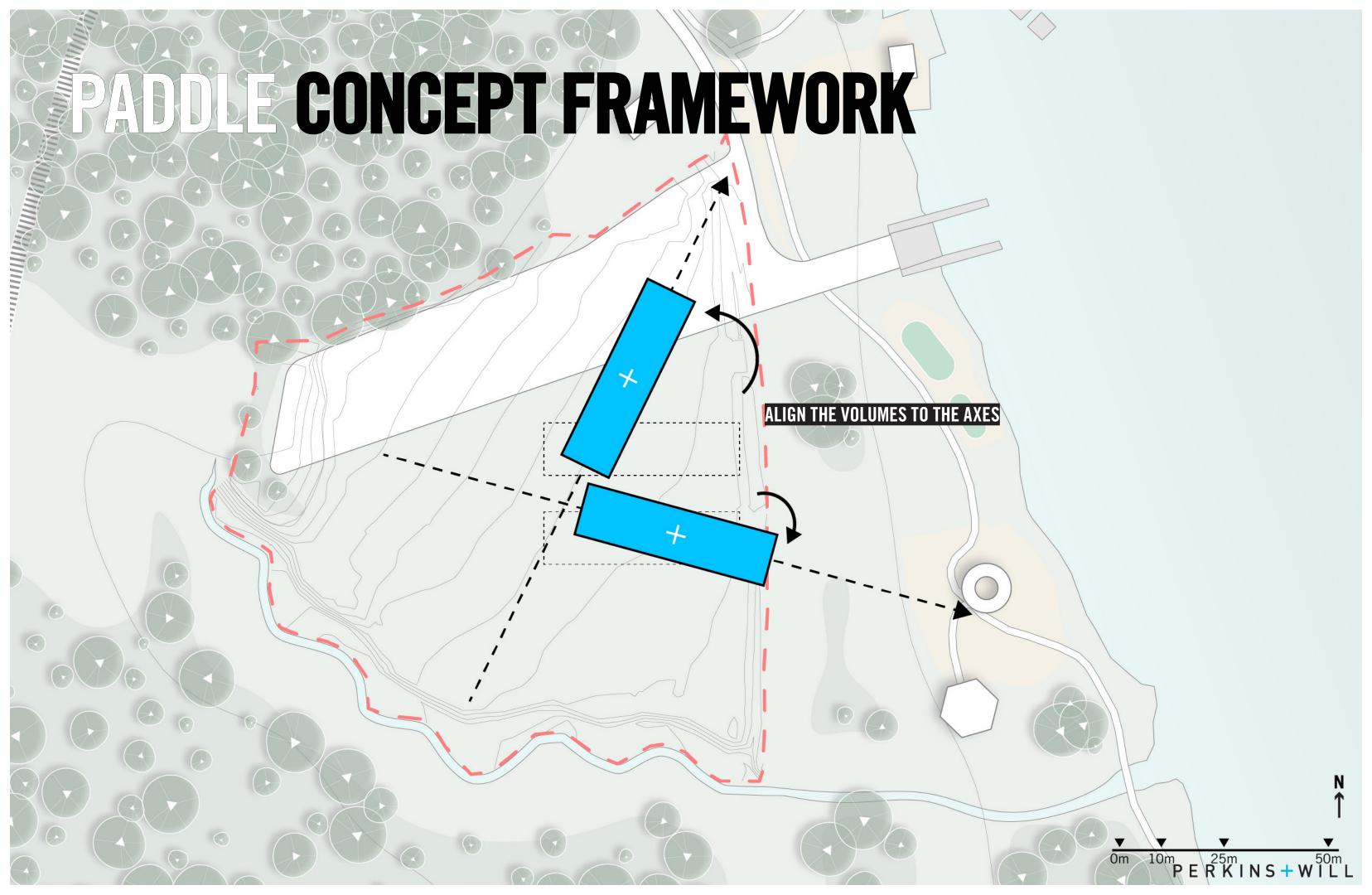
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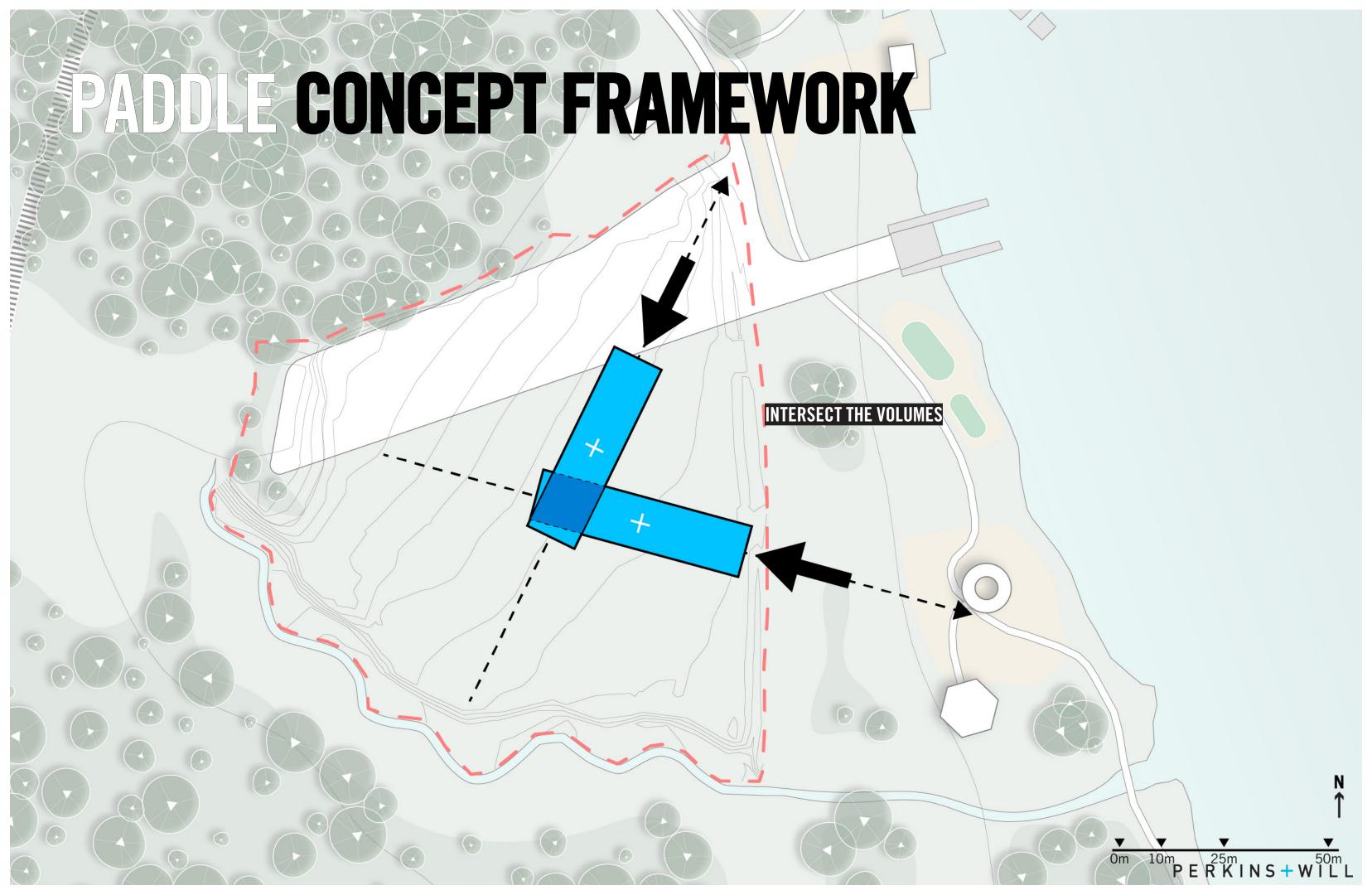




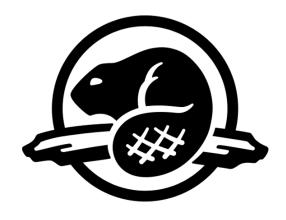








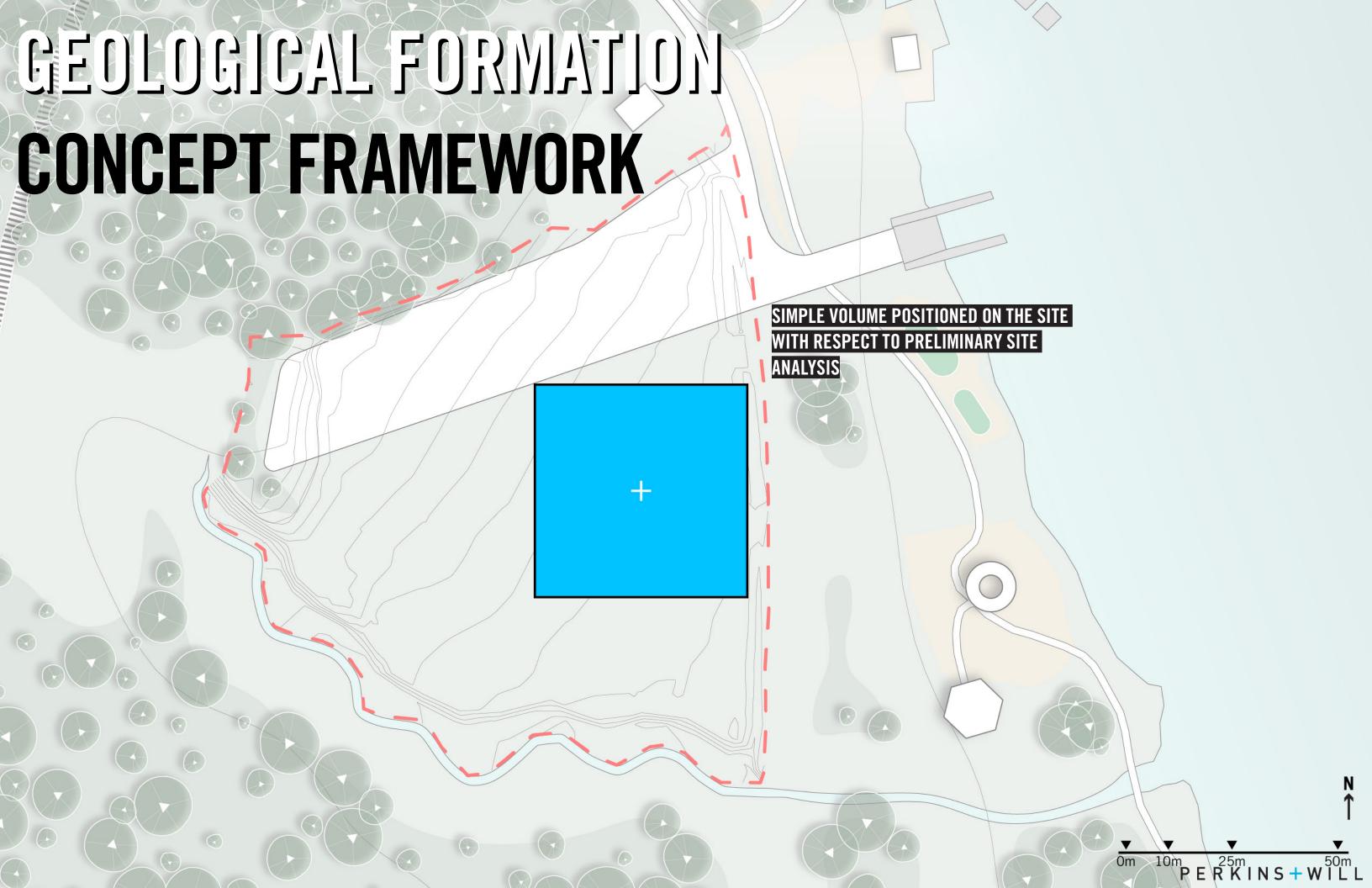


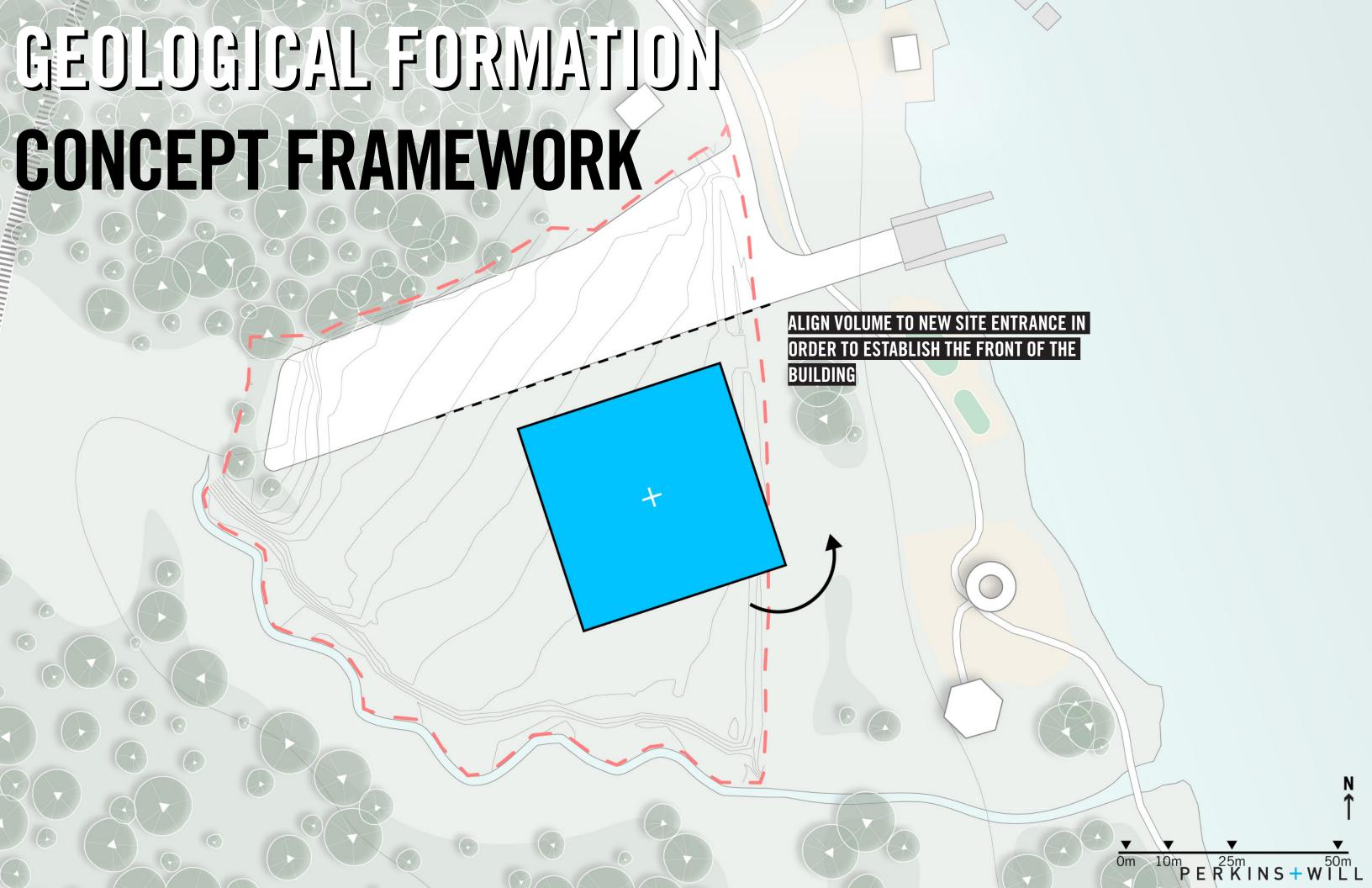


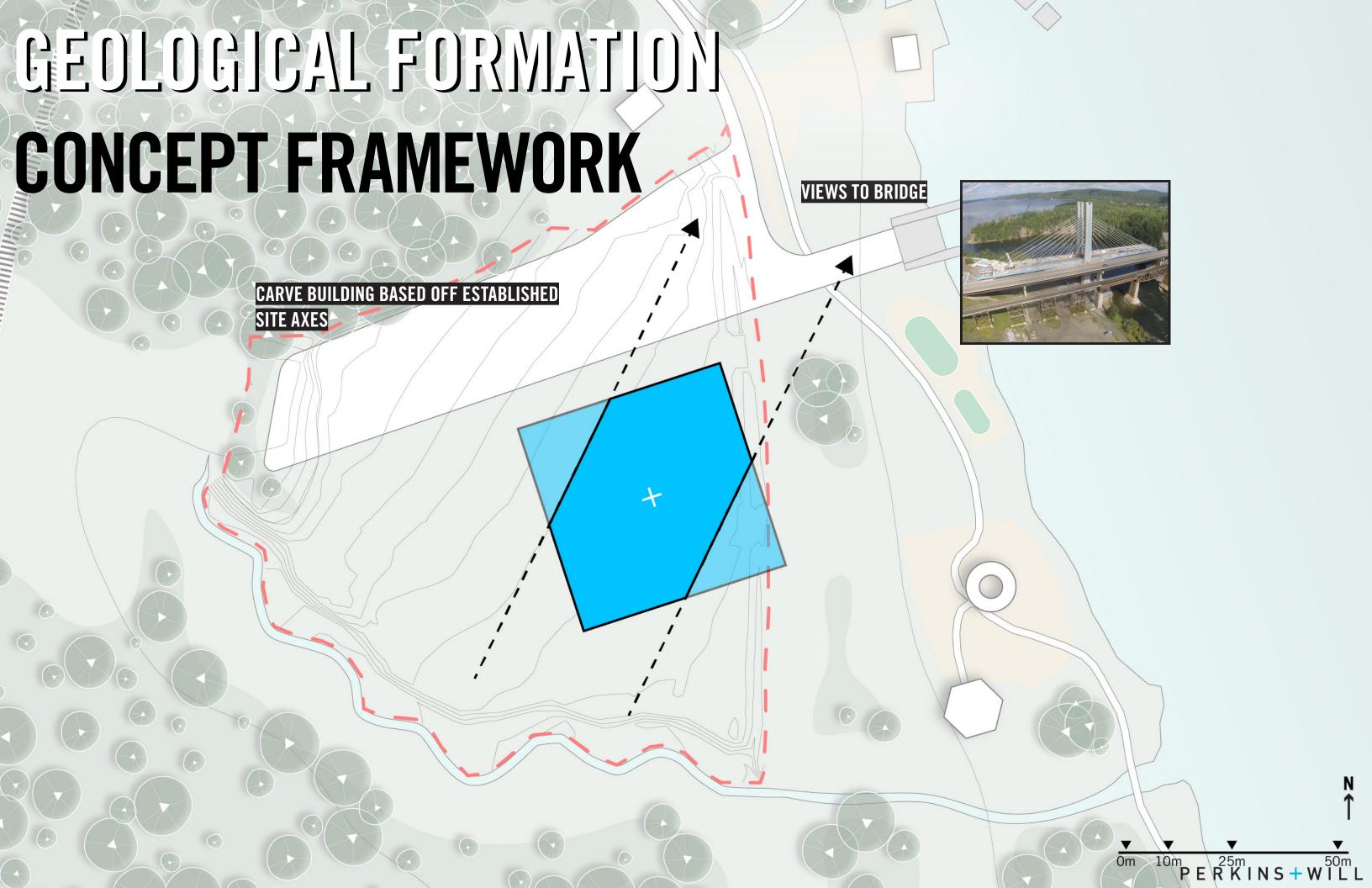


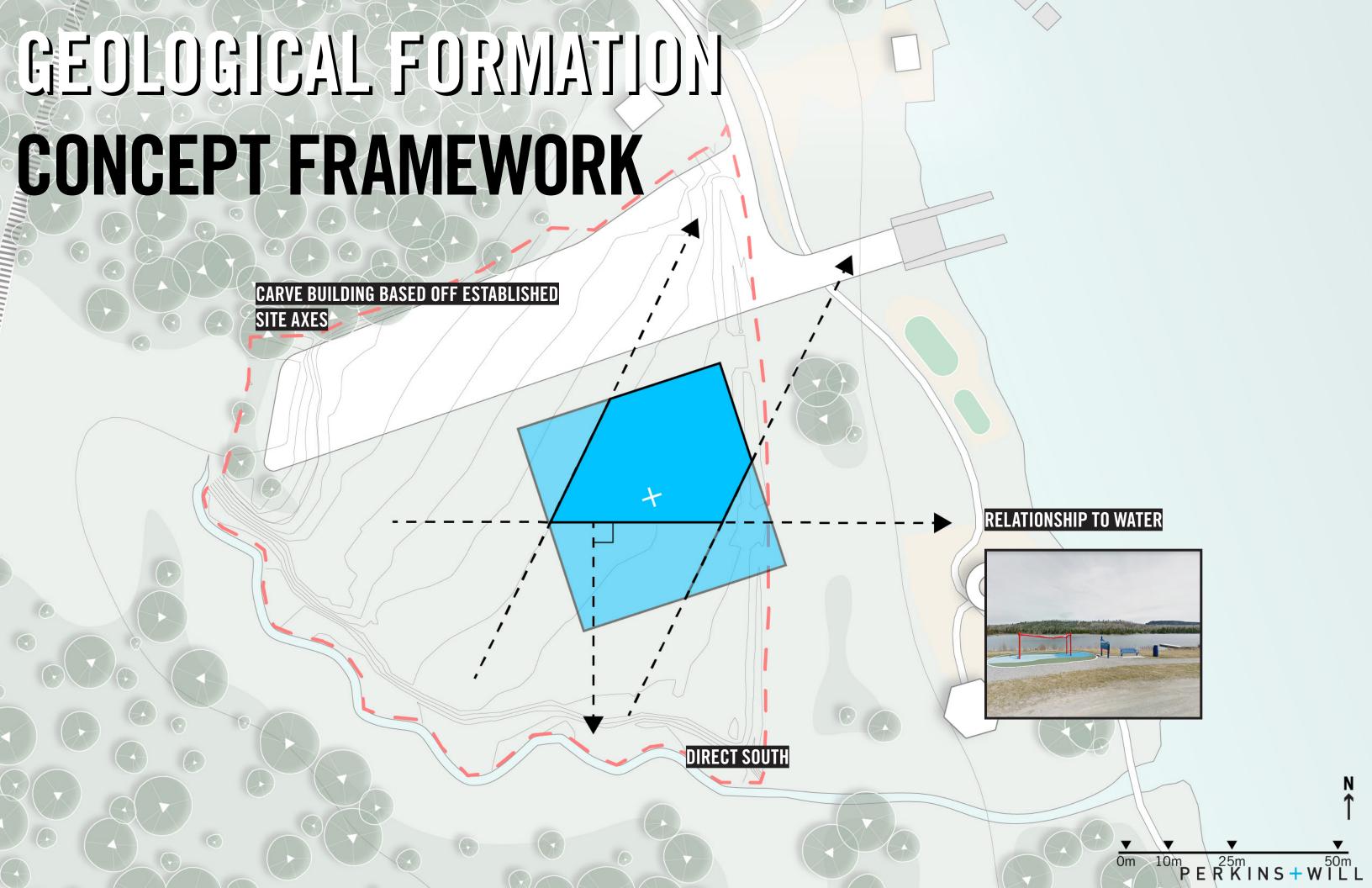
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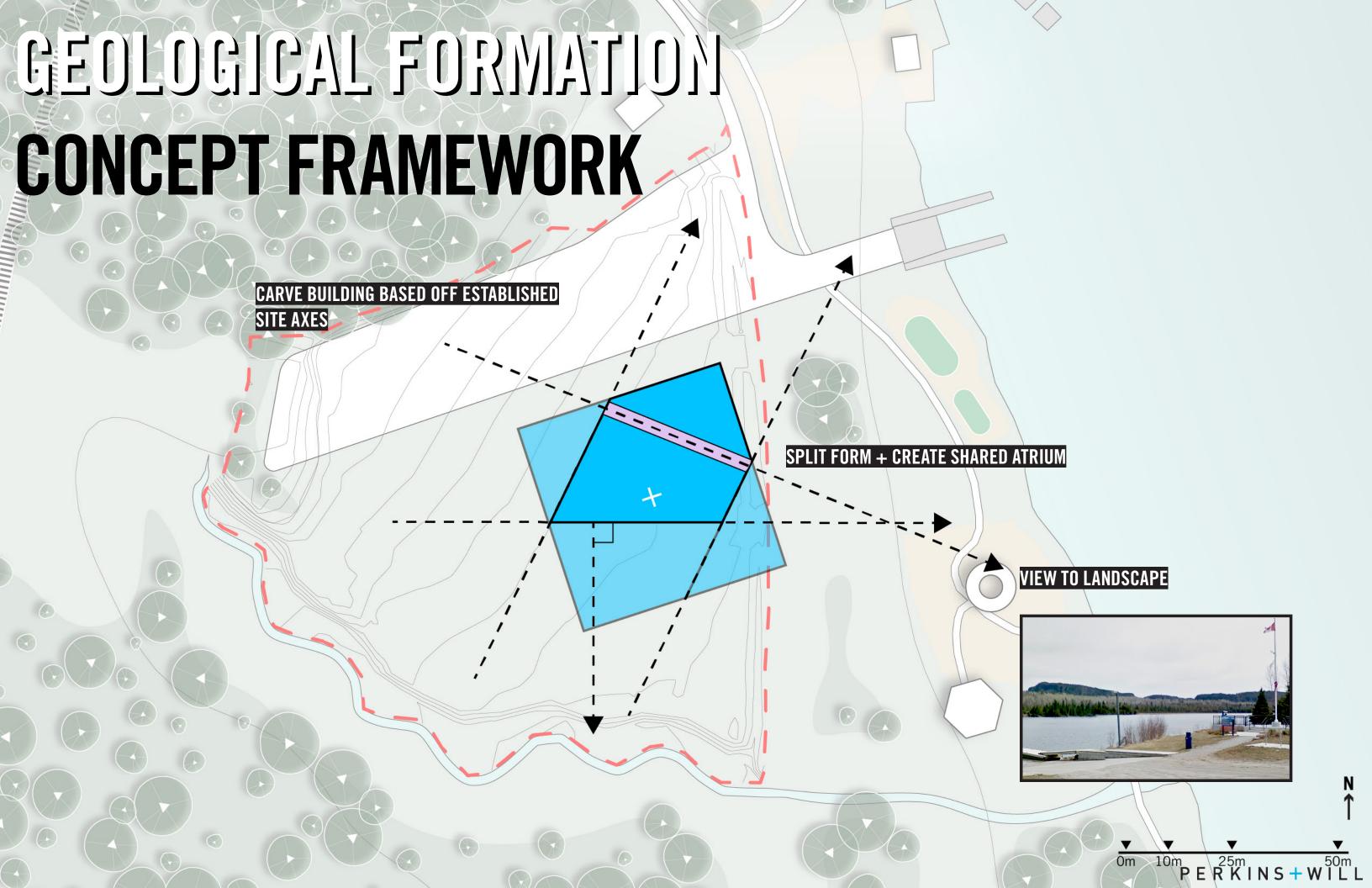


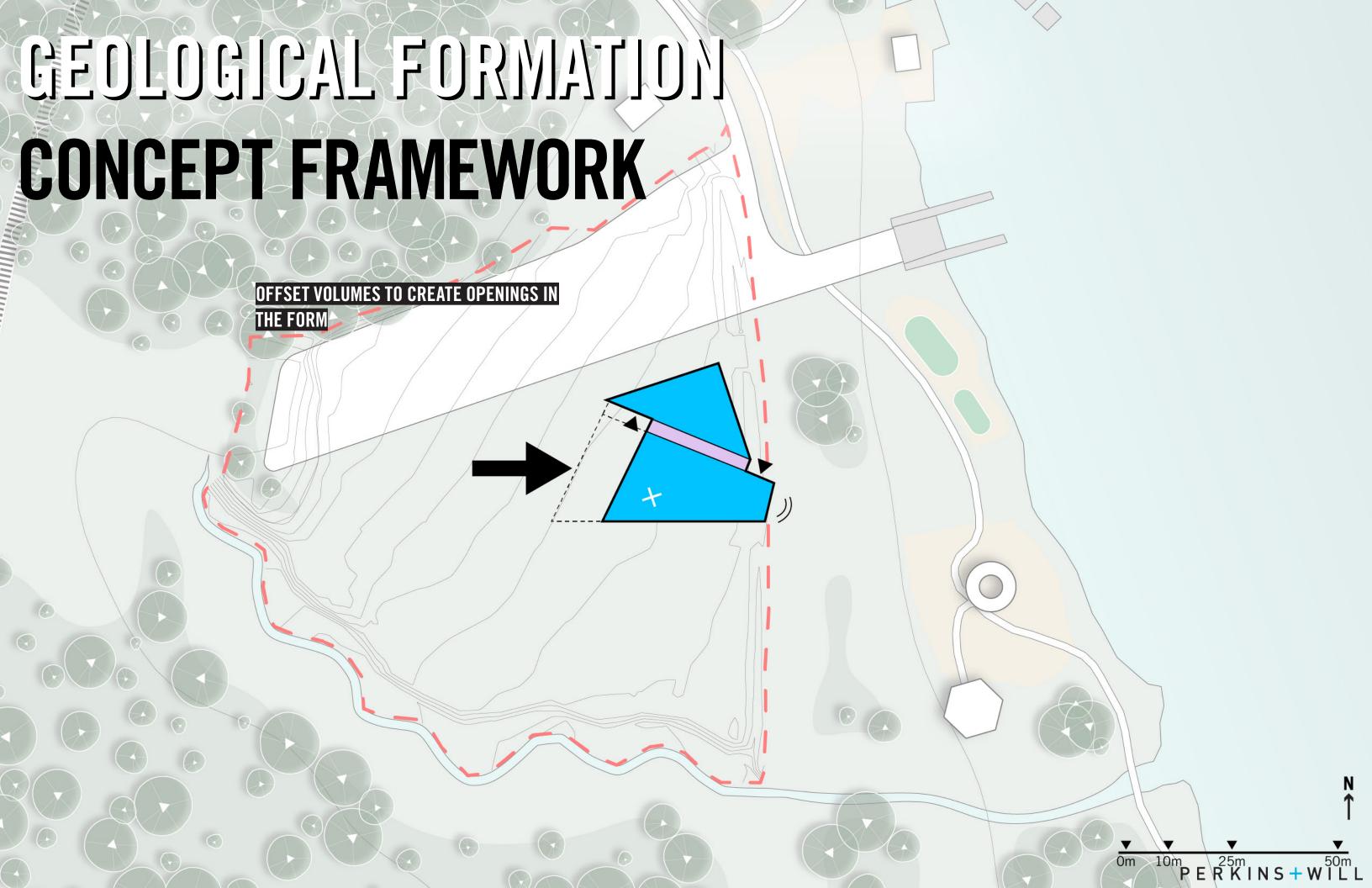












date: May 24, 2018

project: LS NMCA Discovery Centre client: Perkins & Will / Parks Canada

Cost Breakdown: Option 1A

(Log/Paddle Lower Cost with Central Community Space)

Budgets		Estim	nates	
Exhibit Furniture & Fixtures Budget	Budget Assignment	Area	Rate	Cost
Main Gallery Exhibit Furniture and Fixtures	Exhibit	1731.69	\$350.00	\$606,091.50
A mostly graphic installation with some small display cases and physical interactives. Ceiling displays could include projection on walls as well as hanging sculptural elements. Some simple floor treatments could be included as well.				
Community Space	Exhibit	388.8	\$60.00	\$23,328.00
Hallway Graphics	Exhibit			\$4,000.00
				\$633,419.50

Exhibit Infrastructure				
Lighting	Exhibit	2120.49	\$60.00	\$127,229.40
Electrical & Data	Architectural			n/a
Base Building Floor Finish	Architectural			n/a
Peripheral Walls & Finish	Architectural			n/a
				\$127,229.40

Exterior Budget Allowances					
Gardens - with minimal interpretive signage Exhibit					
Children's Play Area - Scaled Lake Superior - Simplest Option Exhibit					
ife on the Lake - wave representation Exhibit					
Natural landscaping additions	Exhibit				
Outdoor Performance Area - minimal, natural installations	Exhibit				
All allowances are preliminary and based on the lowest cost versions of the options					
presented.					

Class D Estimate (before taxes) \$851,648.90

date: May 24, 2018

project: LS NMCA Discovery Centre client: Perkins & Will / Parks Canada

Cost Breakdown: Option 1B (Log/Paddle Higher Cost with Round Pods and No Community Space)

Budgets		Estimates			
Exhibit Furniture & Fixtures Budget	Budget Assignment	Area	Rate	Cost	
Main Gallery Exhibit Furniture and Fixtures	Exhibit	2120.49	\$650.00	\$1,378,318.5	
A more elaborate installation is proposed for this option, including curved walls, digital interactive tables and projection "lanterns" in several spaces. This concept shows a central area with lowered ceiling and small aquariums. The main visitor pathway is marked by hardwood flooring.					
Community Space	n/a				
Hallway Graphics	Exhibit			\$7,500.0	
				\$1,385,818.5	
Exhibit Infrastructure					
Lighting	Exhibit	2120.49	\$120.00	\$254,458.8	
Electrical & Data	Architectural			n/	
Base Building Floor Finish	Architectural			n/	
Peripheral Walls & Finish	Architectural			n/	
				\$254,458.8	
Exterior Budget Allowances				Allowance	
Themed Gardens	Exhibit				
Children's Play Area - Scaled Lake Superior Map & Lighthouse	Exhibit				
Outdoor Performance Area - with seating and stage area	Exhibit			See Total	
Interpretive Panels - with interactives and 3D elements	Exhibit				
Exterior Sculptural Elements	Exhibit				
All allowances are preliminary and based on the medium to high cost versions of the options presented.					
				\$510,000.0	

Class D Estimate (before taxes) \$2,150,277.30

date: May 24, 2018

project: LS NMCA Discovery Centre client: Perkins & Will / Parks Canada

\$829,250.00

Cost Breakdown: Option 2A

Class D Estimate (before taxes)

(Amethyst Lower Cost with Corner Community Space)

Budgets		Estin	nates			
Exhibit Furniture & Fixtures Budget	Budget Assignment	Area	Rate	Cost		
Main Gallery Exhibit Furniture and Fixtures	Exhibit	1825	\$350.00	\$638,750.0		
A high contrast, graphic installation with many tables and archways to make the space look open and dynamic. The displays would be marked with many small display/specimen cases on walls and table tops. Some physical interactives would be integrated throughout the exhibit. Proposed flooring in this option is a high gloss epoxy						
Community Space		365	\$60.00	\$21,900.0		
Hallway Graphics	Exhibit			\$4,000.0		
				\$638,750.0		
Exhibit Infrastructure						
Lighting	Exhibit	2190	\$50.00	\$109,500.0		
Electrical & Data	Architectural			n		
Base Building Floor Finish	Architectural			n		
Peripheral Walls & Finish	Architectural			n		
				\$109,500.0		
Exterior Budget Allowances				Allowance		
Gardens - with minimal interpretive signage	Exhibit					
Children's Play Area - Lake Superior Pit & Geological Features Panels	Exhibit					
Life on the Lake - wave representation	Exhibit			See Total		
Outdoor Performance Area - minimal, natural installations	Exhibit					
All allowances are preliminary and based on the lowest cost versions of the options presented.						
				\$81,000.0		

date: May 24, 2018

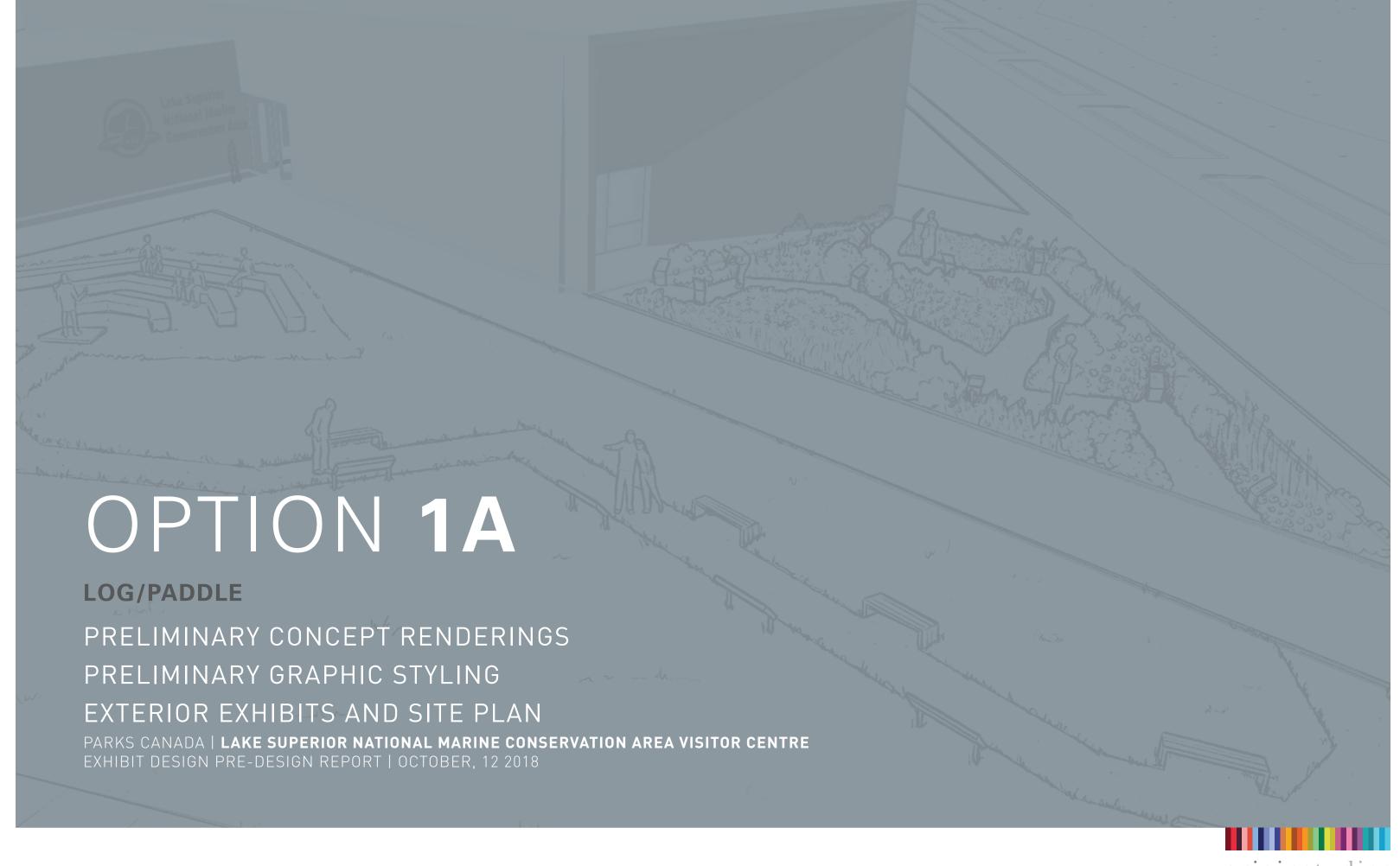
project: LS NMCA Discovery Centre client: Perkins & Will / Parks Canada

\$1,920,400.00

Cost Breakdown: Option 2B (Amethyst Higher Cost with no Community Space)

Class D Estimate (before taxes)

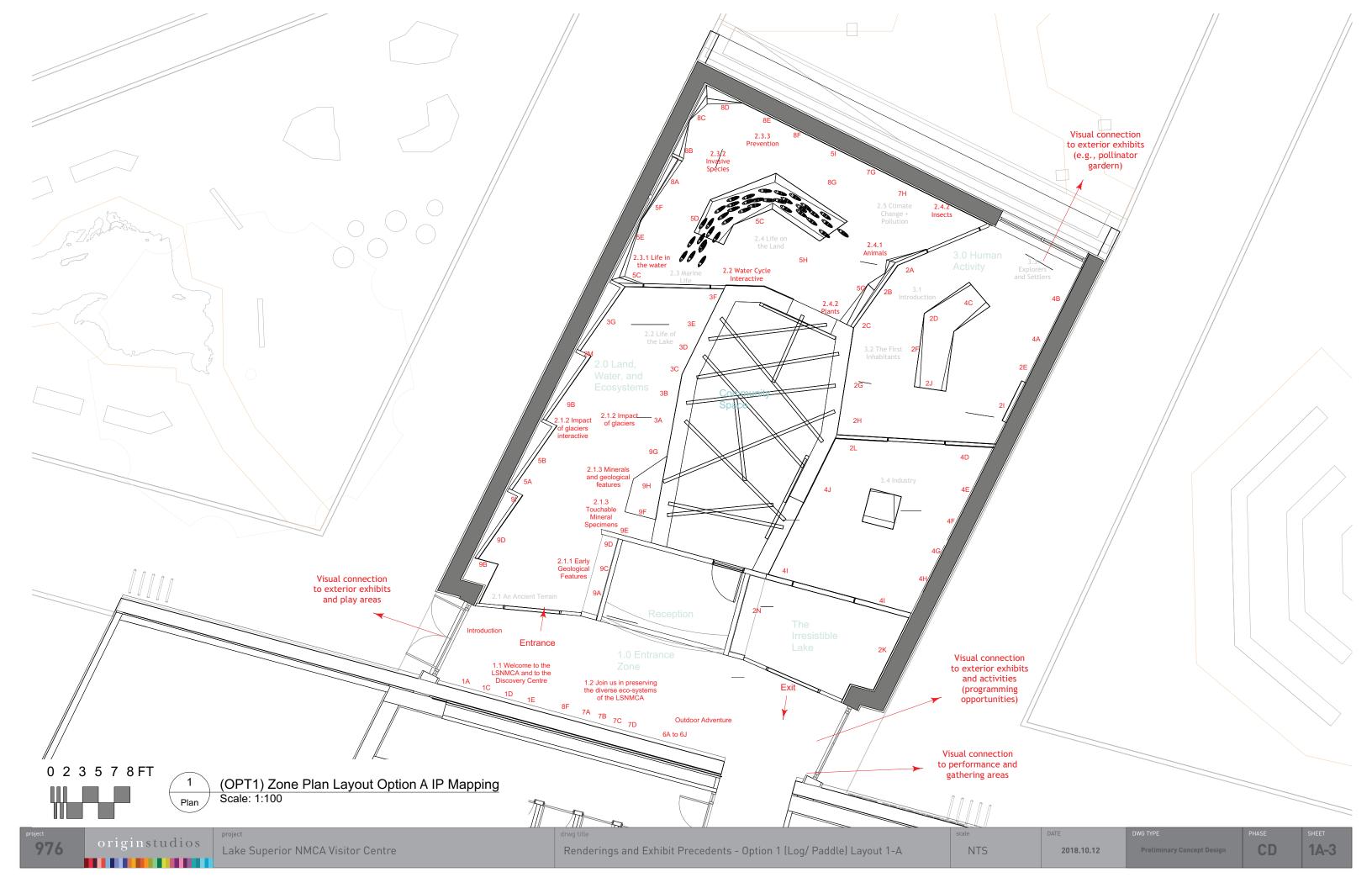
Budgets	Estimates				
Exhibit Furniture & Fixtures Budget	Budget Assignment	Area	Rate	Cost	
Main Gallery Exhibit Furniture and Fixtures	Exhibit	2190	\$550.00	\$1,204,500.0	
This exhibit concept proposes to clad the central reception desk structure with stone panels (or similar) to emphasize the terrain and geology of the area. A large aquarium is also proposed in this option, as well as many medium to large size display cases. Digital and physical interactives would be integrated throughout and exhibit and exhibit-specific flooring would be added (gloss epoxy or polished marmoleum shown).					
Community Space	n/a			\$0.0	
Hallway Graphics	Exhibit			\$7,500.0	
				\$1,204,500.0	
Exhibit Infrastructure					
Lighting	Exhibit	2190	\$110.00	\$240,900.0	
Electrical & Data	Architectural			n/	
Base Building Floor Finish	Architectural			n/	
Peripheral Walls & Finish	Architectural			n/	
				\$240,900.0	
Exterior Budget Allowances				Allowance	
Themed Gardens	Exhibit				
Children's Play Area - Scaled Lake Superior Map & Canoe Interactive	Exhibit				
Outdoor Performance Area - with seating and stage area	Exhibit			See Total	
Picnic and Rest Area with Customized Seating	Exhibit			232 1014	
All allowances are preliminary and based on the medium to high cost versions of the options presented.					
				\$475,000.0	

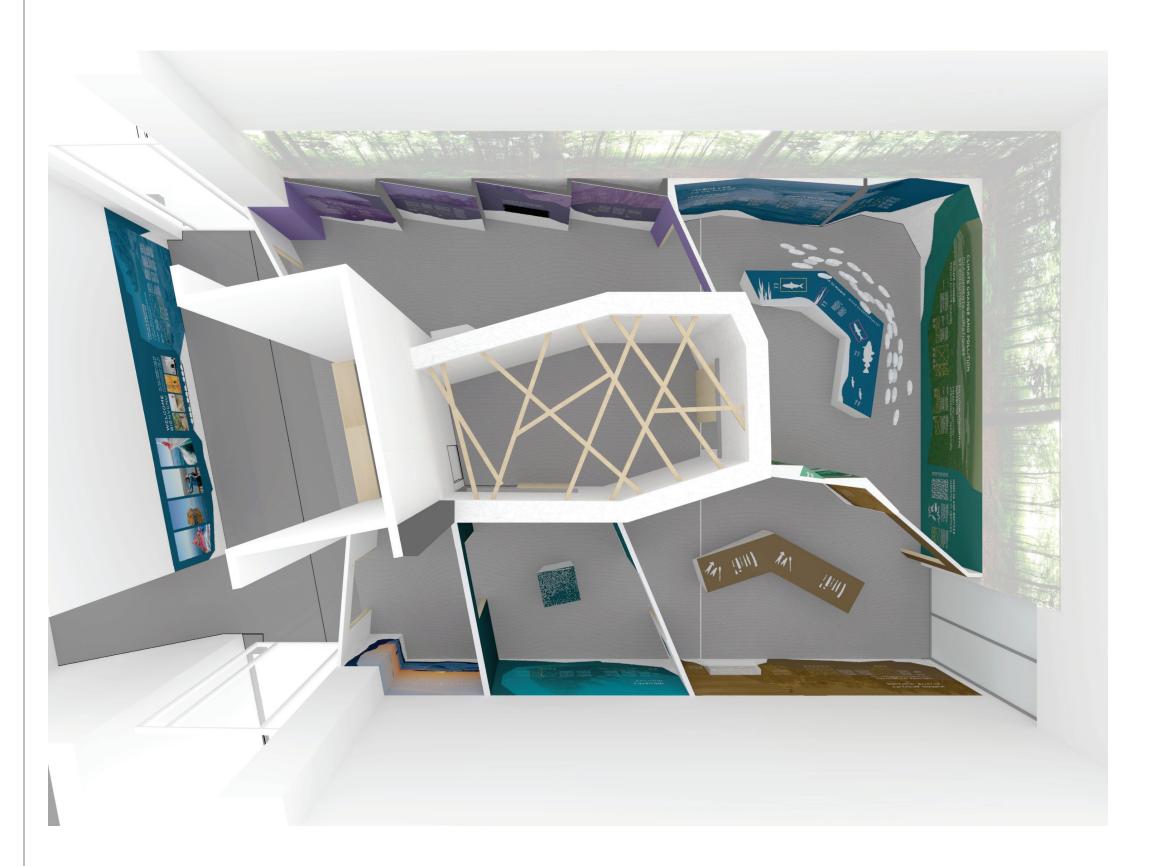


PRELIMINARY CONCEPT RENDERINGS

OPTION 1A

The inspiration behind the design for Option 1A is the vast and rugged nature of the land and waterscape around Parks Canada Lake Superior NMCA. The graphic design in the interior features a fragmented and rugged look while the angular nature of the exhibitry serves to create an interior space that showcases an exhibit strategy that aims to engage all five senses. The exterior exhibit offerings employs the same rugged look and feel as the interior exhibits of the Visitor Centre, while creating engaging and interesting spaces for programming and interpretive opportunities. Working in conjunction with the architecture team, the metaphor of the paddle / log compliments the rugged nature of the land and waterscape in a way that highlights and emphasizes the metaphor for the building. Shown here are the preliminary concept renderings, graphic styling and the exterior exhibits and site plan package showing approaches to visitor flow and arrival / exit strategies for the site as well as diagrammatic descriptions of exterior exhibit offerings with supporting images and sketches.





Lake Superior NMCA Visitor Centre

Rendering Package -

Architectural Layout Option 1 (Log/Paddle)

Exhibition Layout 1-A (Lower Cost Option)



1.0 Entrance Corridor

- 1 NMCA Information
- 6 Outdoor Adventure
- 7 Conservation and Protection

2.0 Land, Water, and Ecosystems 9 – Geology

- 3 Lake Effects
- 5 Terrestrial and Marine Ecology
- 8 Invasive Species
- 2.1 An Ancient Terrain
- 2.2 Life of the Lake
- 2.3 Marine Life
- 2.4 Life on the Land
- 2.5 Climate Change and Pollutants

- **3.0 Human Activity** 2 Indigenous History and Culture
 - 4 Maritime and Industrial History
- 3.1 Introduction
- 3.2 The First Inhabitants
- 3.3 Explorers and Settlers
- 3.4 Industry

4.0 The Irresistible Lake

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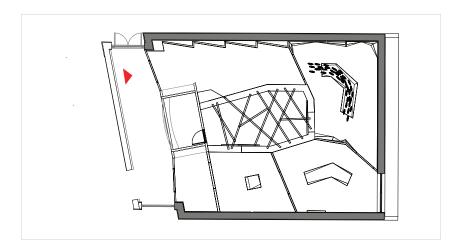






Exhibit Design Precedent

Shown here is an example of a sawtooth exhibit wall which features graphic murals on the longer face and text on the smaller verticals. Sawtooth walls add visual interest and a forced perspective down a corridor, giving different views depending on which direction you are facing.

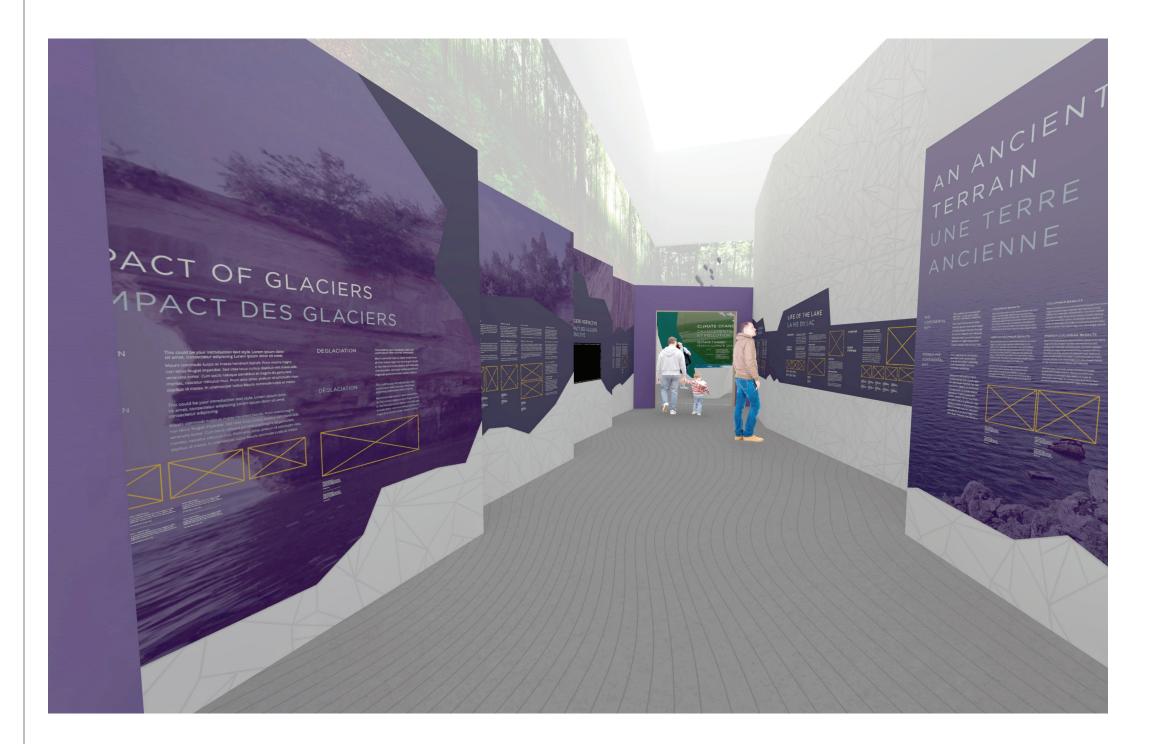
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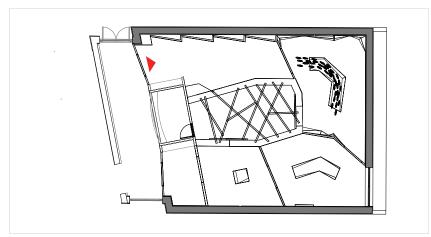
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2.1.3 Mineral and Geological Features

Graphic representations of the evolution of the Lake, along with touchable mineral specimens.



2.1.1 Early Geologic Formations

Physical interactives demonstrating the mechanisms by which different geological features are created. For example, a simple weighting and unweighting of land by ice sheets to demonstrate isostatic rebound or a gear driven model to demonstrate mid-continental rift.

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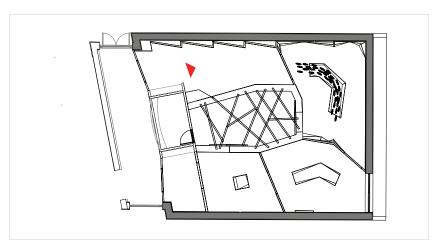
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2.2 Life of the LakeLarge map panel with flipbook containing place-naming stories for a simple, yet effective and fun interactive feature.

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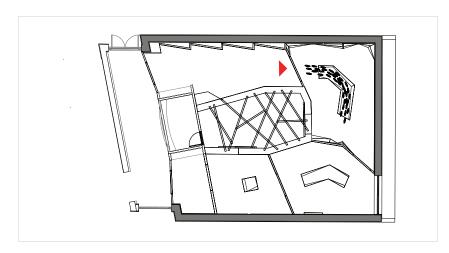
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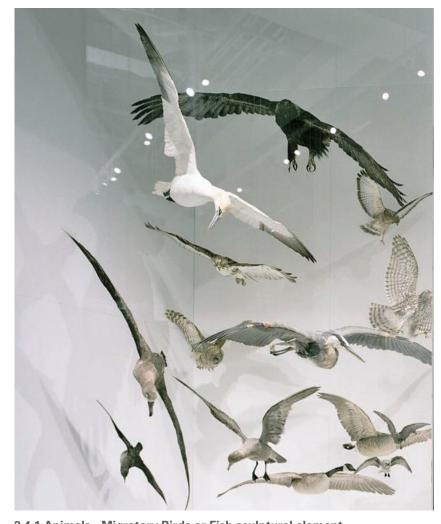
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2.4.1 Animals - Migratory Birds or Fish sculptural elementAn installation of model or taxidermy birds/fish in a formation over the exhibits draws the eye up to take advantage of the architecture of the space.

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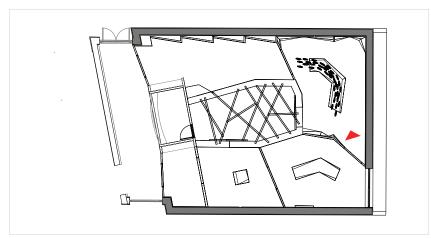
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1A-8

Lake Superior NMCA Visitor Centre Renderings and Exhibit Precedents - Option 1 (Log/ Paddle) Layout 1-A









2.3.1 Life in the Water - Fish EcologySpinning physical interactive game to identify various aquatic species.

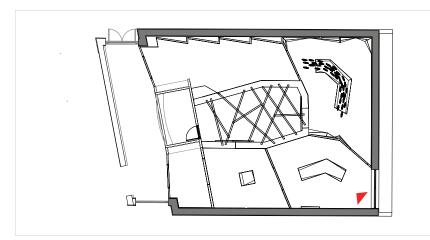


2.4.3 Insects Physical Interactive with sliding panels identifying various insect species common to the area.

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3.2 The First InhabitantsProjections above the exhibits highlight the tall space and draws the eye upwards. Projections of the Agawa Rock Pictographs could add a sense of wonder and immersiveness for visitors who are not able to trek to see them in person.

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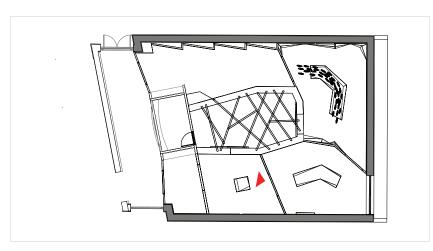




Exhibit Design Precedent

Shown here is an example of an angled, sculptural form for a table top design. The fragmented nature of the form is reminiscent of geological rock formations and is a design tool aimed at encouraging dialogue between visitors as they interact with the content.



3.2 The First Inhabitants

Cultural specimens set into display cases within angled tables assist in telling stories about the Lake and its inhabitants. Tools, adaptation, and harvesting are just some of the sub-themes explored here.

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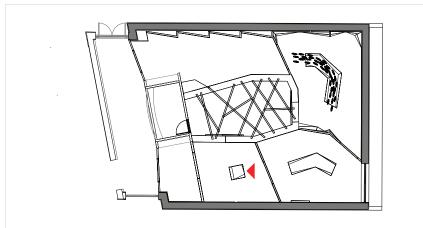
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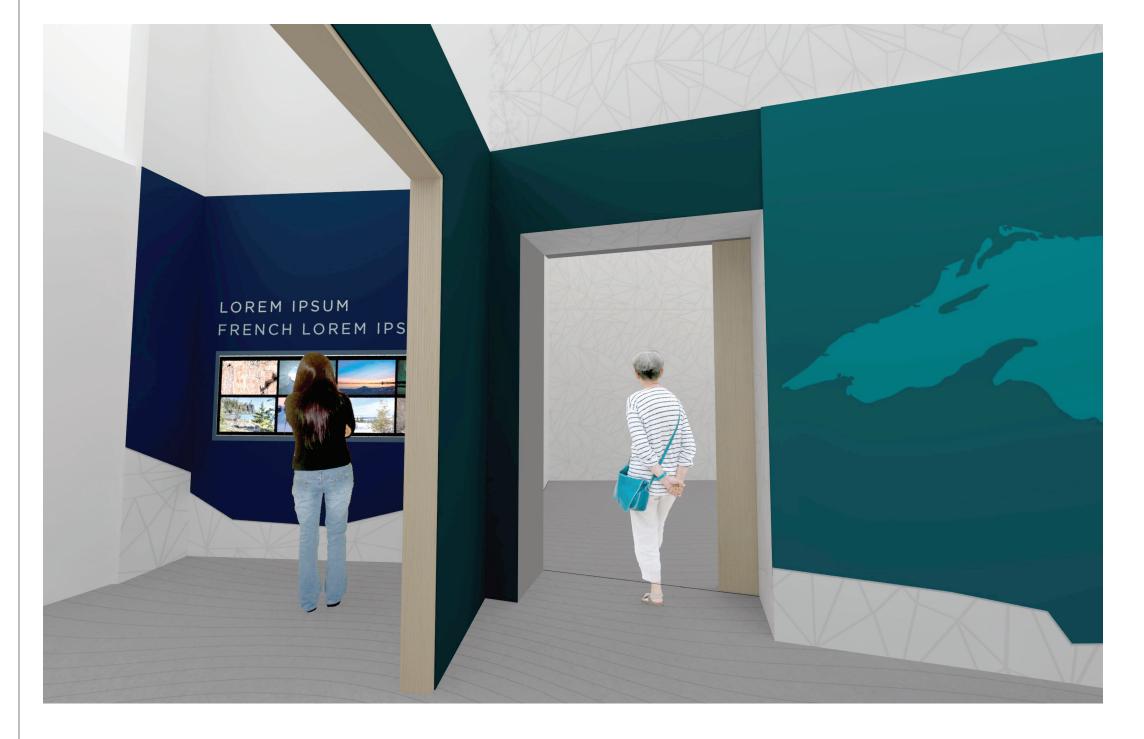


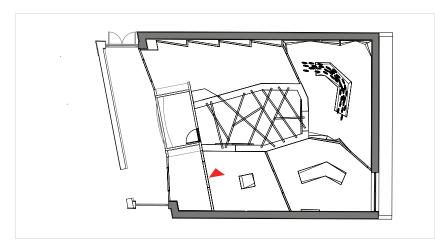
3.4 IndustryLighthouse and Shipwrecks - Audio stations or graphic panels describing shipwrecks with narratives and first-hand accounts.

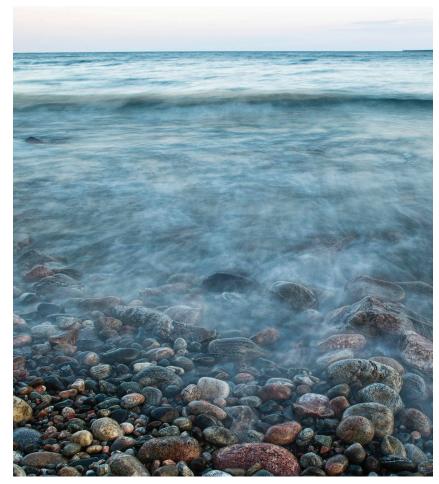


3.4 IndustryTelling Stories with Things — visitors learn about key industries in the region by exploring the story of a single related object (panel version).

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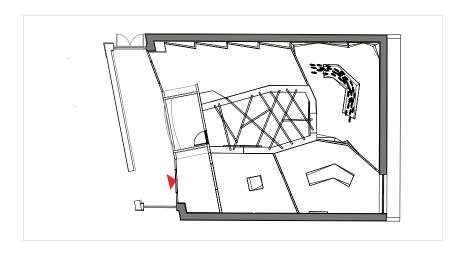
4.0 The Irresistible Lake

After an informative and active exploration of the previous zones, it is suggested that this be a largely un-interpreted area that is essentially visual, emotive, and experiential in nature. Majestic large-scale still images bring the outdoors into the interior spaces of the Visitor Centre, and encourage visitors to get outside and experience the real thing.

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Lake Superior NMCA Visitor Centre







Visitor-to-Visitor Interactive

The visitor-to-visitor zone provides an opportunity for people to share the location of their favourite spot, the best place for fishing, or their happiest moment. Designed with a unique means of displaying these comments, this exhibit can also act as an evolving space with a unique look and feel.

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Preliminary Concept

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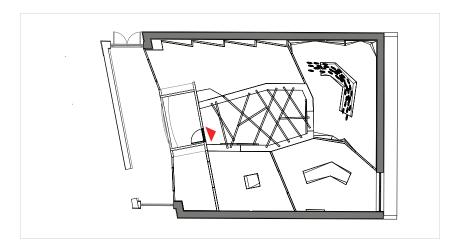




Exhibit Design Precedent

Shown here is an example of the sort of immersive room that the community space could inspire. With the design of the community space in the centre of the exhibit room, the community space itself acts as a sort of "hearth" and gathering space, open above to showcase the height of the space, but still capable of being semi-private for programming needs.

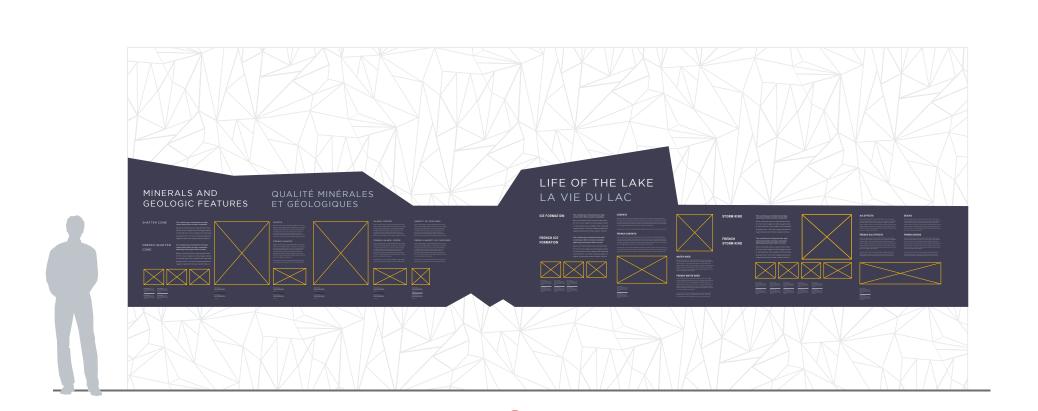
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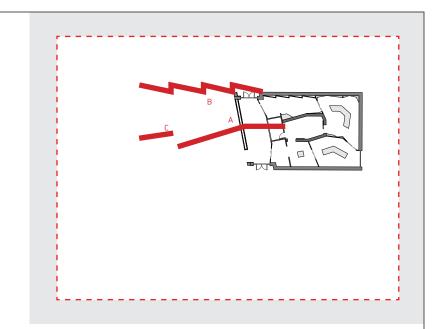
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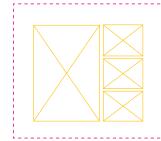
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PRELIMINARY GRAPHIC STYLING

OPTION 1A







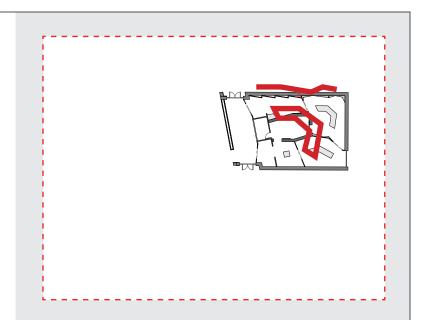


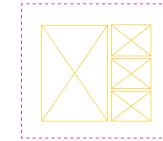


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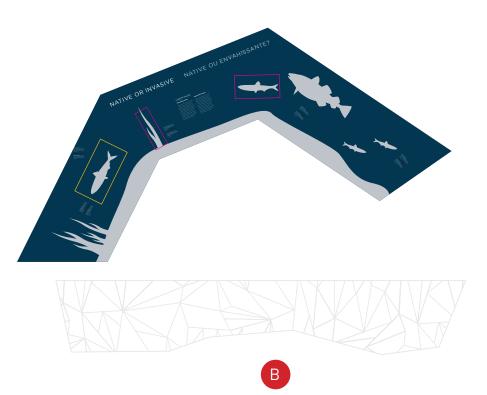
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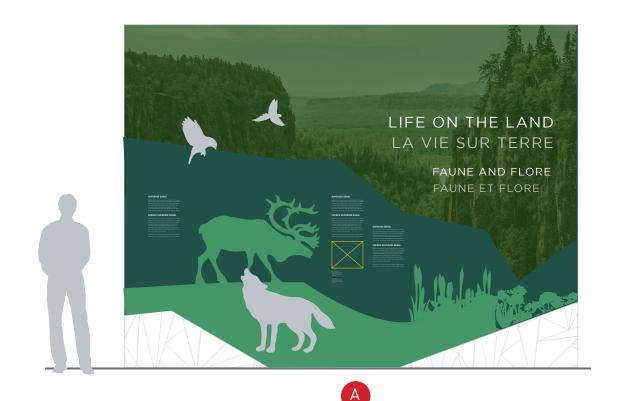


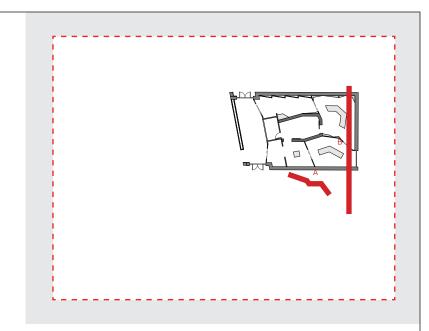
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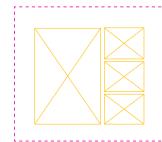
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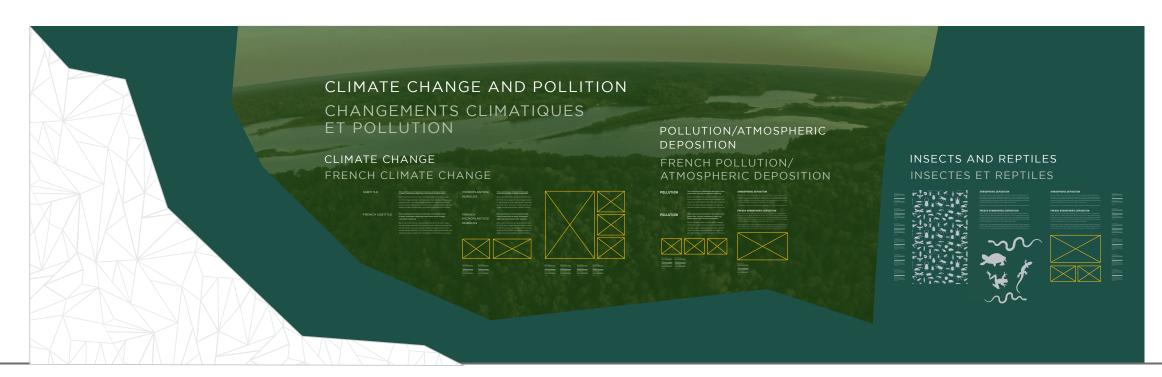
Preliminary Graphic Styling

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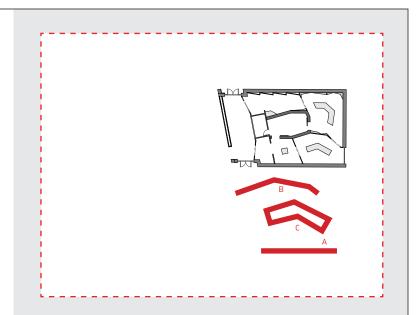


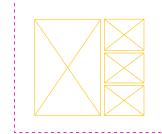




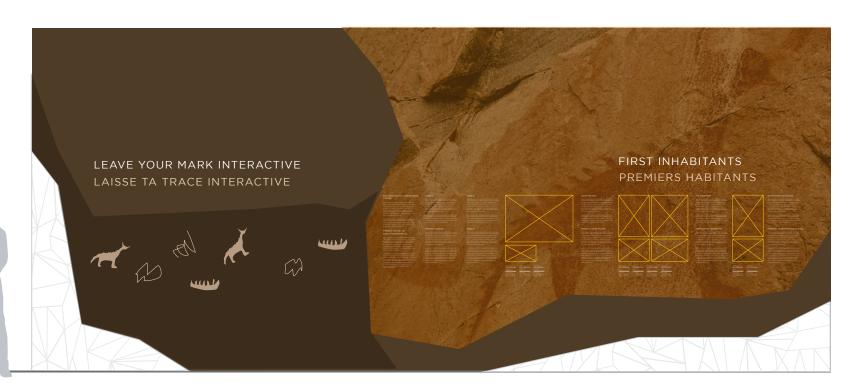
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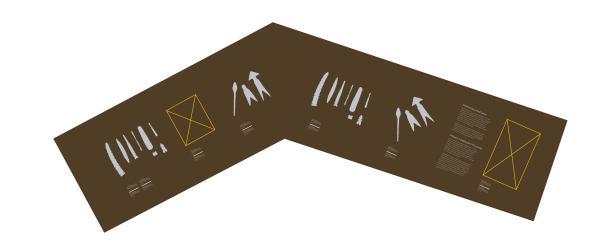










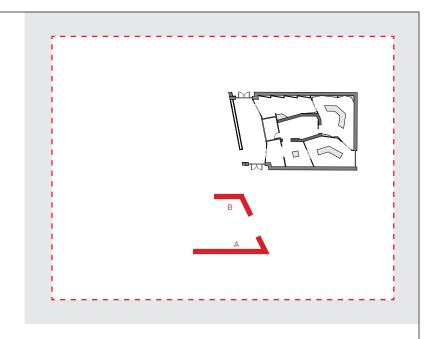


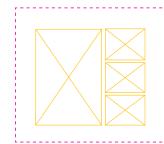
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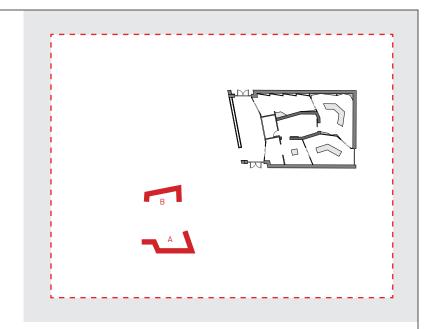


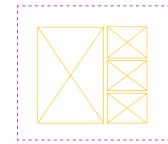


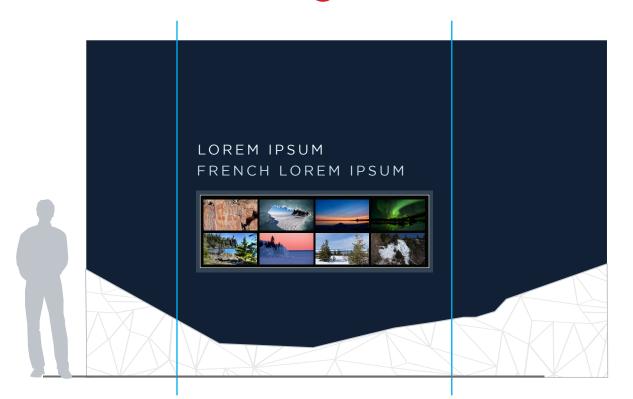






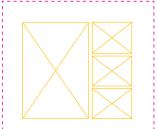


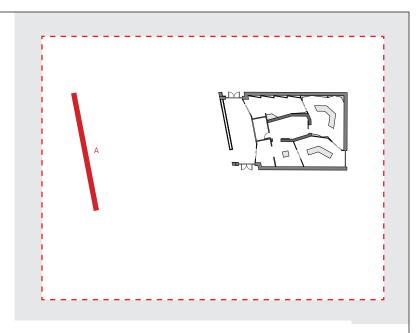




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Typography Approach

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Communication Strategy

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42.5 pt Intro Text 40 pt Body Text

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Title: 2-4 Words Intro Text: 20 Words Body Text: 70 Words Main Text (L3)

45 pt Title 27 pt Body Text

Title: 2-6 Words Body Text: 115 Words Secondary Text (L4)

40 pt Title 20 pt Body Text

Title: 2-6 Words Body Text: 110 Words Quotes

70 pt Text

Quote: 20 Words

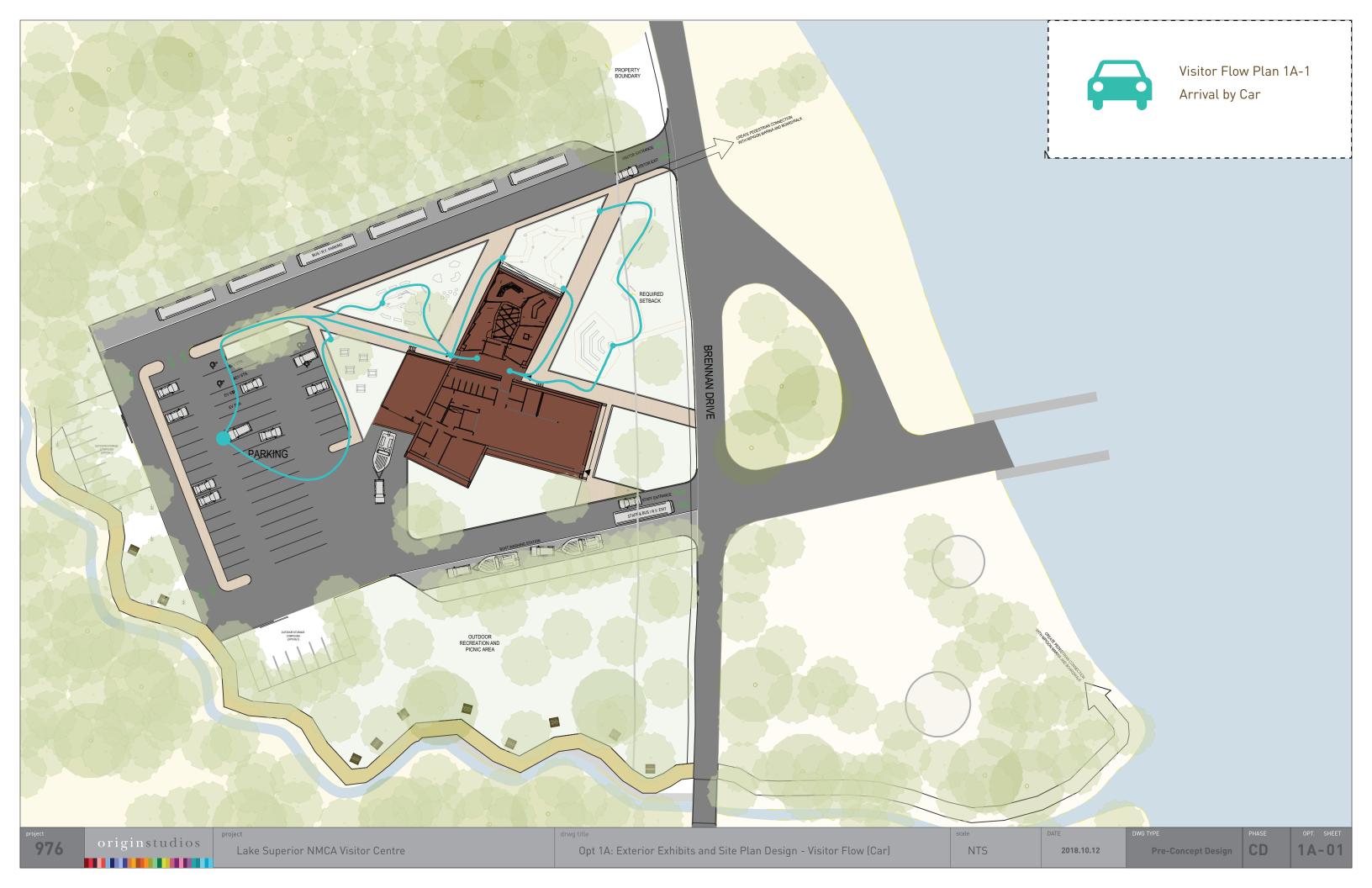
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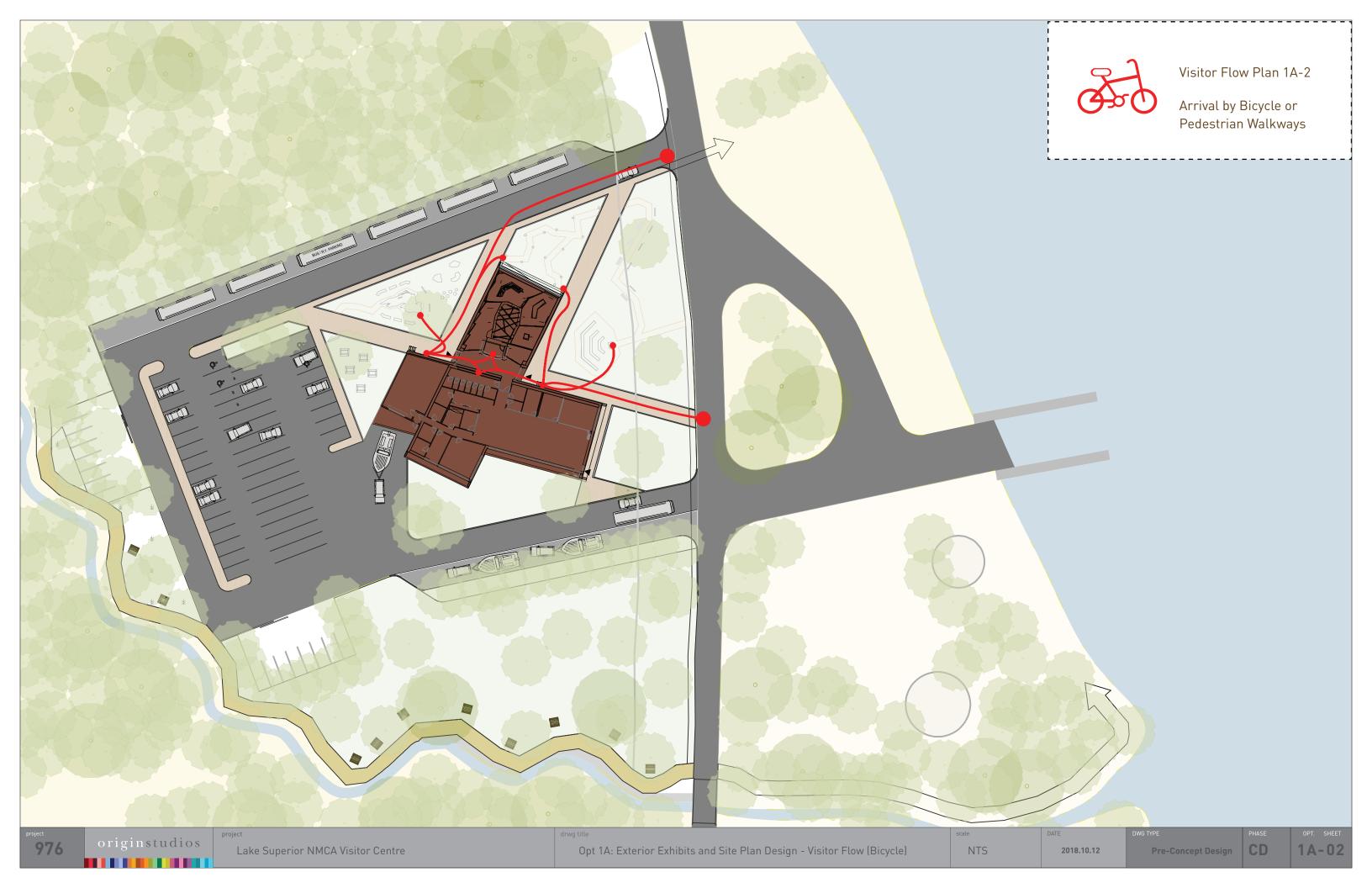
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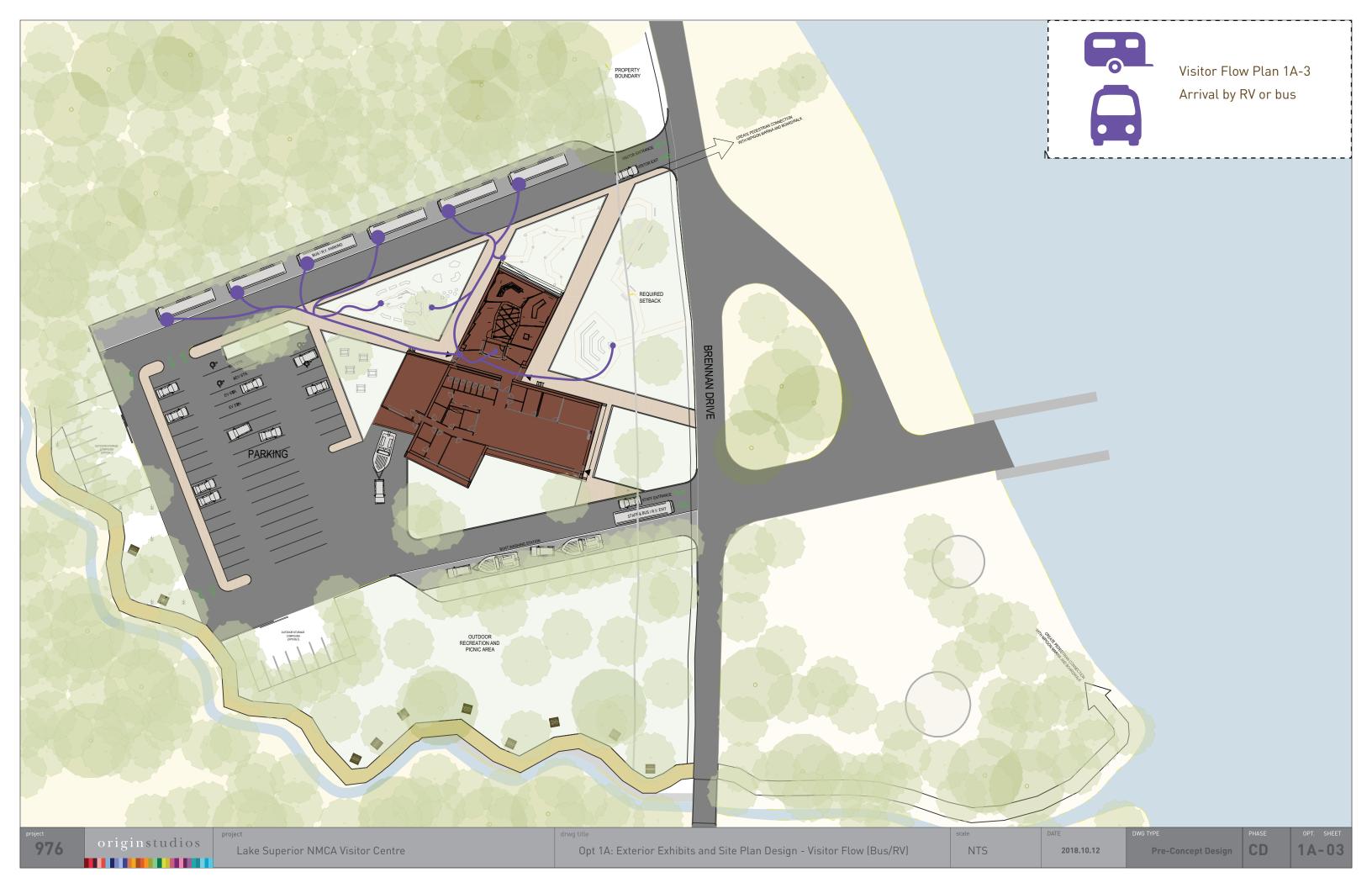
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EXTERIOR EXHIBITS AND SITE PLAN

OPTION 1A













Lake Superior Basin

In the lower cost option, the Lake Superior basin model in the exterior exhibits could take the form of a sandpit or a 3D map that children could play in with different levels for interpretive purposes.





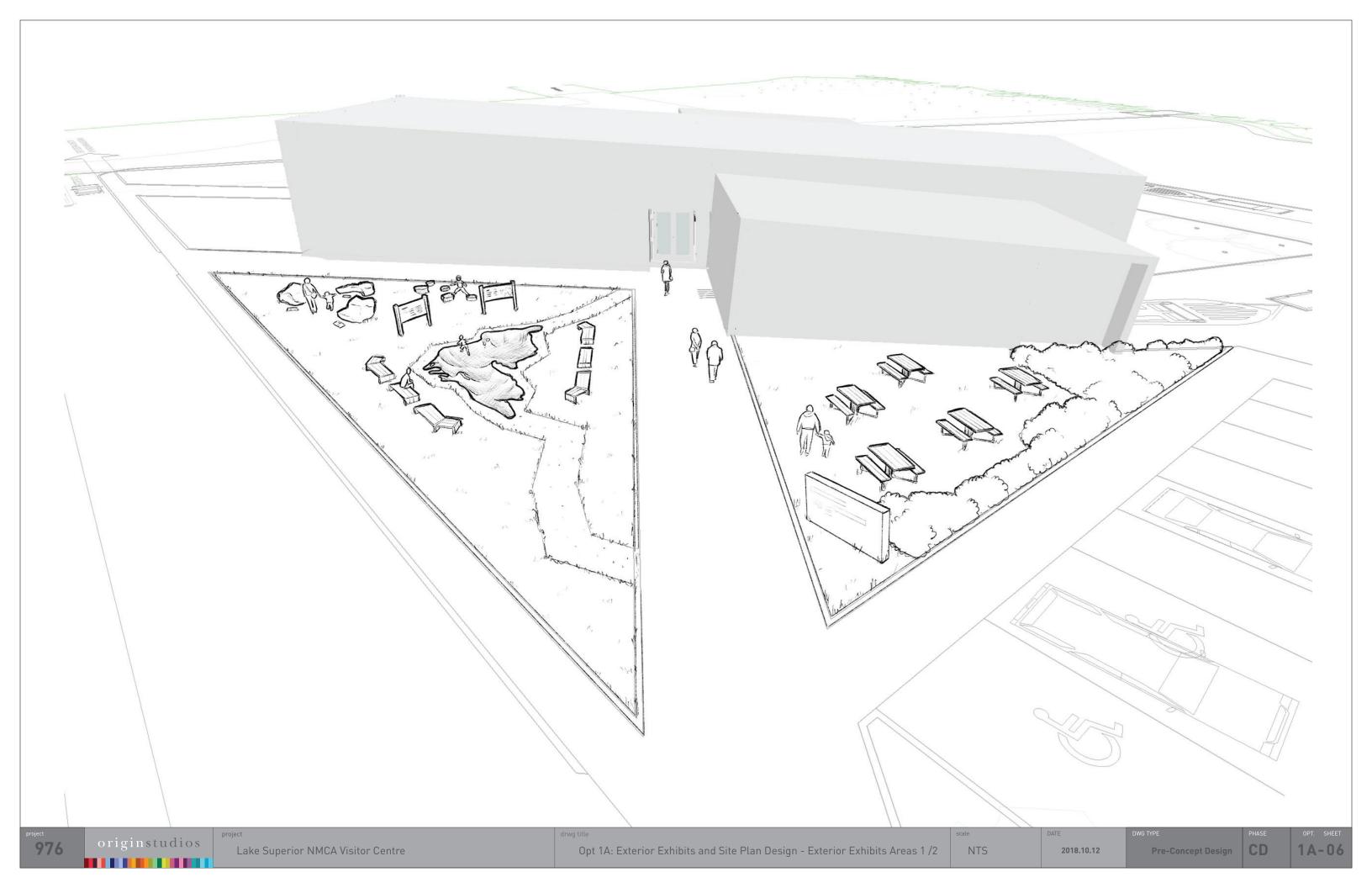
G Natural Playground Areas

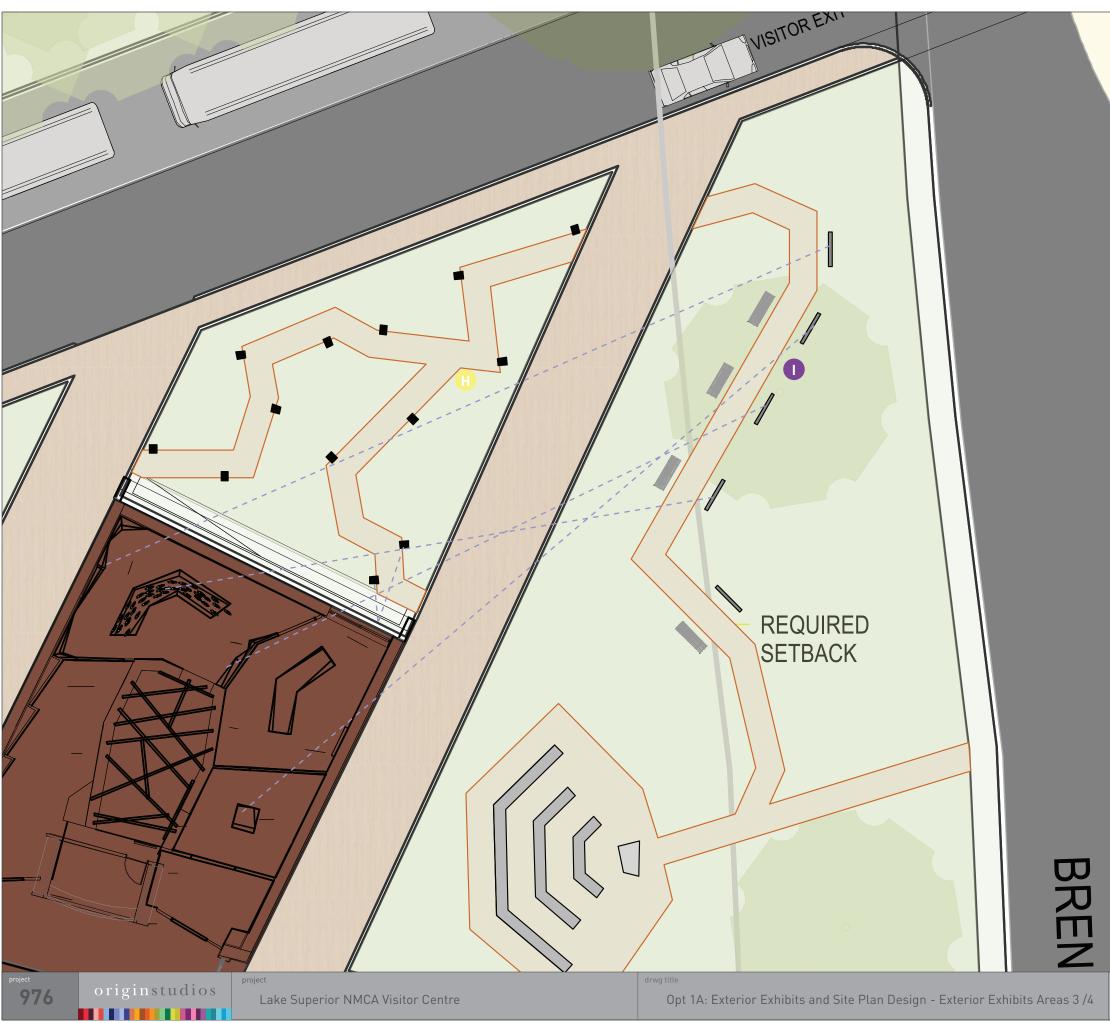
Cut-wood and large rocks samples are areas for climbing and playing for children, with the rocks also serving as interpretive materials for the geology section of the Visitor Centre.

DATE 2018.10.12

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Pre-Concept Design CD

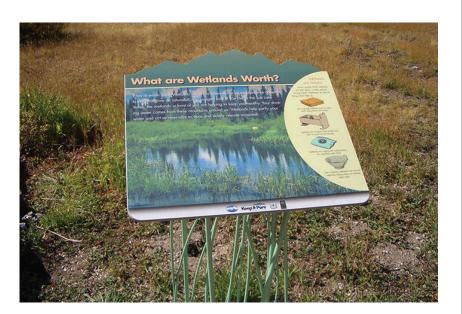






Discovery Path Part I, Lake Superior

The angular Discovery Path emulates the exhibitry inside the Visitor Centre. Walking through the Path, visitors will stop at interpretive stations to learn about interpretive messages and these stations can be used in programming activities. The exterior interpretive panels in the lower cost option are kept as simple, yet informative panels.

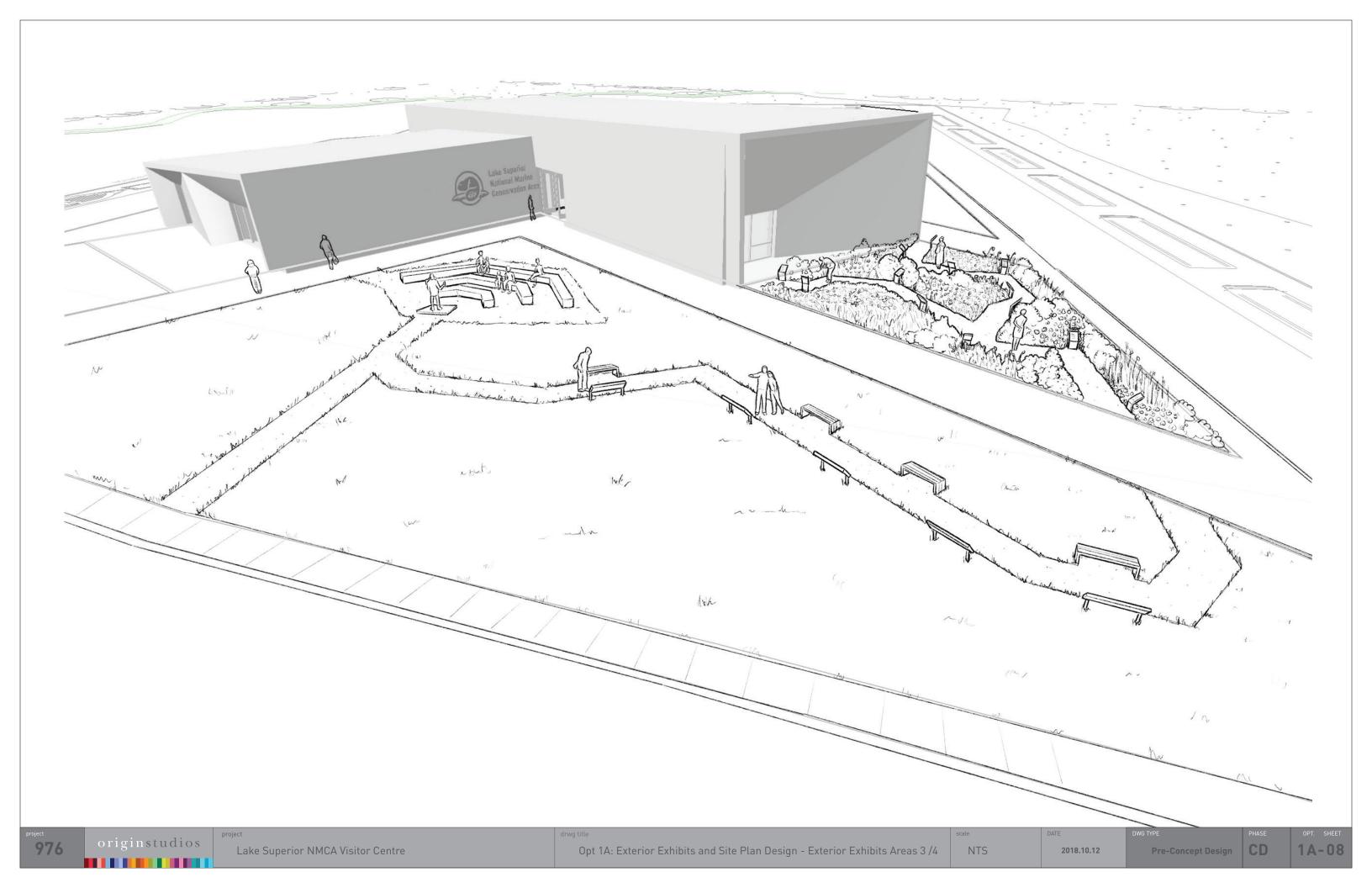


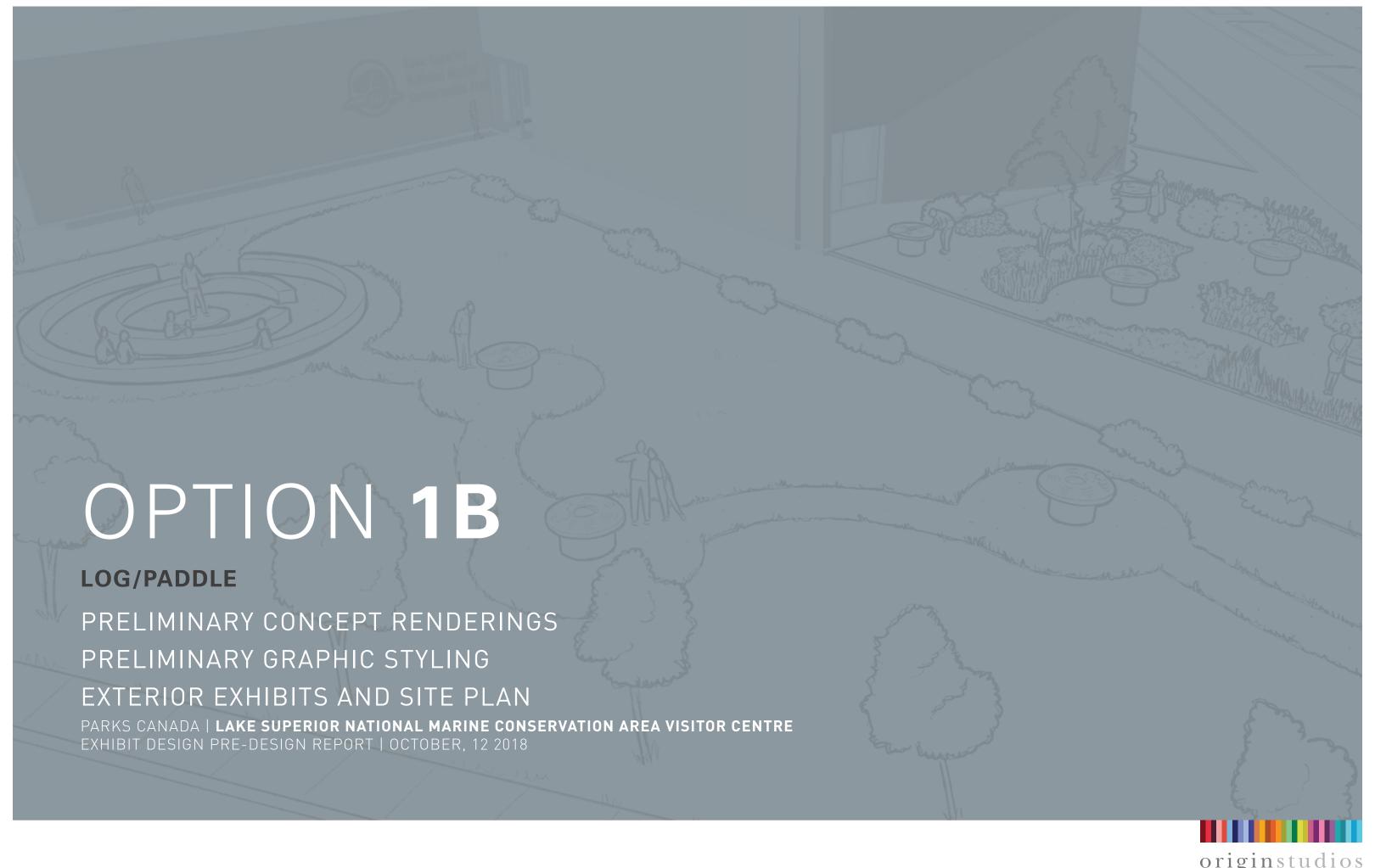
Discovery Path Part II, River and Lake

The pathway continues into the other green area across the path. Connecting views to Nipigon River allows for a visual connection, along with interpretive information continuing from indoors, about marine ecology, tributary systems and the water table.

1A-07

Pre-Concept Design CD NTS 2018.10.12

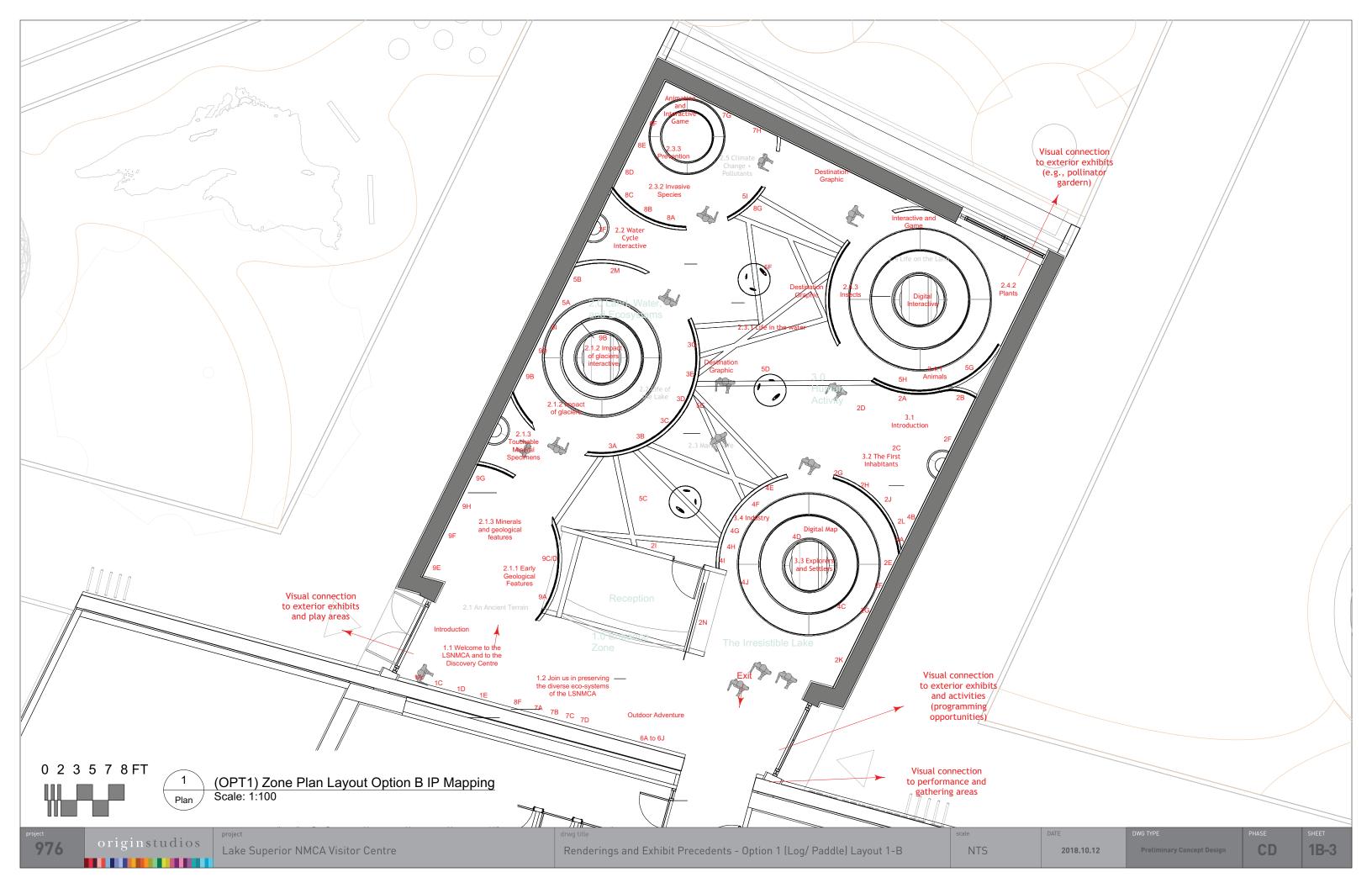


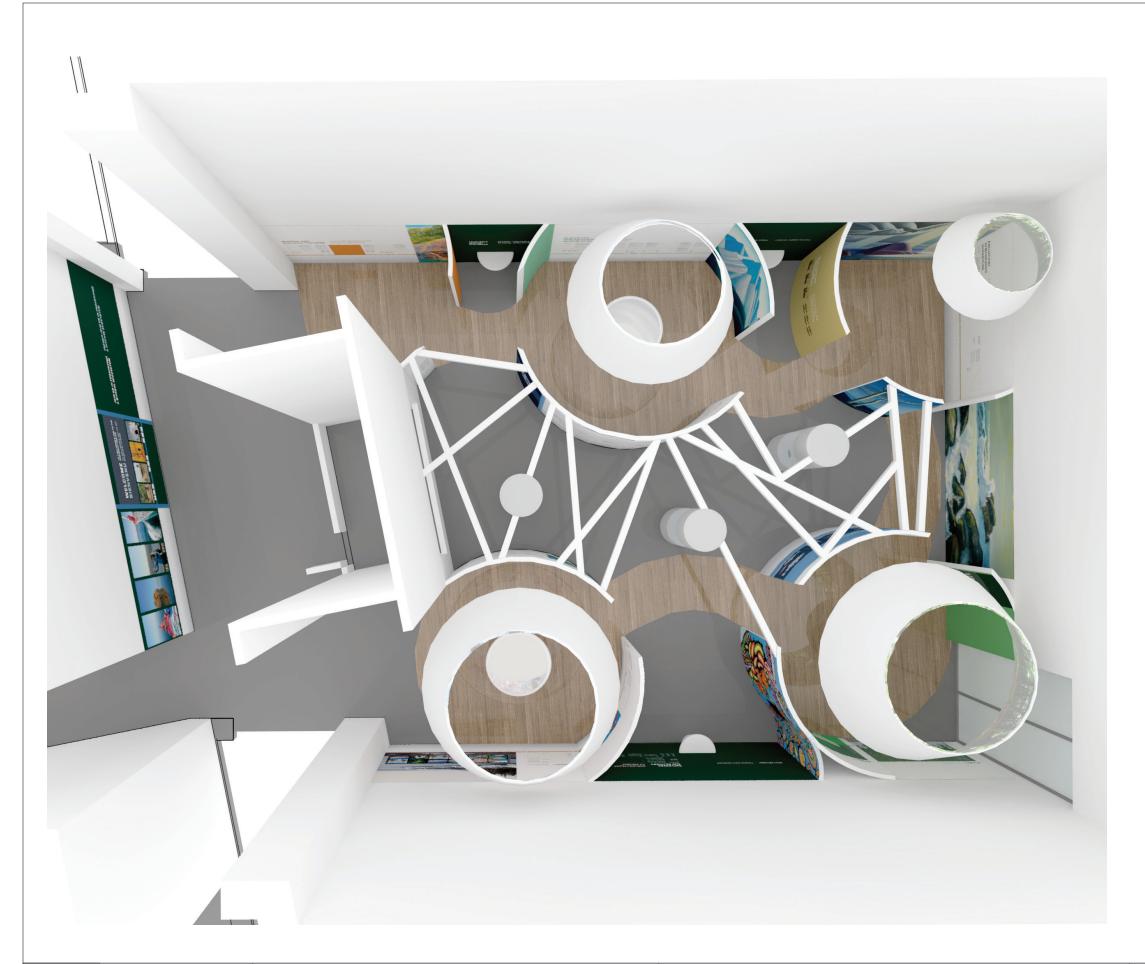


PRELIMINARY CONCEPT RENDERINGS

OPTION 1B

The inspiration behind the design for Option 1B is the organic, undulating nature of water. The freshwater, lake tributaries and the watershed are employed as the underlying key themes behind the metaphor of the eddies of water that are meant to take the visitor through winding pathways. The exterior exhibits offer the same organic pathways and as the interior exhibits of the Visitor Centre, with circular, winding paths taking the visitor through the site. Working in conjunction with the architecture team, the metaphor of the paddle / log compliments the metaphor for the building while the organic, curvilinear approach to exhibits are set apart from the architecture in contrast. Shown here are the preliminary concept renderings, graphic styling and the exterior exhibits and site plan package showing approaches to visitor flow and arrival / exit strategies for the site as well as diagrammatic descriptions of exterior exhibit offerings with supporting images and sketches.



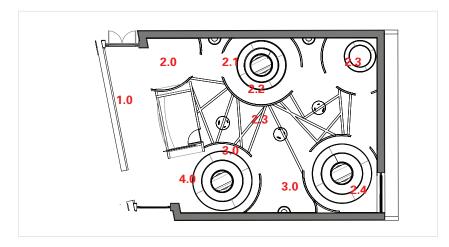


Lake Superior NMCA Visitor Centre

Rendering Package -

Architectural Layout Option 1 (Log/Paddle)

Exhibition Layout 1-B (Higher Cost Option)



1.0 Entrance Corridor 1 – NMCA Information

- 6 Outdoor Adventure
- 7 Conservation and Protection

2.0 Land, Water, and Ecosystems 9 – Geology 3 – Lake Effects

- 5 Terrestrial and Marine Ecology
- 8 Invasive Species
- 2.1 An Ancient Terrain
- 2.2 Life of the Lake
- 2.3 Marine Life
- 2.4 Life on the Land
- 2.5 Climate Change and Pollutants

- **3.0 Human Activity**2 Indigenous History and Culture
 - 4 Maritime and Industrial History
- 3.1 Introduction
- 3.2 The First Inhabitants
- 3.3 Explorers and Settlers
- 3.4 Industry

4.0 The Irresistible Lake

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1B-4



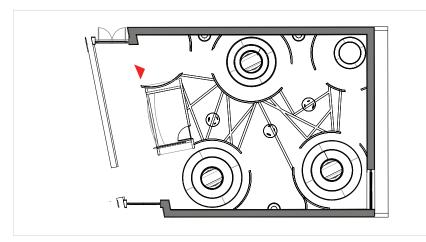




Exhibit Design PrecedentShown here is an example of a path in a different flooring material that indicates the main section for the visitor to walk along through the "pods".

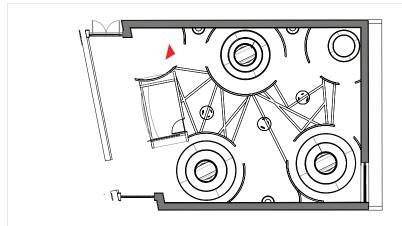
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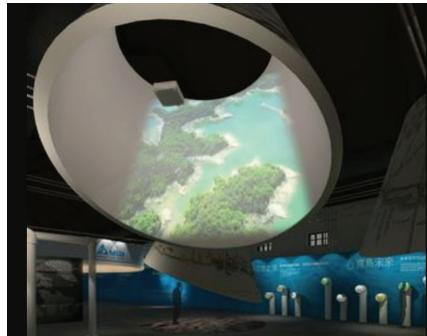




Exhibit Design Precedent

The floating ceiling structure that could hover above thematic "pods" give a highly immersive feeling when inside the "pod". In this arrangement, these rounded ceiling structures could showcase projections containing thematically related content.

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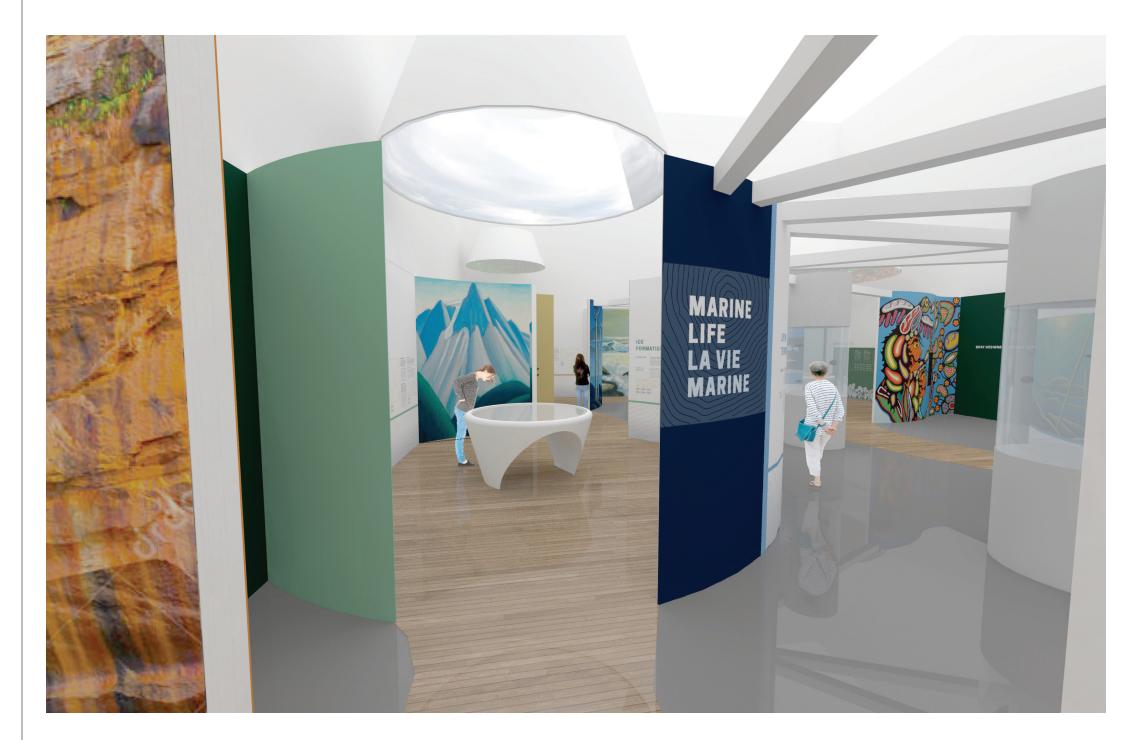
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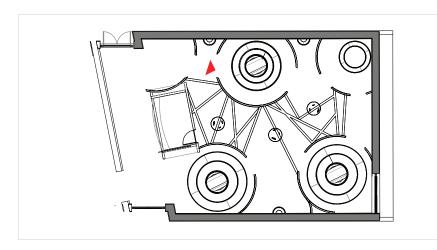
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PHASE

CD SHEET







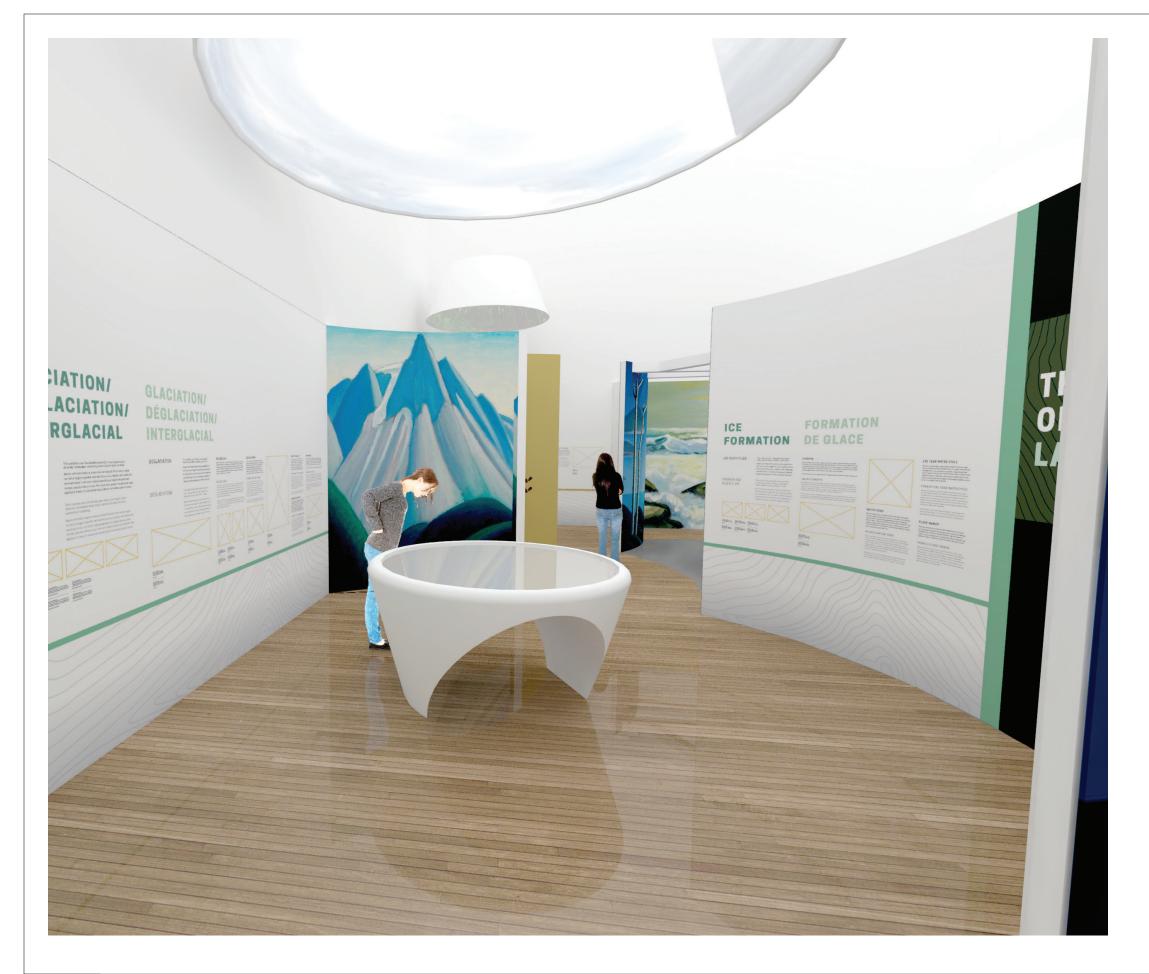
2.1.3 Minerals and geologic features
Shown here is an example of a vertical specimen wall of geological rocks and features.
Touchable mineral specimens next to the vertical column of rock would provide a tactile geological experience.

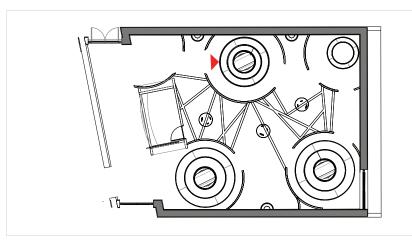
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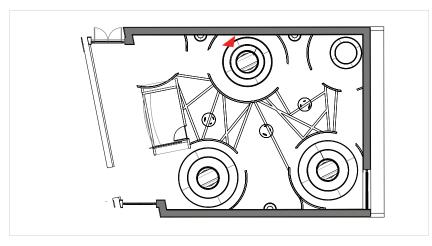


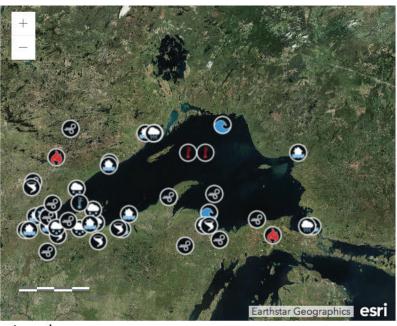
2.1.2 Impacts of glaciersA digital interactive traces the creation of the Pre-Cambrian mid-continental rift and the evolution of the land's geography over time up to the most recent glacial period during which the Great Lakes were formed. The "pods" have a central interactive table providing opportunities for digital interactives and other learning opportunities. These pods would also be great social spaces and encourage collaboration.

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2.2 The Life of the Lake

A large-scale video montage of dramatic storms, ice accumulations, waves. Shown here is an interactive screen which maps dramatic weather events that have happened on and around Lake Superior.

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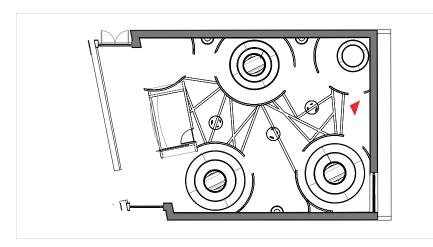
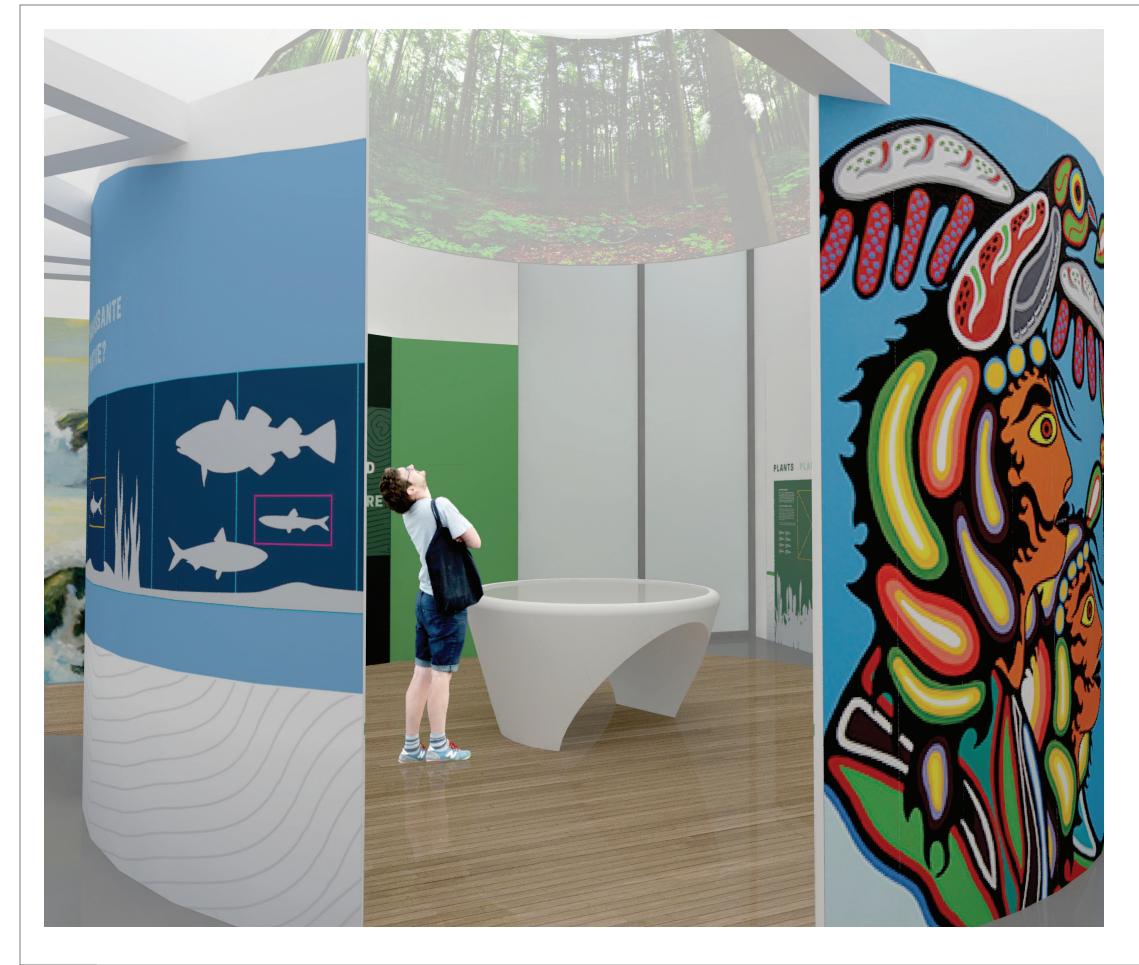
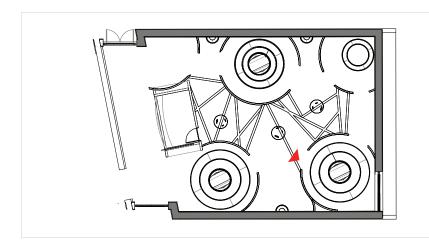




Exhibit Design PrecedentShown here is an example of an aquarium in a cylinder form as a vertical post in the space. The interstitial area between the "pods" will showcase a range of aquariums with a wide variety of fish, plant, and potentially crustacean life.

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2.4 Life on the Land

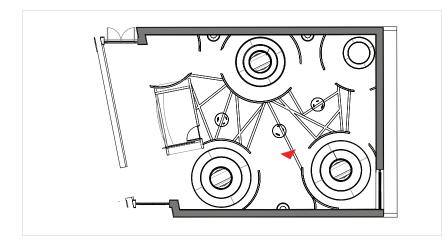
Digital bird (and other species) identification interactive with silhouettes, calls, and descriptions of behaviour and habitats of each species.



2.4 Life on the Land

Virtual herbarium identifying the various plants, where they are found, what uses they may have or have had for humans and other species supported by a physical interactive matching game and a connecting thematic garden in the exterior spaces that indicates the same native plant









3.2 The First Inhabitants

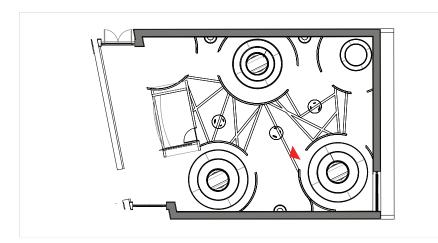
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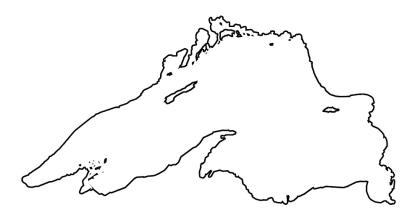
People capsules – first person oral histories with an Indigenous representative sharing stories about early life in the region, ceremonies, teachings.

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3.2 The First Inhabitants

Digital map showing settlements and cultural groups, trade and travel routes, with contemporary overlay to show present day location of highways and cities.

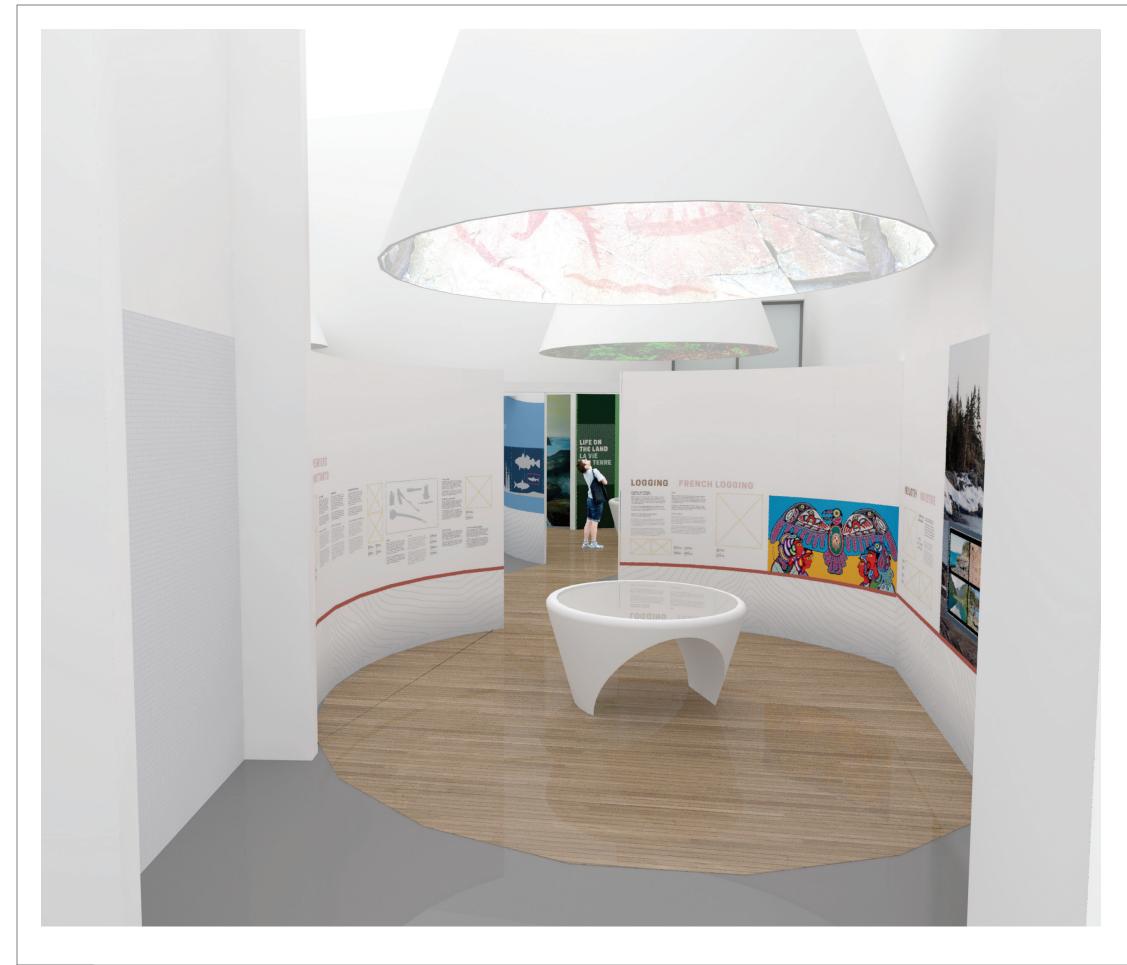


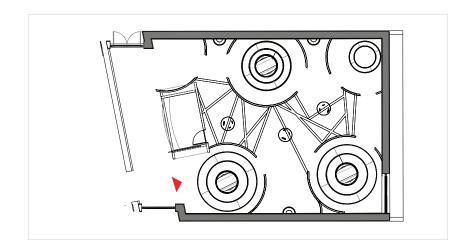
Exhibit Design Precedent

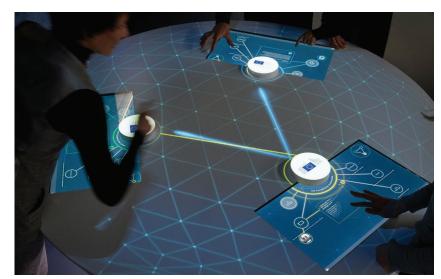
Shown here is an example of the curved walls that highlights a thematic "pod" with contrasting exterior wood cladding material and graphics. The unique graphic application per "pod" creates an immersive and unique experience per room and sub-theme.

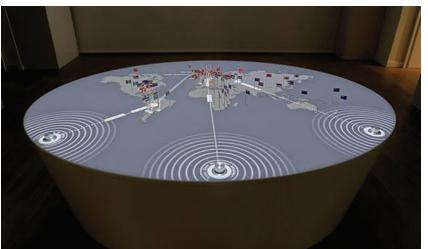
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3.3 Explorers and Settlers - Digital TableInteractives on the centre digital table could include a virtual game "would you survive in the bush?" A digital interactive exploring the effects of changes in boat design in a simulator, e.g. what differences do keel depth make? and a collection of digital albums of shipwrecks and related stories, songs, and video clips..

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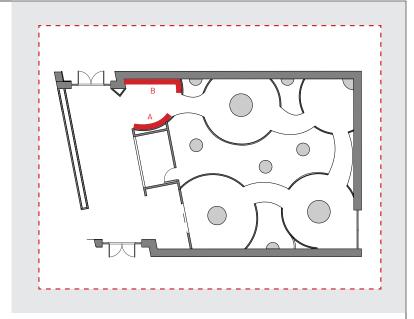
CD 1B-14

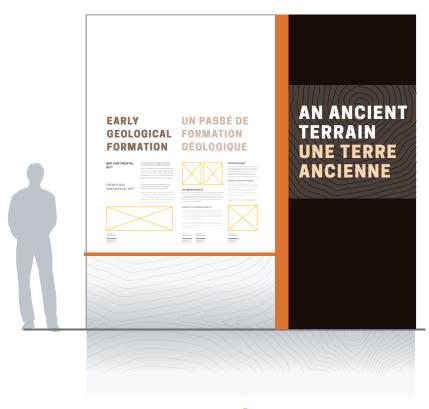
PRELIMINARY GRAPHIC STYLING

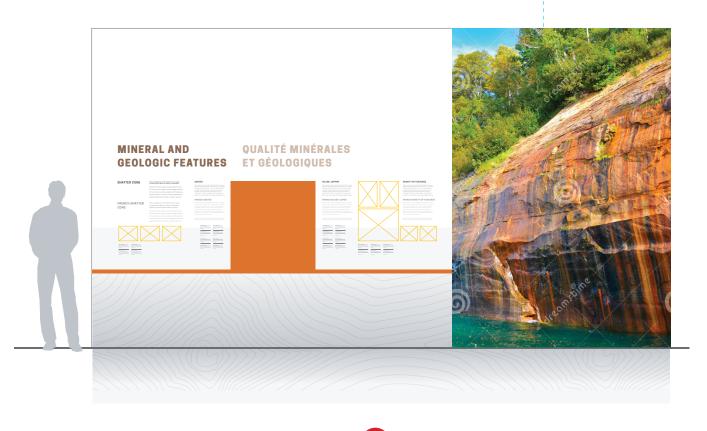
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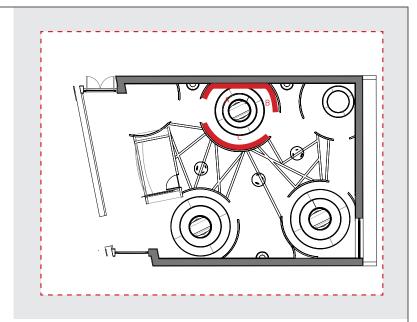




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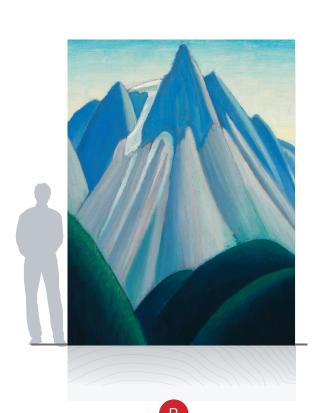
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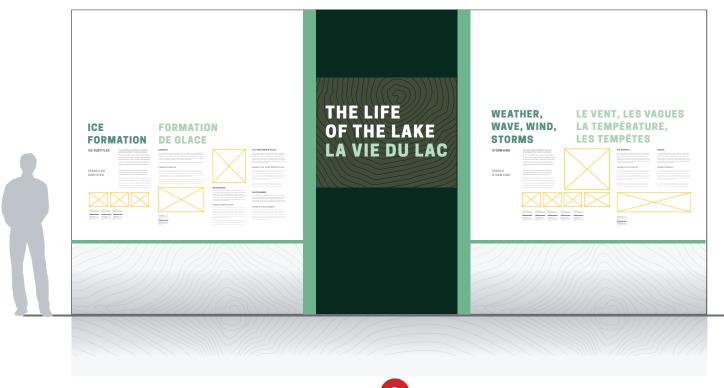






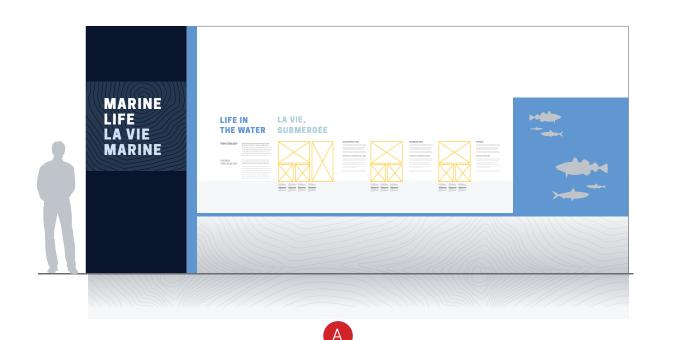
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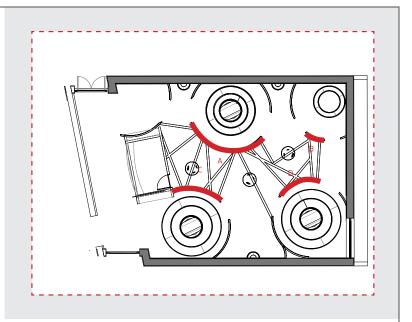


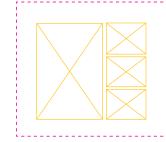
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976 Originstudios Lake Superior NMCA Visitor Centre drwg title Preliminary Graphic Styling NTS DATE DWG TYPE PHASE OPT. SHEET Preliminary Concept Design CD 1B-17

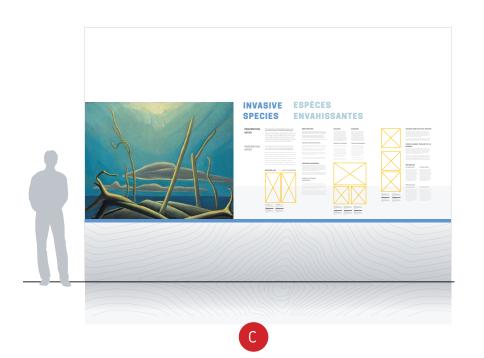


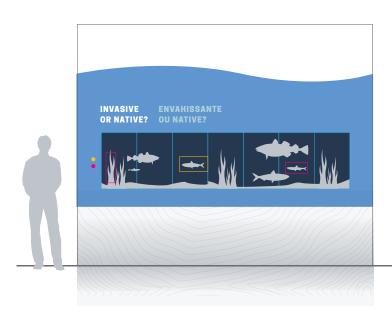




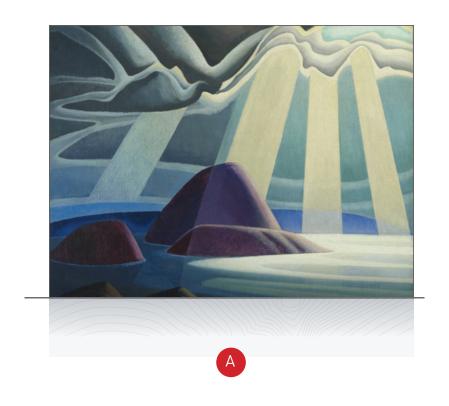


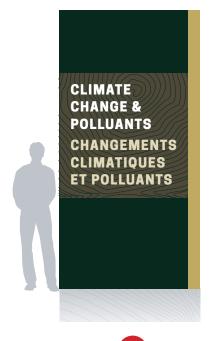
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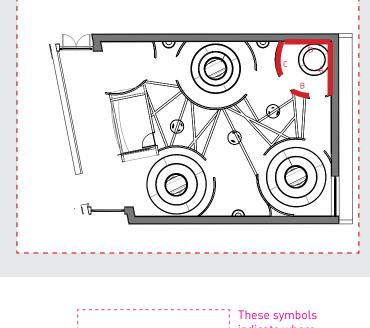


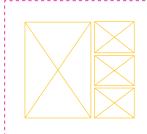
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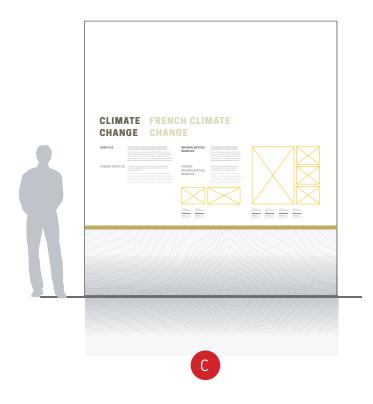








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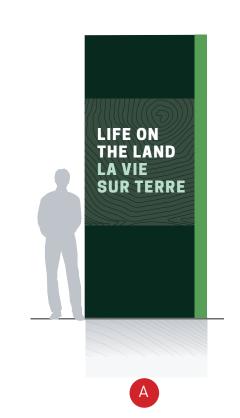


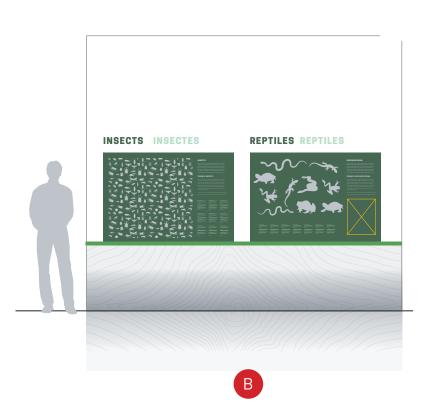
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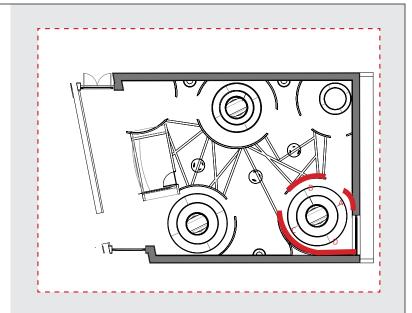
Lake Superior NMCA Visitor Centre

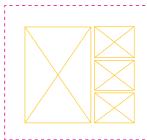
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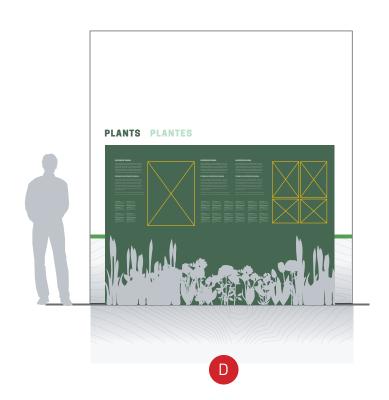


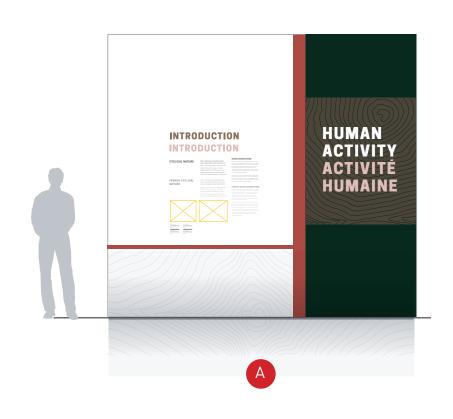


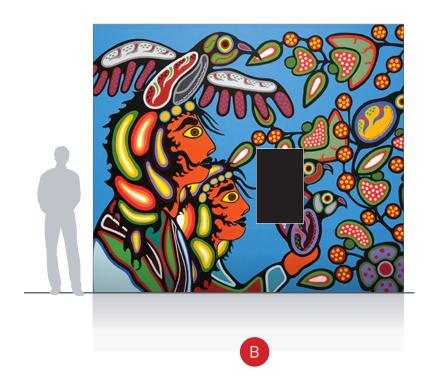


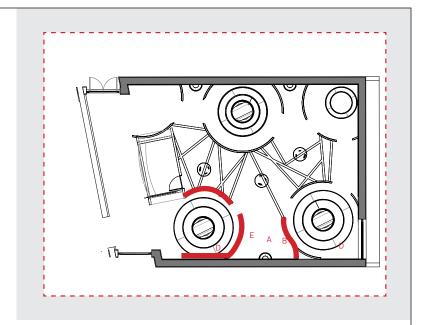
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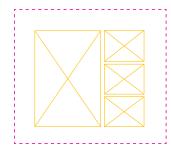






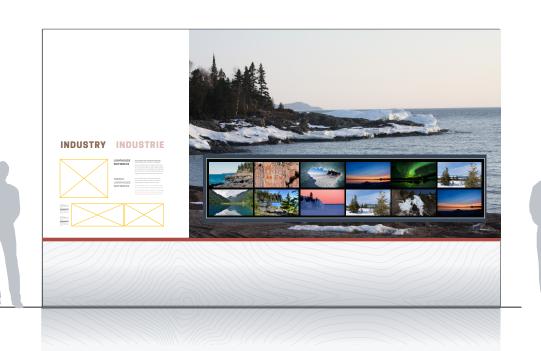






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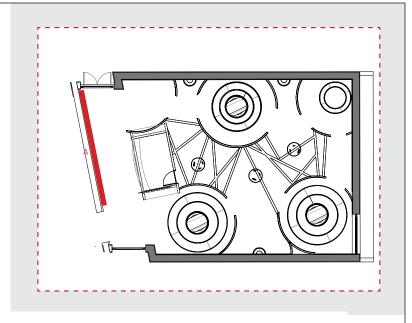
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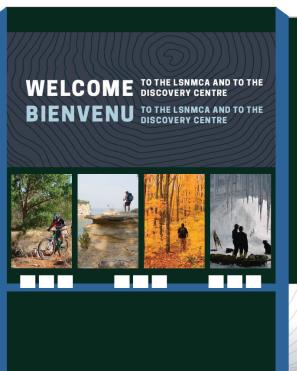
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Typography Approach

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Communication Strategy

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Zone Introduction (L1)

Font Size —

80 pt Subtitle 42.5 pt Intro Text 40 pt Body Text

Word Count

Title: 2-4 Words Subtitle: 3-4 Words Intro Text: 15 Words body Text: 45 Words

Primary Text (L2)

65 pt Title 33 pt Intro Text 30 pt Body Text

Title: 2-4 words Intro Text: 20 Words Body Text: 70 Words

Main text (L3)

54.5 pt Title 27 pt Body Text

Title: 2-6 Words Body Text: 115 Words

Secondary Text (L4)

50 pt Title 20 pt Body Text

Title: 2-6 Words Body Text: 110 Words

Quotes

70 pt Text

Quote: 20 Words

Label Text (L5)

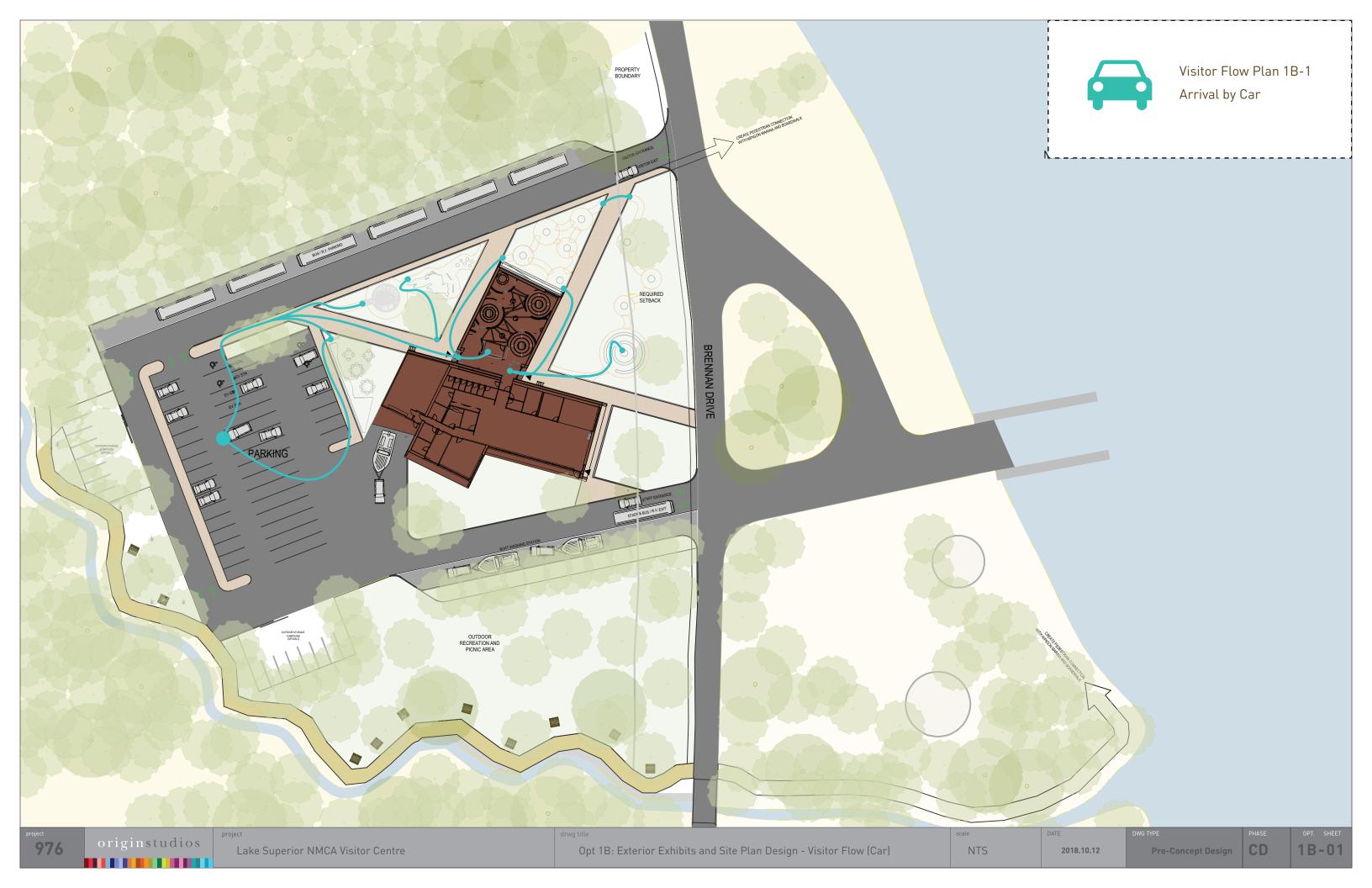
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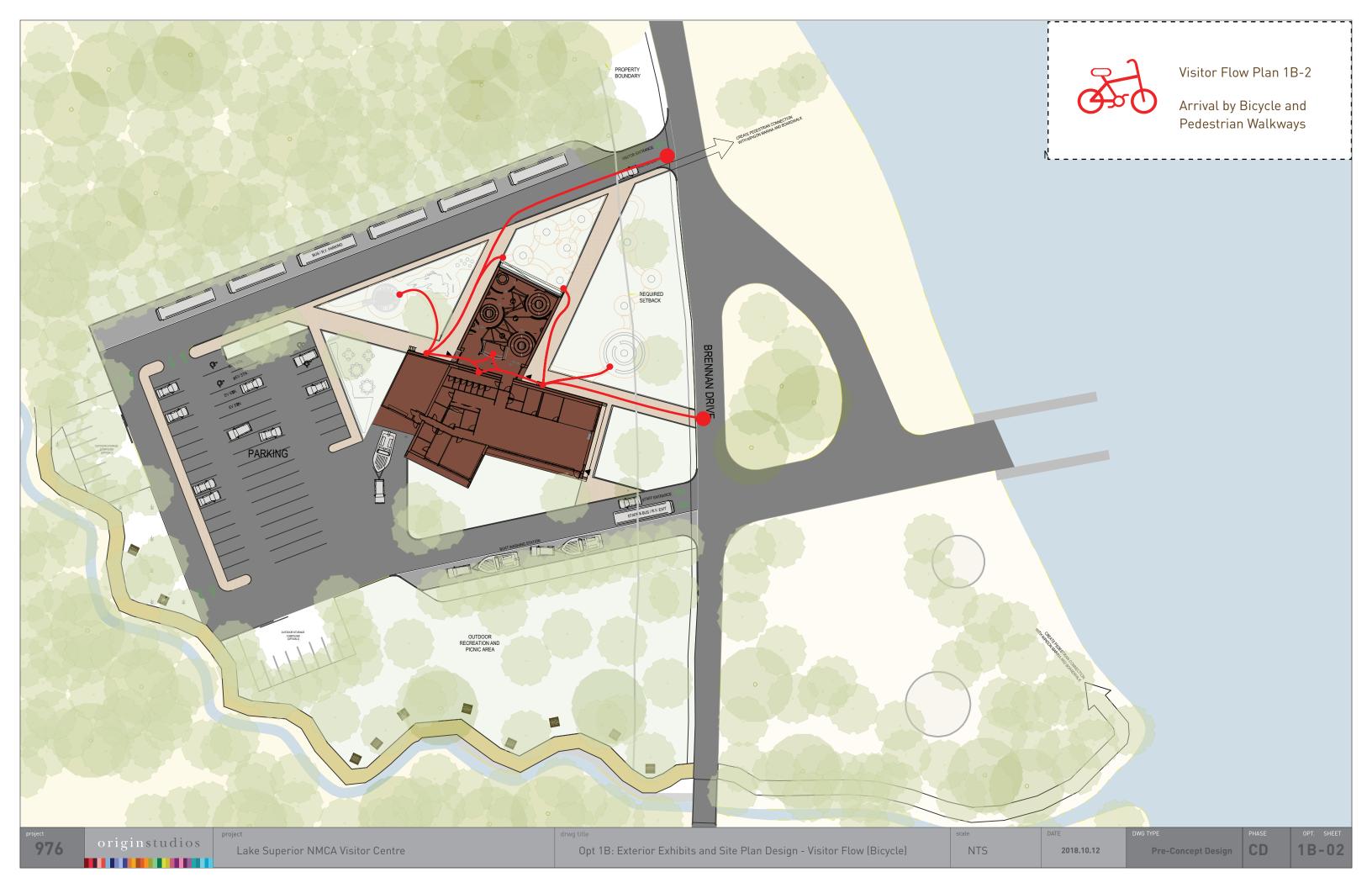
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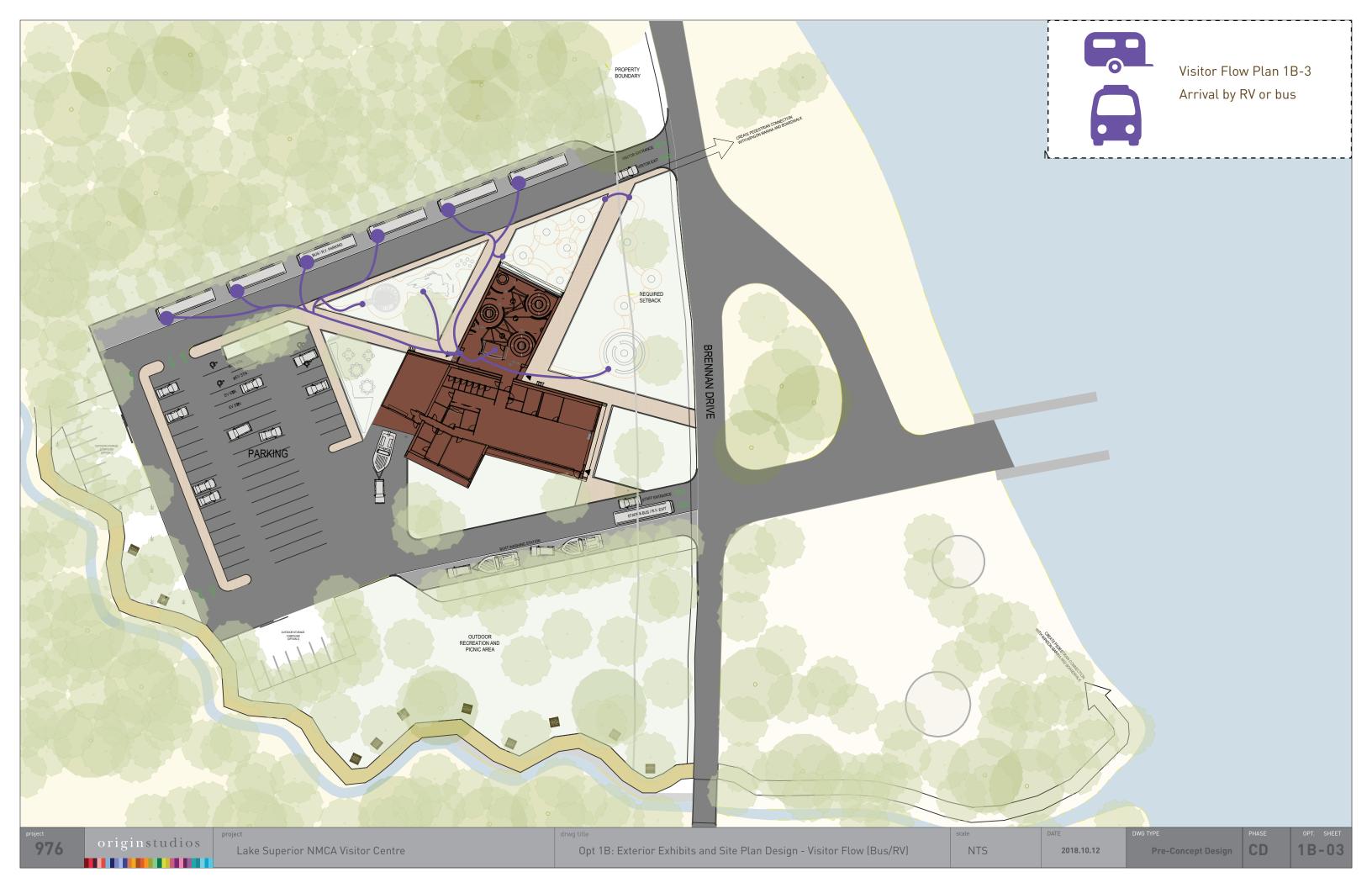
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EXTERIOR EXHIBITS AND SITE PLAN

OPTION 1B









Natural Landscaping

In this area, there could be a natural barrier from the parking areas with native plant species relying on little to no maintenance.

Picnic Table Areas

Next to the parking areas, there could be a small area for eating and picnics. For the RVs and visitors who come from a longer trek, this could serve as a restful area before or after their visit. Messaging is incorporated here to inspire visitors.

Introductory / Interpretive Panel

At the entrance to the site, an introductory / interpretive panel could introduce the LSNMCA and Visitor Centre. Stewardship and conservation messaging could also be included.

Lake Superior Basin

A children's play area consisting of a scaled-down basin of Lake Superior. Designed to reflect bathymetric or other forms of mapping, this play area would also feature the remarkable yet concealed geography of the lake, along with the locations of important shipwrecks, islands, lighthouses, and other distinctive characteristics of the lake.

Lighthouse Play Structure

"Become A Lighthouse Keeper" activity, with a model lighthouse play structure, that would encourage children to learn about signaling, weather and water conditions,

Interpretive Messaging

Stand-alone interpretive opportunities for learning about the geology of the site in the exterior exhibits. Material connects to the exhibits indoors.

Natural Playground Areas

Cut-wood areas for climbing and playing for children with possibilities for additional natural play structures. The walkway leads the visitor to the Discovery Path in the adjacent gardens.

Discovery Path Part I

The Discovery Path emulates the exhibitry inside the VC. Walking through the path, visitors will learn at five, central hubs, content that relates to exhibit content indoors. These hubs act as natural gathering areas for programming.

Discovery Path Part II

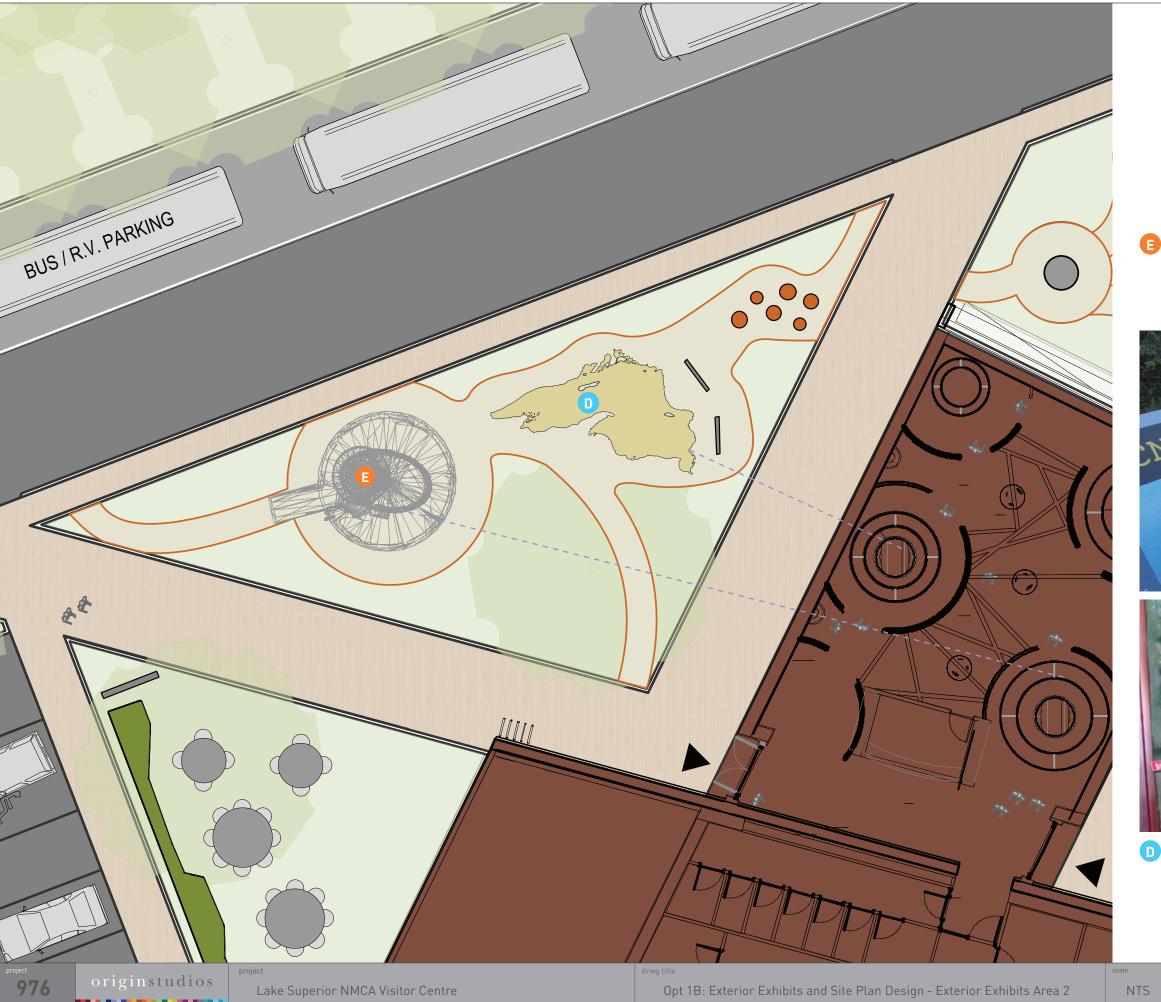
The Discovery Path continues into the other green area across the walkway. Connecting views to Nipigon River allows for a visual connection, along with stand-alone interpretive information continued from indoors, about marine ecology and Lake Superior.

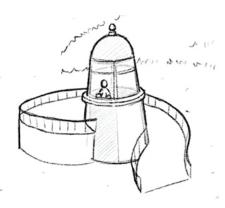
Outdoor Gathering Area and Amphitheatre

A gathering area, connected to the side doors of the VC, allows for programming opportunities to be taken outdoors. An outdoor performance/storytelling area with an all-season fire pit, would encourage visitors to stay out-of-doors, to sit and listen, to learn, to participate and, in winter, to stay warm next

(Optional) Wall reserved Public Art Commission

A design option with walls reserved for public art commissions, a way to reach out to local artists.





Lighthouse Play Structure

"Become A Lighthouse Keeper" activity, with a model lighthouse play structure, that would encourage children to learn about signaling, weather and water conditions,





D Lake Superior Basin

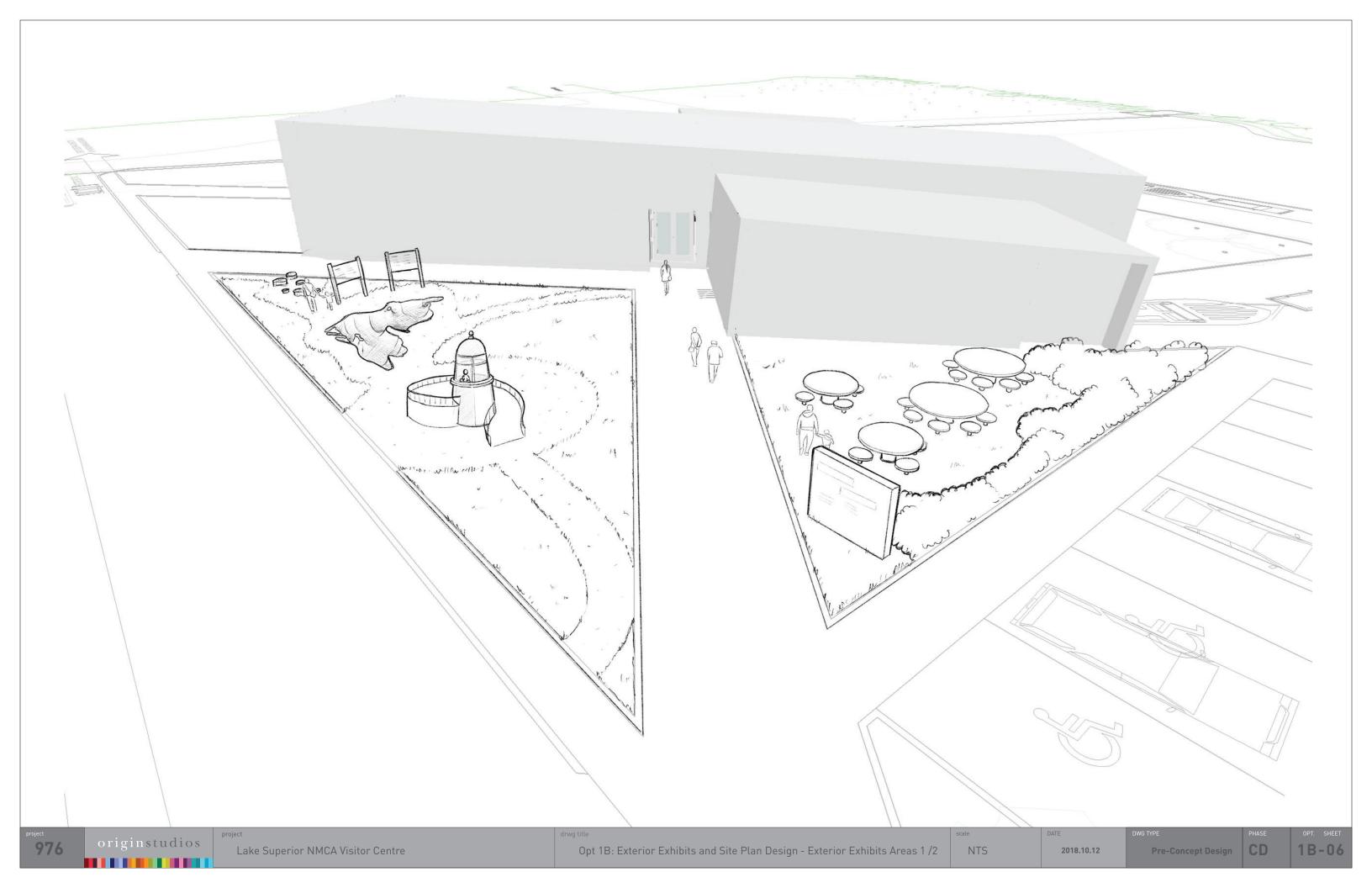
Interpretive panels would share the geologic and cultural histories and stories associated with these aspects of the lake, many of which are inaccessible to the average visitor. The Lake Superior basin model in this option could be more sculptural, designed as a concrete inlay with seating and topographical changes in height.

DATE

Pre-Concent De

PHASE OPT. SHEET

CD 1B-05







Discovery Path Part I

The discovery pathway emulates the exhibitry inside the VC. Walking through the path, visitors will learn at five key, central hubs content that relates to exhibit content indoors. These hubs act as natural gathering areas for programming. The exterior interpretive panels in the higher cost option are opportunities to expand on material and include physical interactives with informative discovery panels and touchable samples.



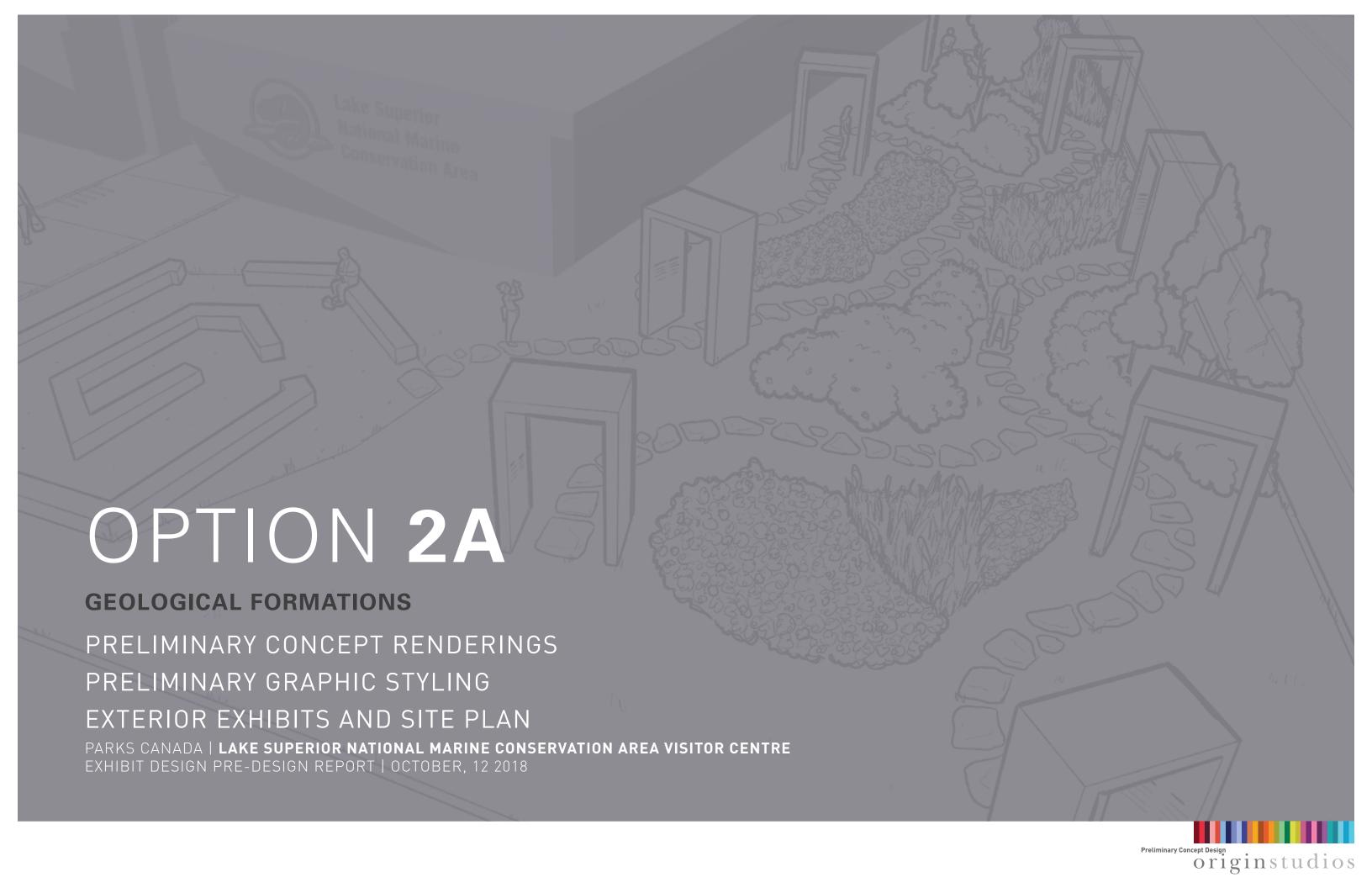
Discovery Path Part II

The pathway continues into the other green area across the path. Connecting views to Nipigon River allows for a visual connection, along with interpretive information continuing from indoors, about marine ecology, tributary systems and the water table. The exterior interpretive panels in the higher cost option are opportunities to expand on material and include physical interactives with informative discovery panels and touchable samples.

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Pre-Concept Design CD

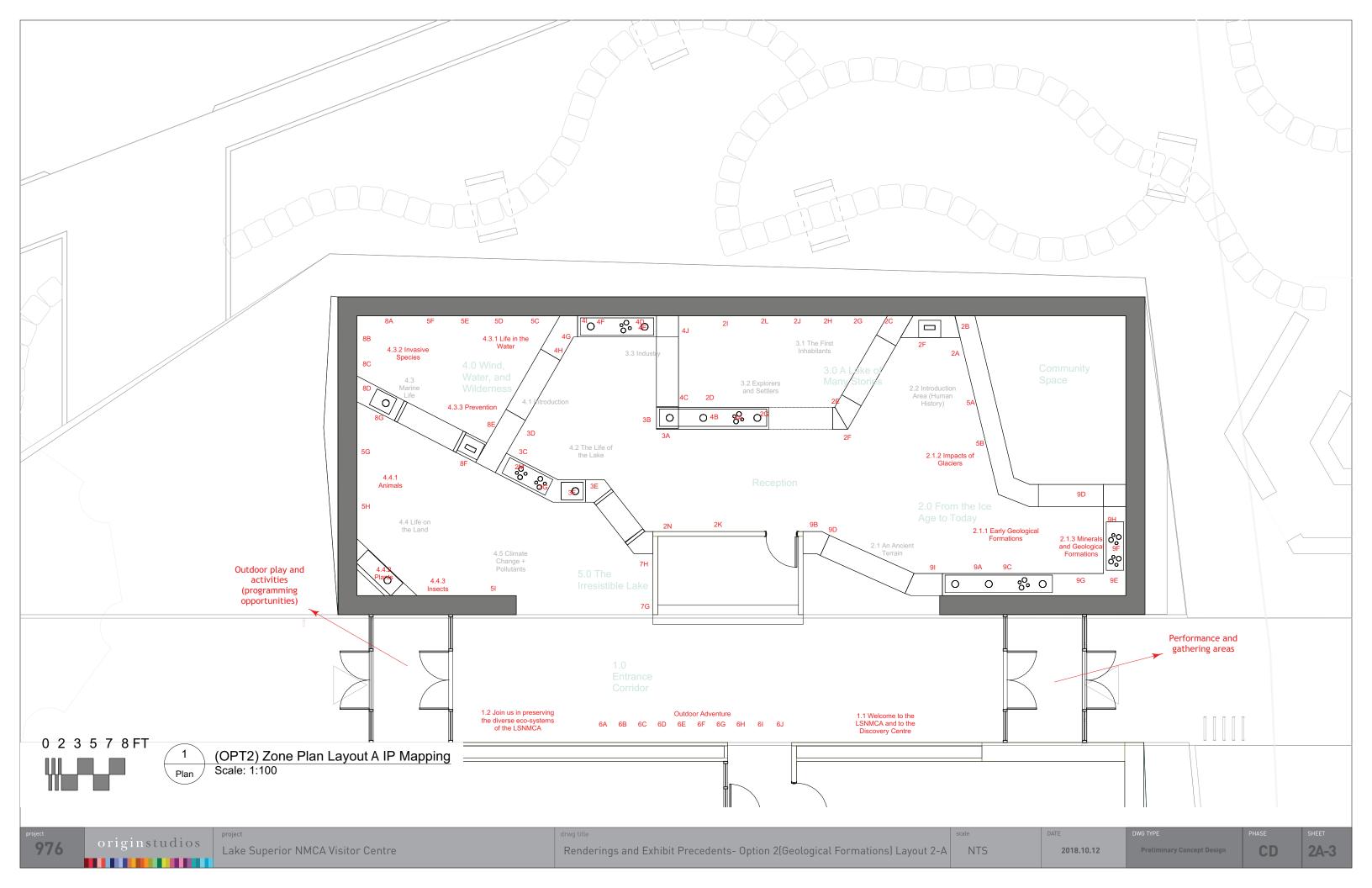


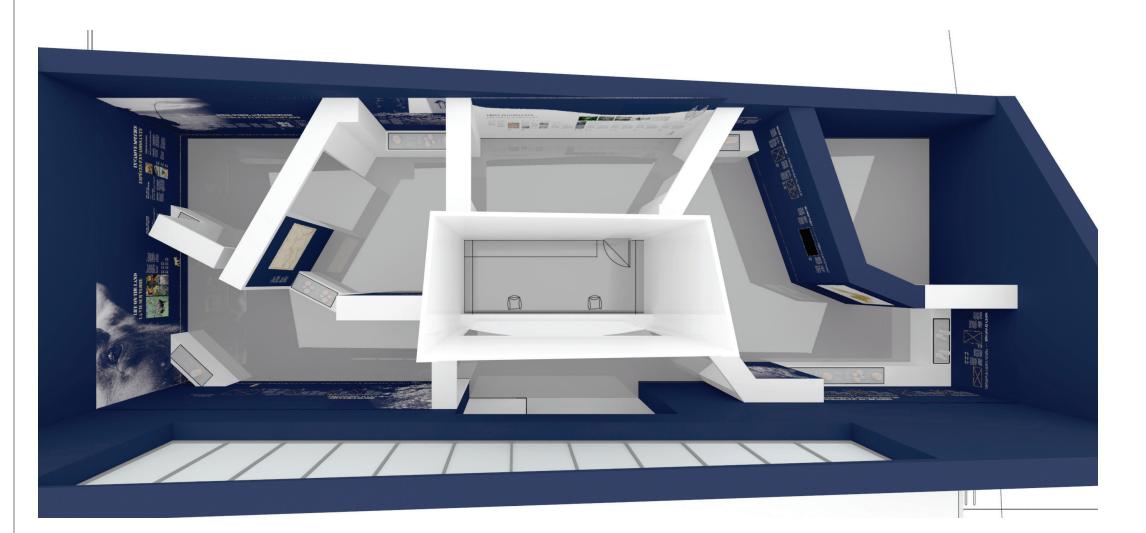


PRELIMINARY CONCEPT RENDERINGS

OPTION 2A

The inspiration behind the design for Option 2A is the unfolding nature of the story of the Visitor Centre and a "Gateway to Adventure" that inspires visitors to explore Parks Canada Lake Superior NMCA. The interior exhibits feature an unfolding ribbon that runs through the Visitor Centre that folds up to gates into the different themes and folds down to highlight the exhibit material and offerings. The exterior exhibits offer the same winding pathways and as the interior exhibits of the Visitor Centre, with archways taking the visitor through the site that highlight additional interpretive messaging. Working in conjunction with the architecture team, the metaphor of the Amethyst or Geological Formations, compliments the exhibit pathways as a winding, angular morphology. Shown here are the preliminary concept renderings, graphic styling and the exterior exhibits and site plan package showing approaches to visitor flow and arrival / exit strategies for the site as well as diagrammatic descriptions of exterior exhibit offerings with supporting images and sketches.





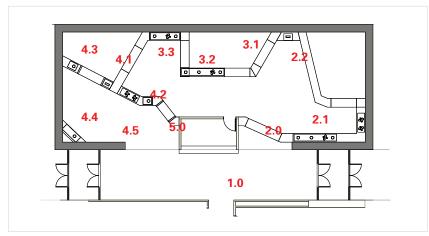
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Lake Superior NMCA Visitor Centre

Rendering Package -

Architectural Layout Option 2 (Amethyst)

Exhibition Layout 2-A (Lower Cost Option)



1.0 Entrance Corridor

- 1 NMCA Information
- 6 Outdoor Adventure
- 7 Conservation and Protection

2.0 From the Ice Age to Today

- 9 Geology
- 5 Terrestrial and Marine Ecology
- 2.1 An Ancient Terrain
- 2.2 Introduction

3.0 A Lake of Many Stories 2 – Indigenous History and Culture 4 – Maritime and Industrial History

- 3.1 The First Inhabitants
- **3.2** Explorers and Settlers
- 3.3 Industry

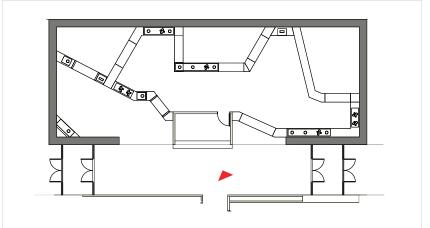
4.0 Wind, Water, and Wilderness

- 2 Indigenous History and Culture
- 4 Maritime and Industrial History
- 4.1 Introduction
- 4.2 Life of the Lake
- 4.3 Marine Life
- 4.4 Life on the Land
- 4.5 Climate Change and Pollutants

5.0 The Irresistible Lake

originstudios CD Lake Superior NMCA Visitor Centre Renderings and Exhibit Precedents- Option 2(Geological Formations) Layout 2-A NTS 2018.10.12 2A-4

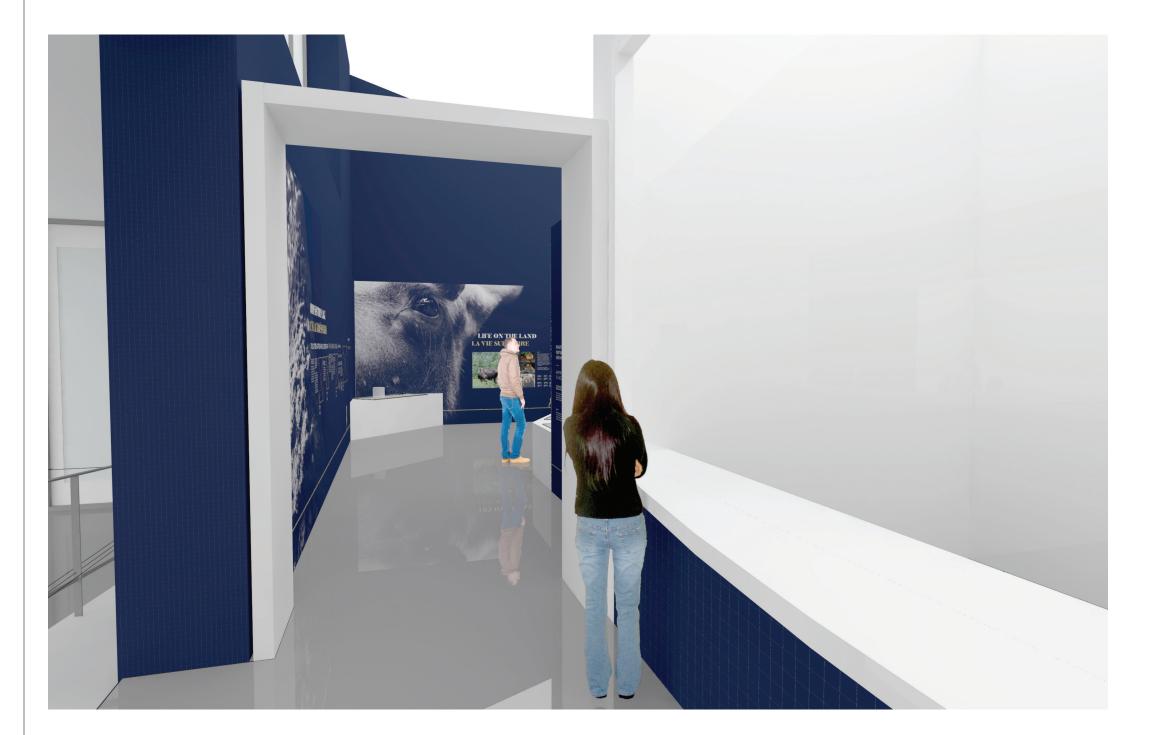


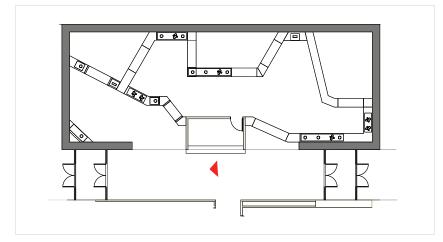


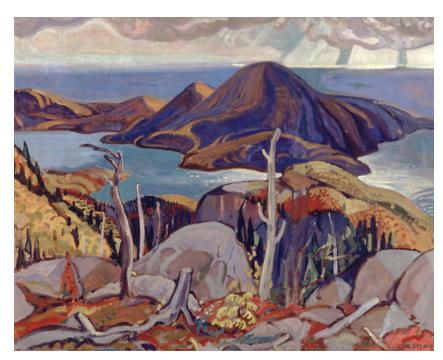
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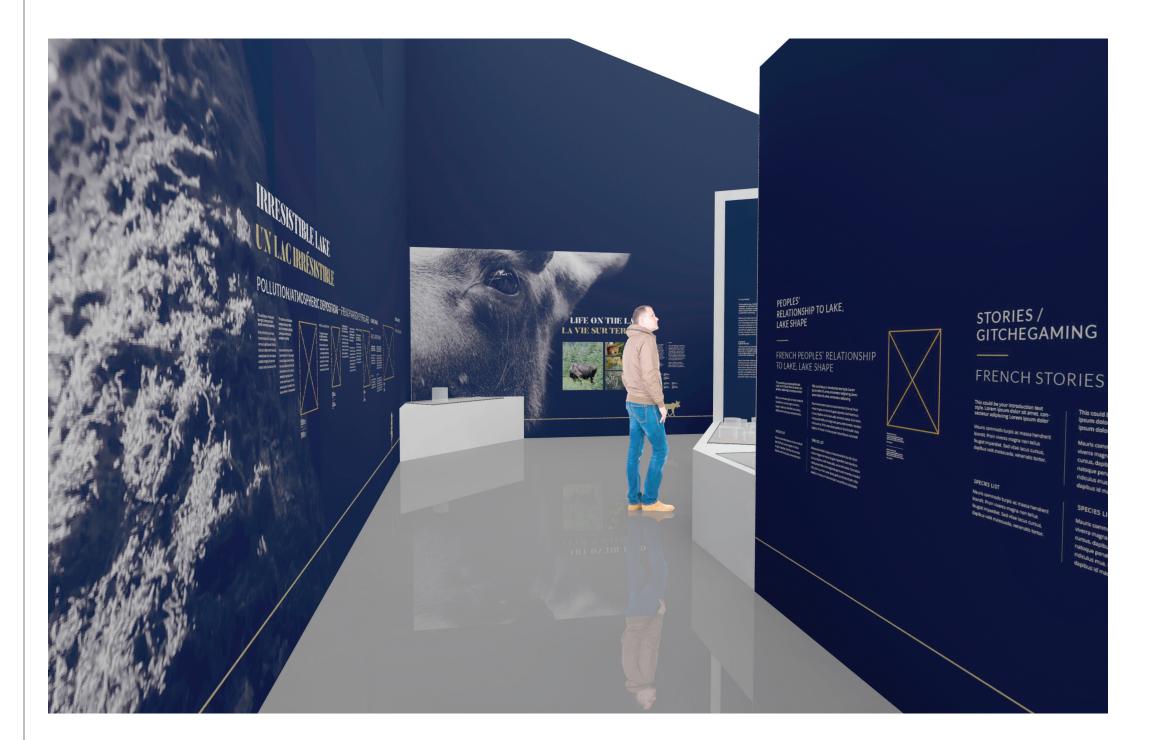


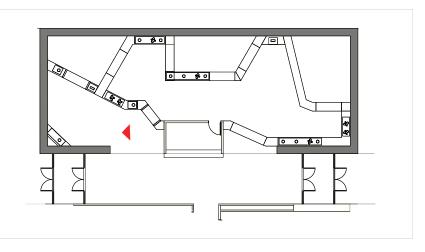
5.0 The Irresistible Lake

It is suggested that this be a largely un-interpreted area that is essentially visual, emotive, and experiential in nature. This could include large destination graphics, or an inspring image or famous painting of Lake Superior.

976

2A-6







4.0 A Lake for All Seasons

Stories / Gitchegaming and Visitor-to-Visitor interactives here provides an opportunity for people to share the location of their favourite spot, the best place for fishing, or their happiest moment.



Exhibit Design Precedent

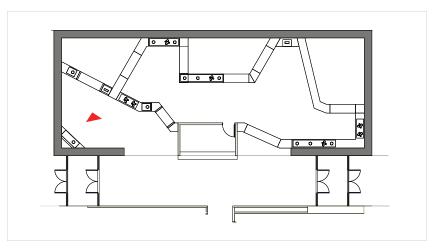
Shown here is an example of a type of folded wall that could define this concept.

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2A-7









2018.10.12

4.4.2 Plants and 4.4.3 InsectsFlipbook identifying various plant species common to the area.
Mystery textures identification game – for example, furs, skins, mosses, exoskeletons.

976



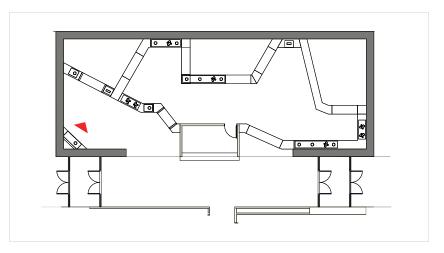






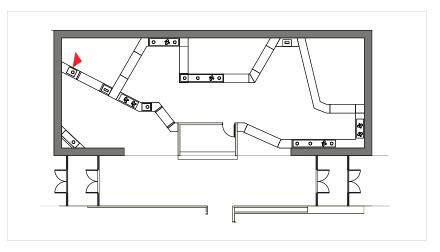
Exhibit Design Precedent

Shown here is an example of exhibit walls that fold up from a reader rail and then continue to create an arch. The pathway through the gallery allows for peak throughs and adjacencies in content and themes and creates a bright, open space.

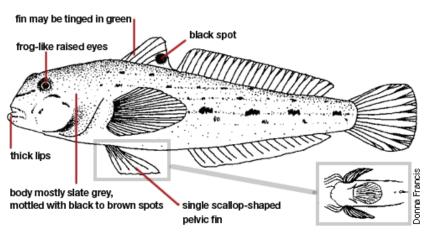
976

2A-9









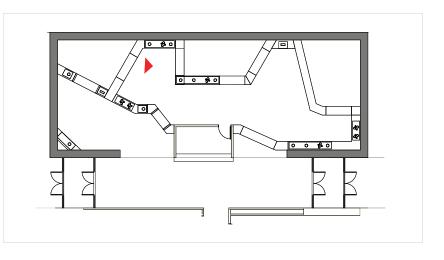
4.3.2 Invasive Species

Spinning cylinder game to identify various aquatic species.

976

2A-10





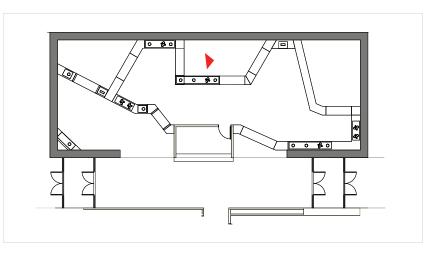




3.3 IndustryAudio stations or narratives. Telling Stories with Things – visitors learn about key industries in the region by exploring the story of a single related object (panel version).

originstudios 976

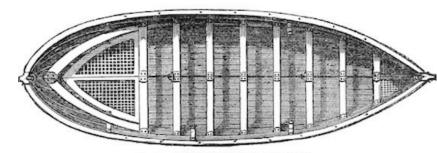






2.4 Explorers and Settlers

Suspended canoe to draw the eye up and to add visual interest.





3.2 Explorers and Settlers

Diagram and illustration of scale boats to demonstrate adaptations to conditions on Lake Superior.

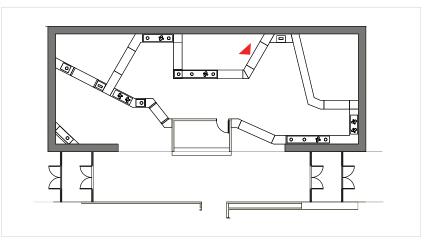
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CD 2A-12

Renderings and Exhibit Precedents- Option 2(Geological Formations) Layout 2-A NTS

2018.10.12







2.2 Introduction Area

Physical interactives demonstrating the mechanisms by which different geological features are created. For example, a simple weighting and unweighting of land by ice sheets to demonstrate isostatic rebound. A gear driven model to demonstrate mid-continental rift.

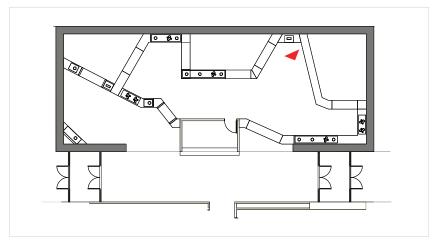


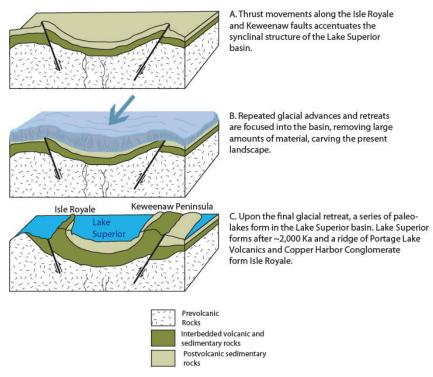
2.1.3 Minerals and Geologic Formations

Highlighted geological samples and diagrams to represent the evolution of the Lake.

2A-13







2.1.2 Impact of Glaciers

Shown here is an example of the sort of diagram-based images that can be used to support the content and the interpretive messaging. If digital interactives are prohibitive, we would suggest illustrations and diagrams to add to the graphic layouts.

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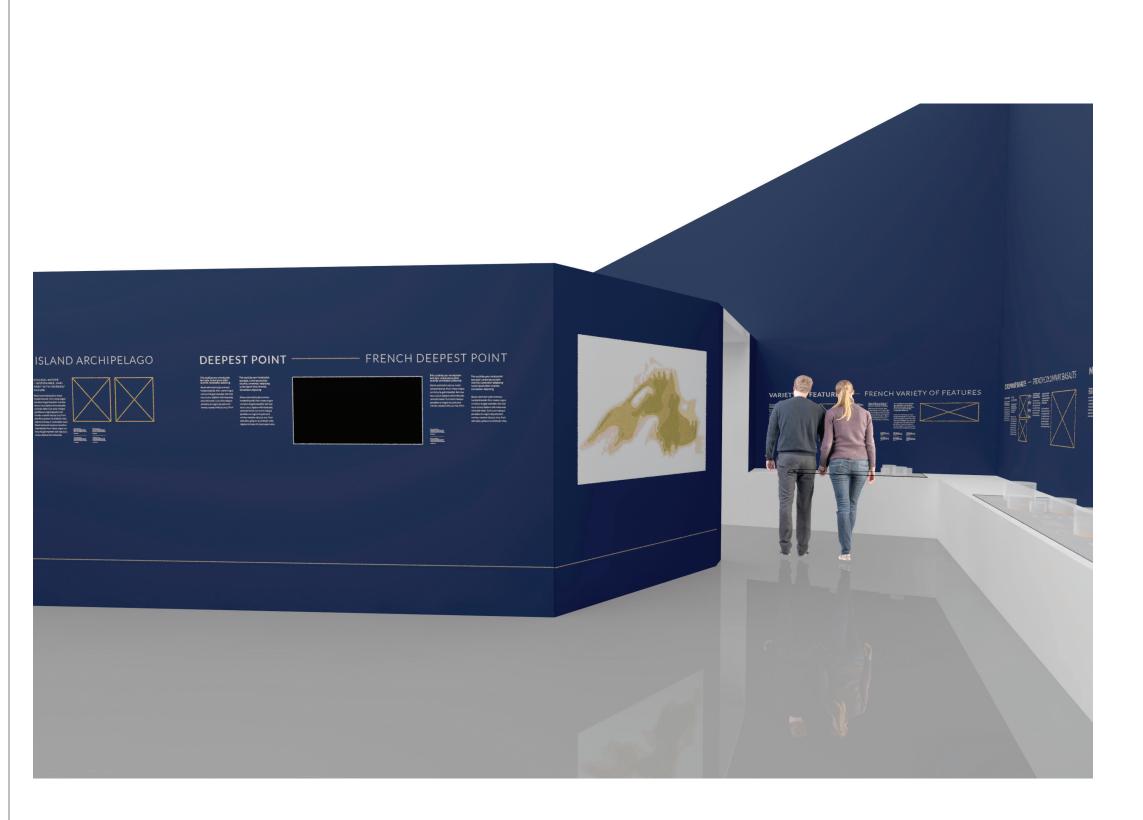
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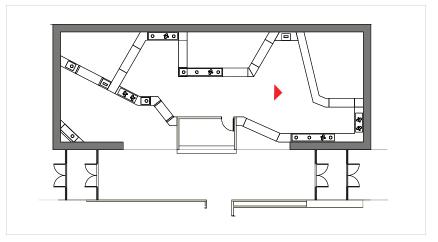
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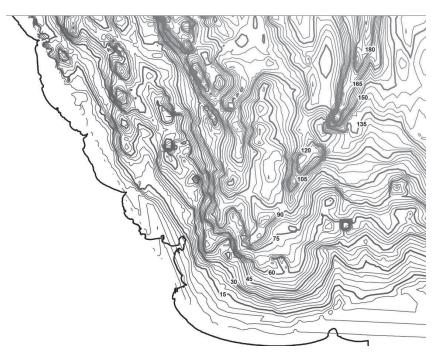
PHASE

2A-14

976



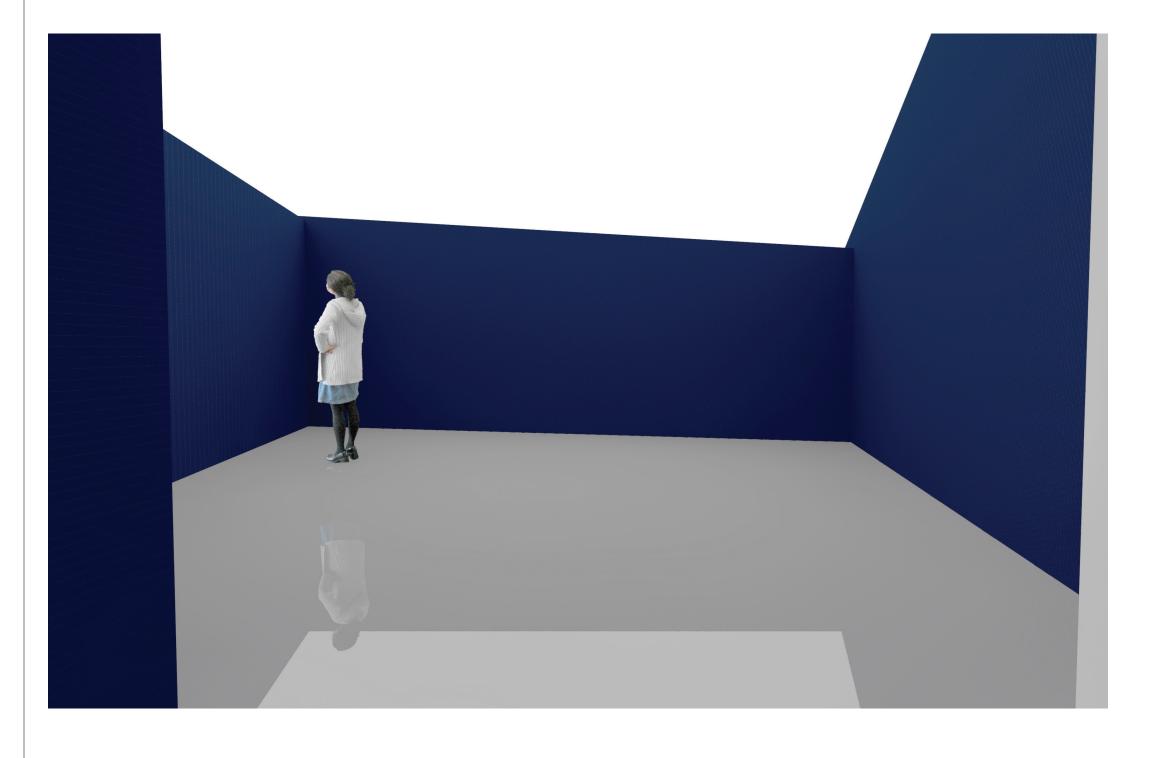


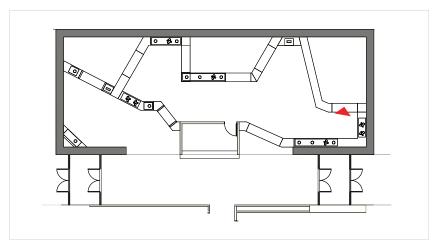


2.1.1 Early Geological FormationsTopographical maps of Lake Superior basin, which support the exterior interpretive play areas and allow visitors to understand the mechanisms that led to the development of the area and

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2A-15





With the design of the community space in the corner of the exhibit room, the community space itself is tucked away, accessible but not prominent.

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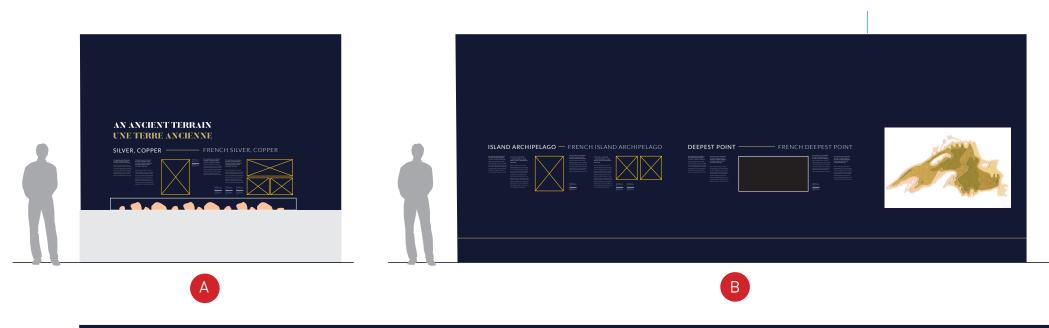
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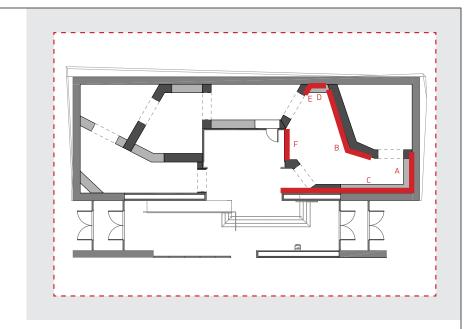
CD

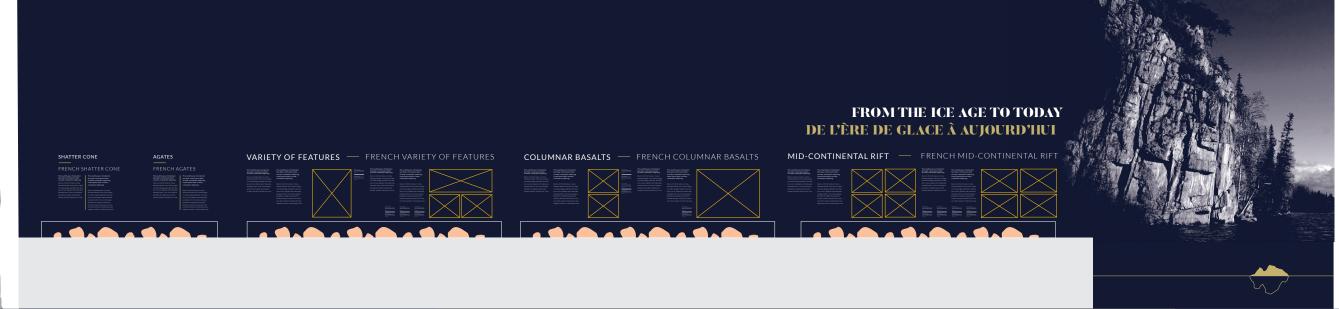
2A-16

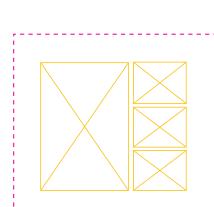
PRELIMINARY GRAPHIC STYLING

OPTION 2A





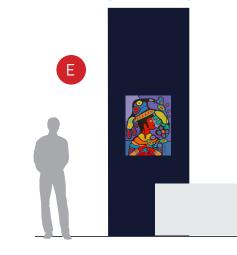


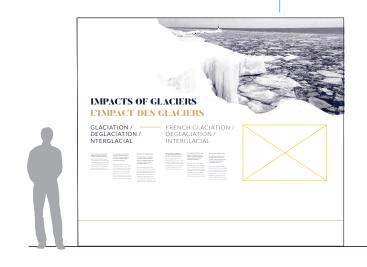


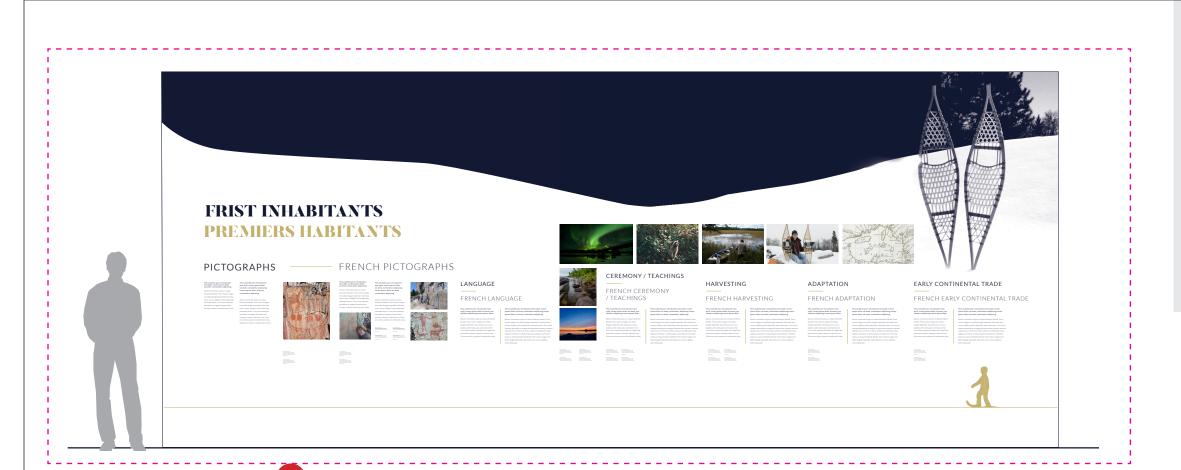
These symbols indicate where coloured photographs will be placed

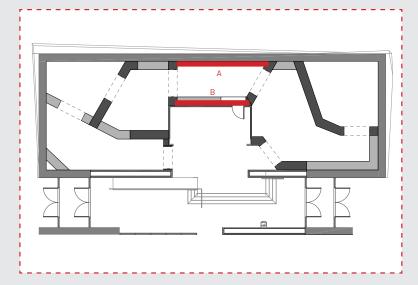
(see page 16 and 18 for an example)

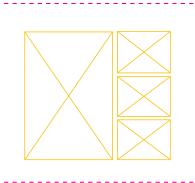










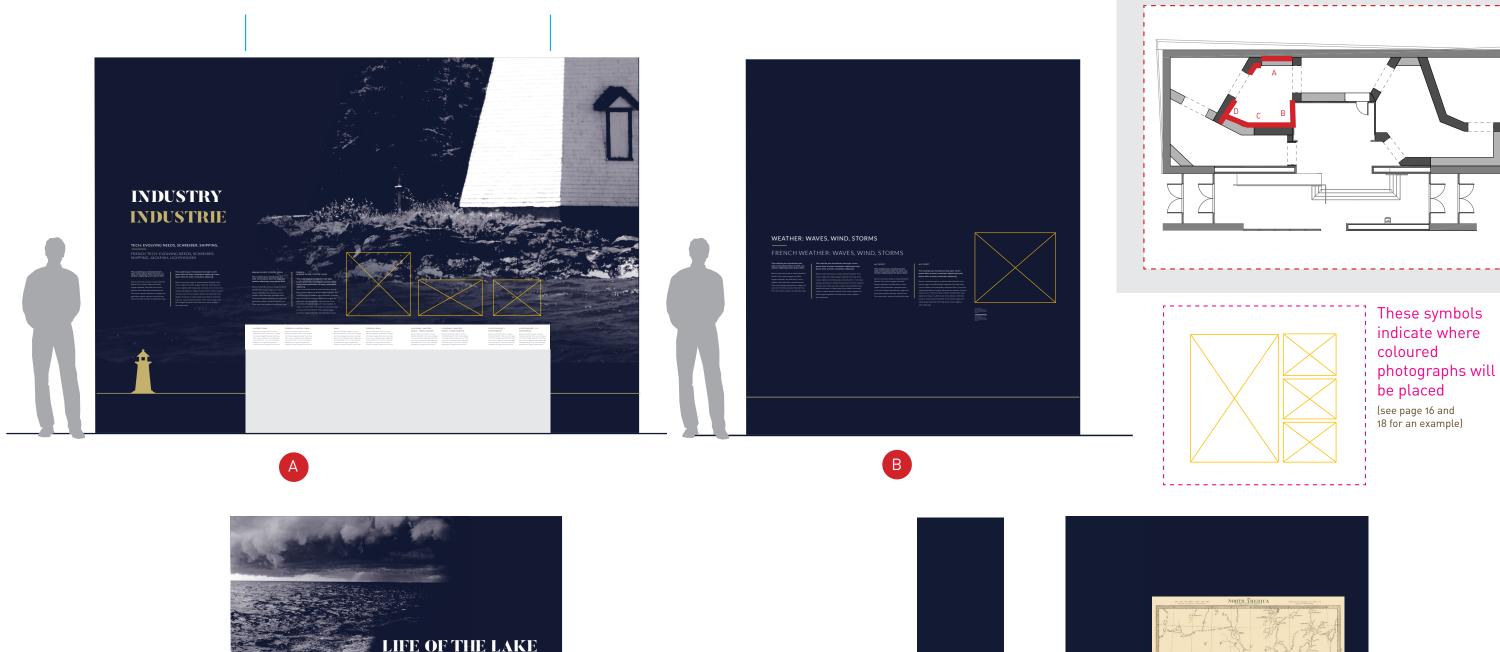


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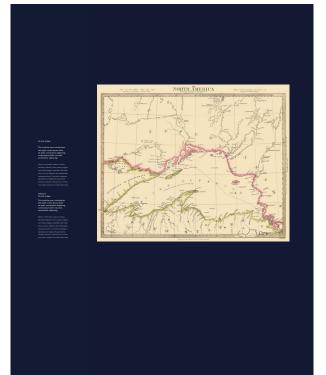
(see page 16 and 18 for an example)



В







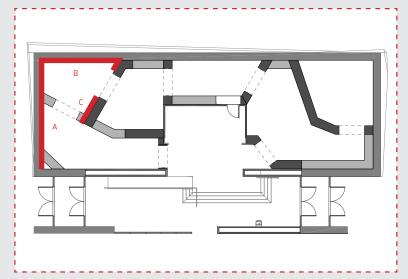
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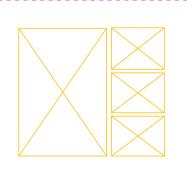
Prelim Concept Design

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Origins







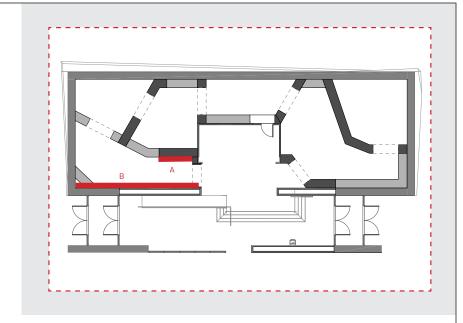
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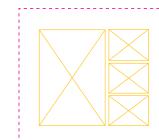
(see page 16 and 18 for an example)





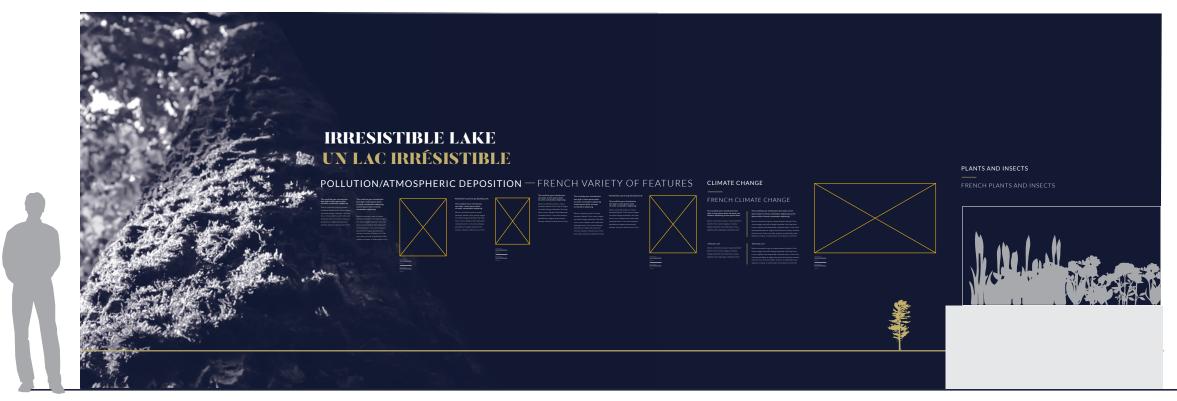




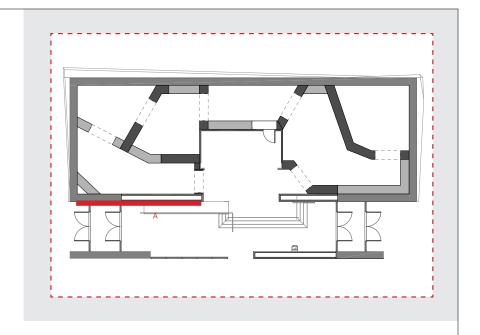


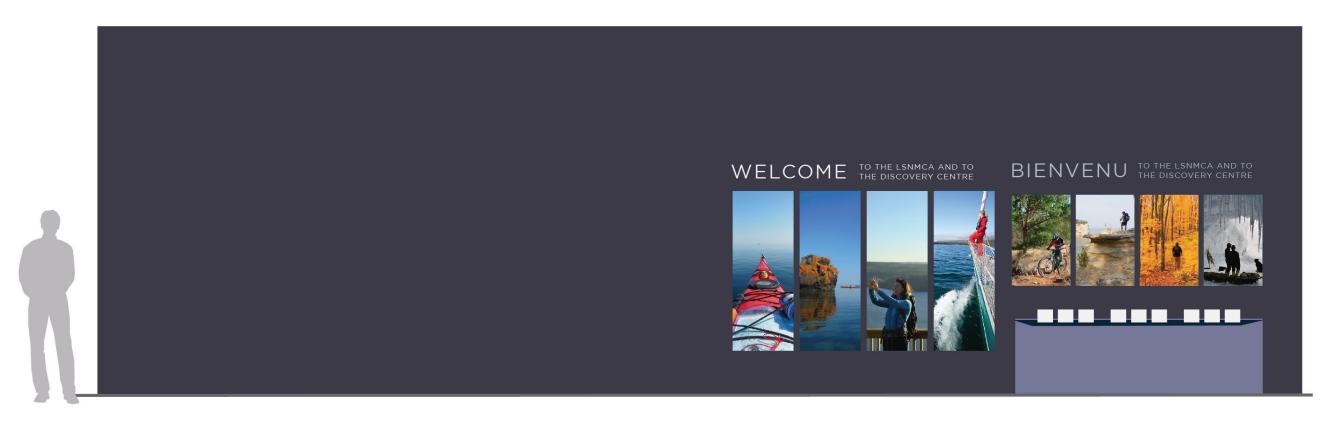
These symbols indicate where coloured photographs will be placed (see page 16 and 18 for an example)













This page is simply to demonstrate the fonts interaction between each different family, it is not to scale it really is to showcase the possibility each fonts can create.

TITLE STYLING EXAMPLE

SUBTITLE STYLING EXAMPLE

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This could be your main content styling. Mauris commodo turpis ac massa hendrerit blandit. Proin viverra magna non tellus feugiat imperdiet. Sed vitae lacus cursus, dapibus velit malesuada, venenatis tortor. Cum sociis natoque penatibus et magnis dis parturient montes,

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(Label text)

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abcdefghijklm
nopqrst uvwxyz

(Intro text)

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(Body text)

976 originstudios Lake Superior NMCA Visitor Centre drwg title Preliminary Graphic Styling NTS DATE DWG TYPE PHASE OPT. SHEET OPT. SHEET PROJECT OPT. SHEET OPT. SHEE

This page is a more detailed summaray of our proposed text / communication structure focusing on font size. These samples of this selected font, can give a general sense of what size of text to expect.

TITLE STYLING EXAMPLE FRENCH TITLE STYLING EXAMPLE

SUBTITLE STYLING EXAMPLE

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FRENCH SUBTITLE STYLING EXEMPLE

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SUBTITLE STYLING EXAMPLE

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FRENCH SUBTITLE STYLING EXAMPLE

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« This would be the font of a quote sed vel gravida magna. In hac habitasse platea dictumst gravida magna. »

Zone introduction (L1)

Font size —

Word count

150 pt Title 70 pt Subtitle 42.5 pt Intro Text 40 pt body text

Title: 2-4 words Subtitle: 3-4 words Intro Text: 15 words body text: 45 Words

Primary Text (L2)

55 pt Title 33 pt Intro Text 30 pt body text

Title: 2-4 words Intro Text: 20 words body text: 70 Words

Main text (L3)

45 pt Title 27 pt body text

Title: 2-6 words body text: 115 Words

Secondary text (L4)

40 pt Title 20 pt body text

Title: 2-6 words body text: 110 Words

Quotes

70 pt text

Quote: 20 words

Label text (L5)

14 pt Label + Credit text

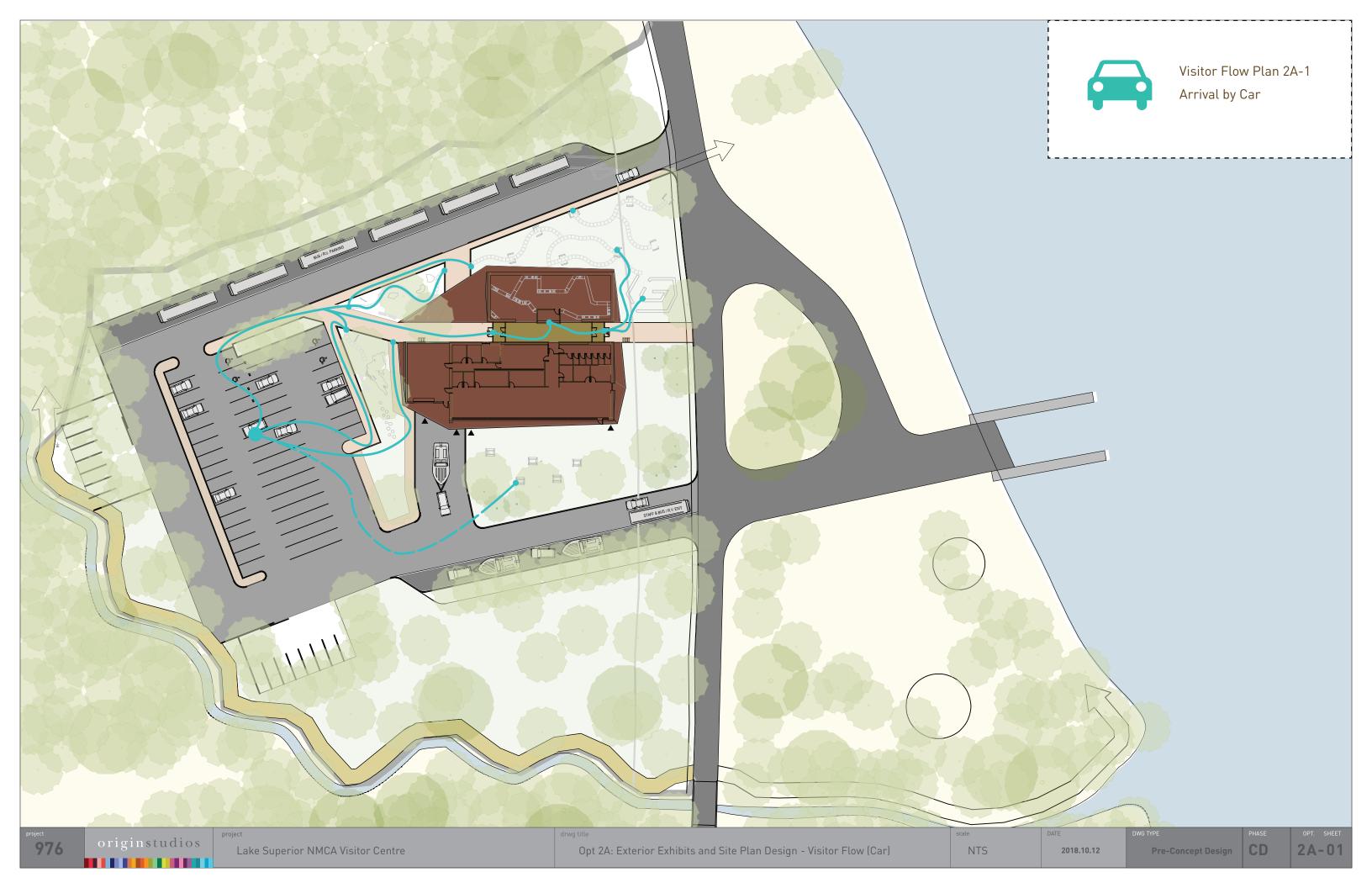
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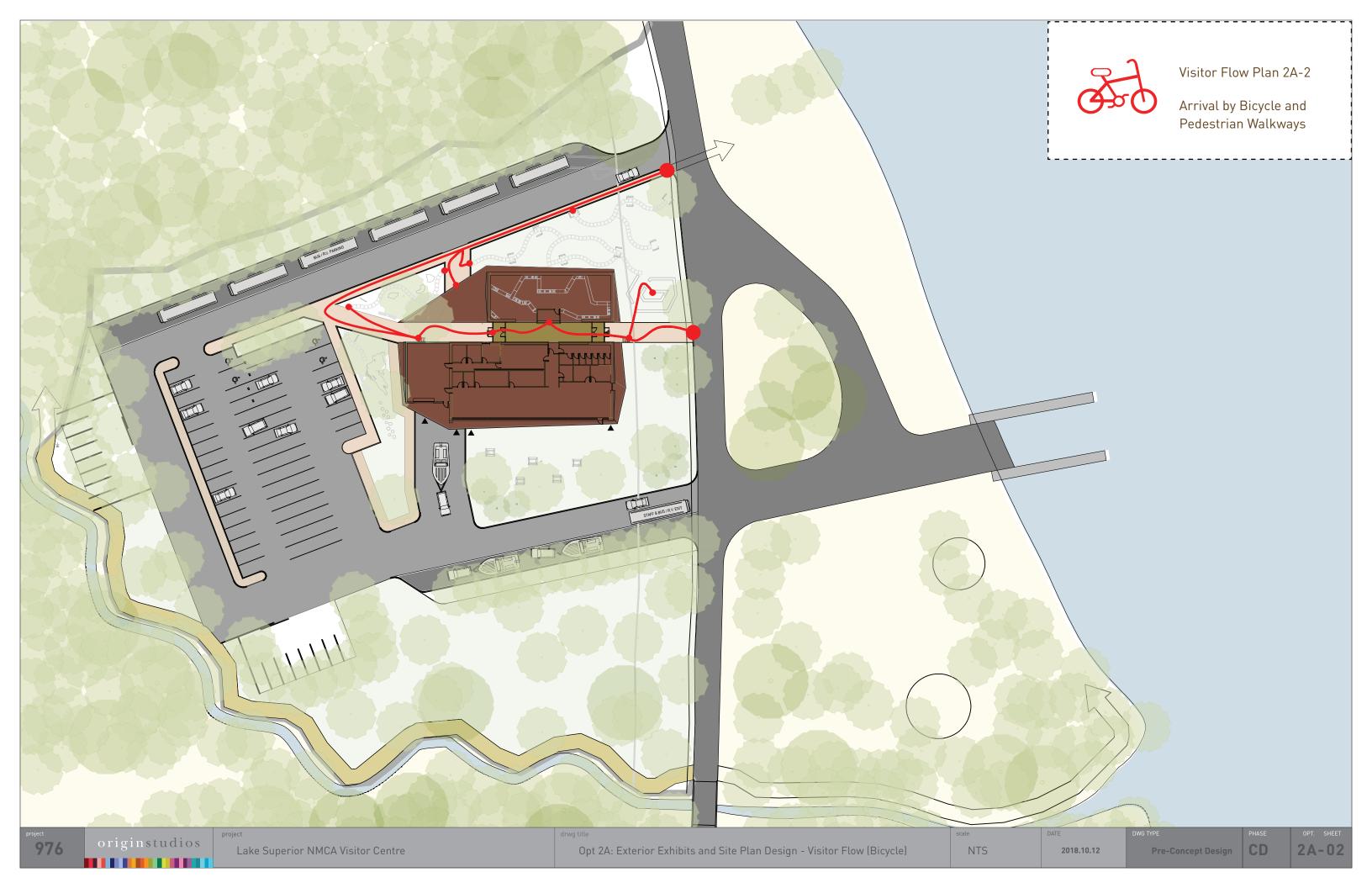
2A-23

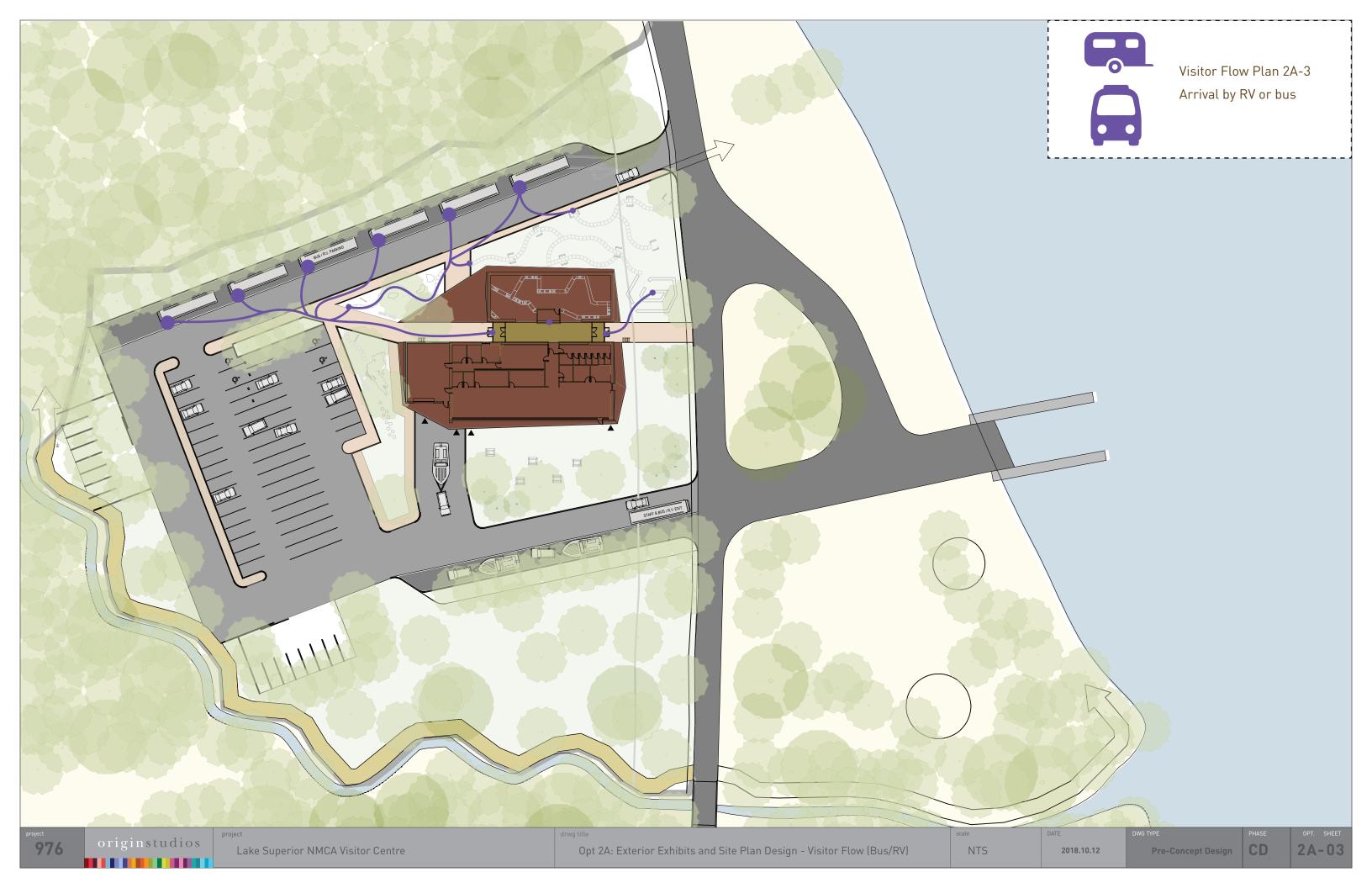
DATE drwg title originstudios 976 Lake Superior NMCA Visitor Centre Preliminary Graphic Styling NTS 2018.05.24 Prelim Concept Design | PCD

EXTERIOR EXHIBITS AND SITE PLAN

OPTION 2A









Natural Landscaping

In this area, there could be a natural barrier from the parking areas with native plant species relying on little to no maintenance.

Picnic Table Areas

An area for eating and picnics. For the RVs and visitors who come from a longer trek, this could serve as a restful area before or after the VC visit. Interpretive messaging is designed into the table to inspire visitors while they sit and rest ot eat.

Introductory / Interpretive Panel

At the entrance to the site, an introductory / interpretive panel could introduce the LSNMCA and Visitor Centre. Stewardship and conservation messaging could also be included.

Lake Superior Basin

In the lower cost option, the Lake Superior basin model in the exterior exhibits could take the form of a sandpit that children could play in with have different levels for interpretive purposes.

Bench Seating

These benches, alongside the Lake Superior basin could be used by parents watching their children play or for programming opportunities with stand-alone interpretive

Interpretive Messaging

Interpretive opportunities for learning about the geology of the site in the exterior exhibits. Material connects to the exhibits

Natural Playground Areas

Cut-wood and large rocks samples are areas for climbing and playing for children, with the large rocks also serving as interpretive materials for the geology section of the VC.

Discovery Path

Walking through the Discovery Path, visitors will learn about the marine ecology and Lake Superior. Additional interpretive exhibits are included on the Path with material that connects the interior and exterior exhibits in a seamless approach. The exterior interpretive panels in the lower cost option are kept as simple, yet informative arches.

Outdoor Gathering Area and Amphitheatre

A gathering area, connected to the side doors of the VC, allows for programming opportunities to be taken outdoors. An outdoor performance/storytelling area with an all-season fire pit, would encourage visitors to stay out-of-doors, to sit and listen, to learn, to participate and, in winter, to stay warm next to a roaring fire.

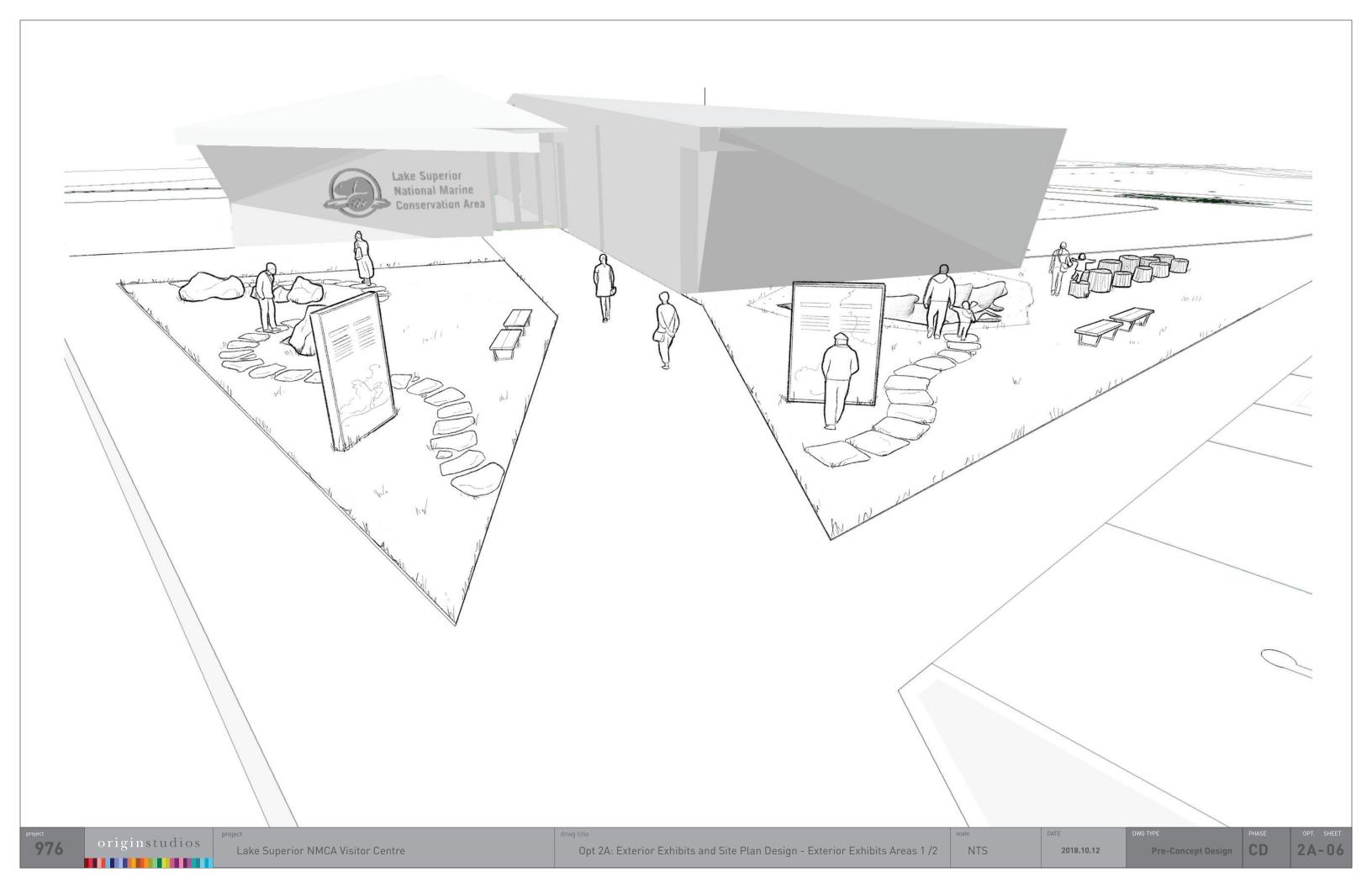
(Optional) Wall reserved Public Art Commission

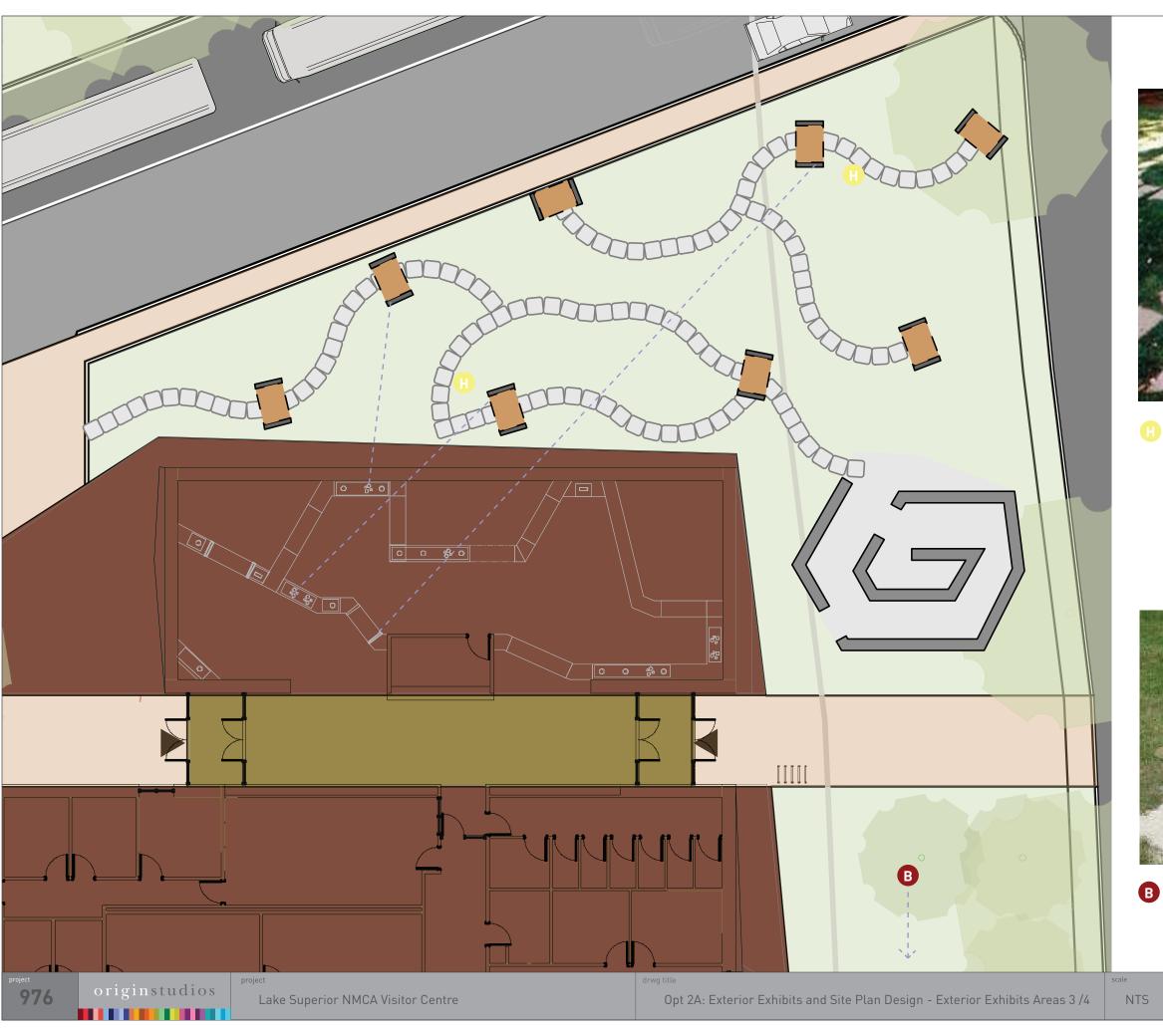
A design option with walls reserved for public art commissions, a way to reach out to local artists.

Pre-Concept Design CD

2A-04









Discovery Path

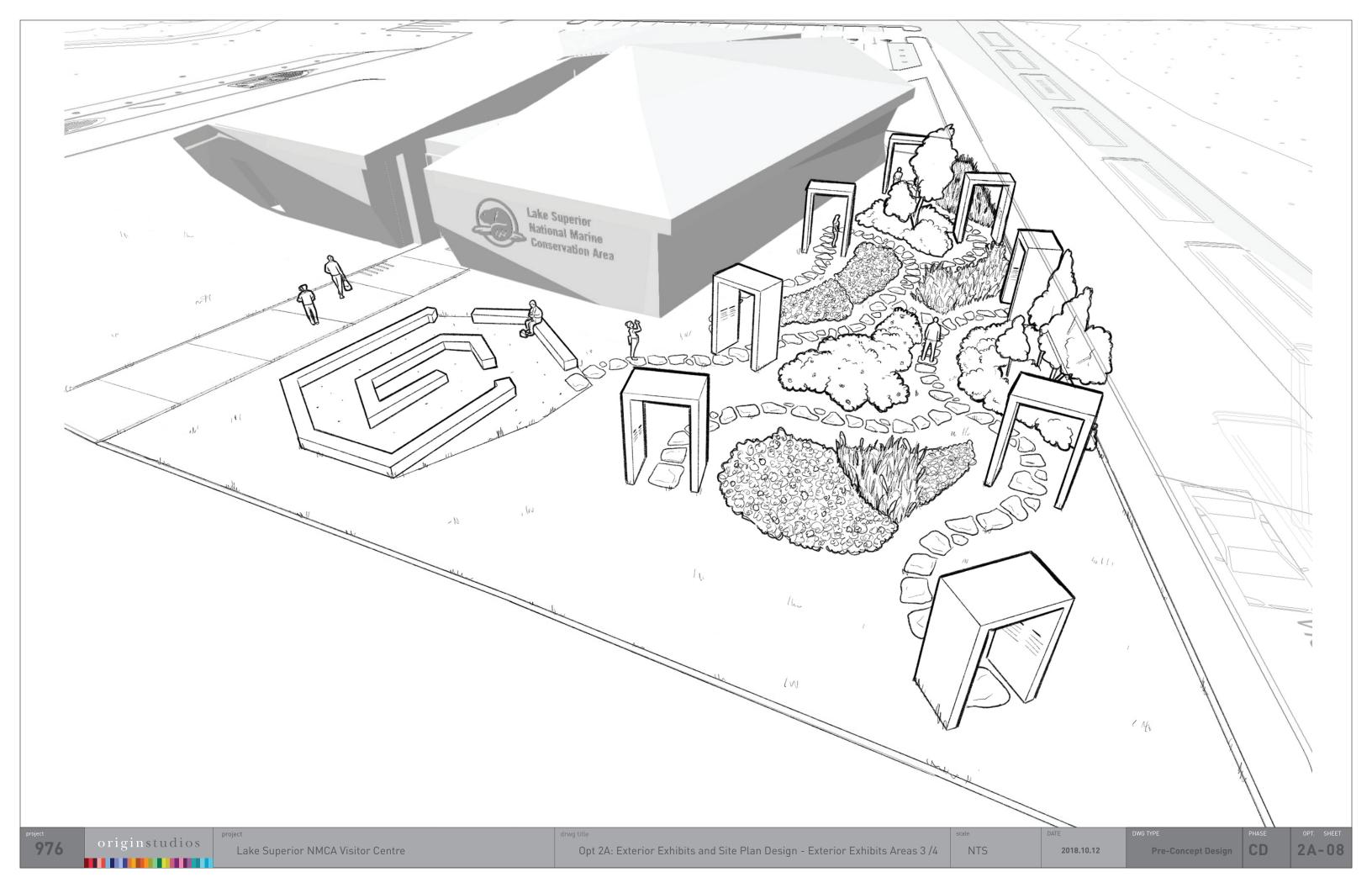
Walking through the Discovery Path, visitors will learn about the marine ecology and Lake Superior. Additional interpretive exhibits are included on the Path with material that connects the interior and exterior exhibits in a seamless approach. The exterior interpretive panels in the lower cost option are kept as simple, yet informative arches.



Picnic Table Areas

Interpretive messaging is designed into picnic tables to inspire visitors while they sit and rest ot eat.

scale DATE DWG TYPE PHASE OPT. SHEET 2018.10.12 Pre-Concept Design CD 2A-07

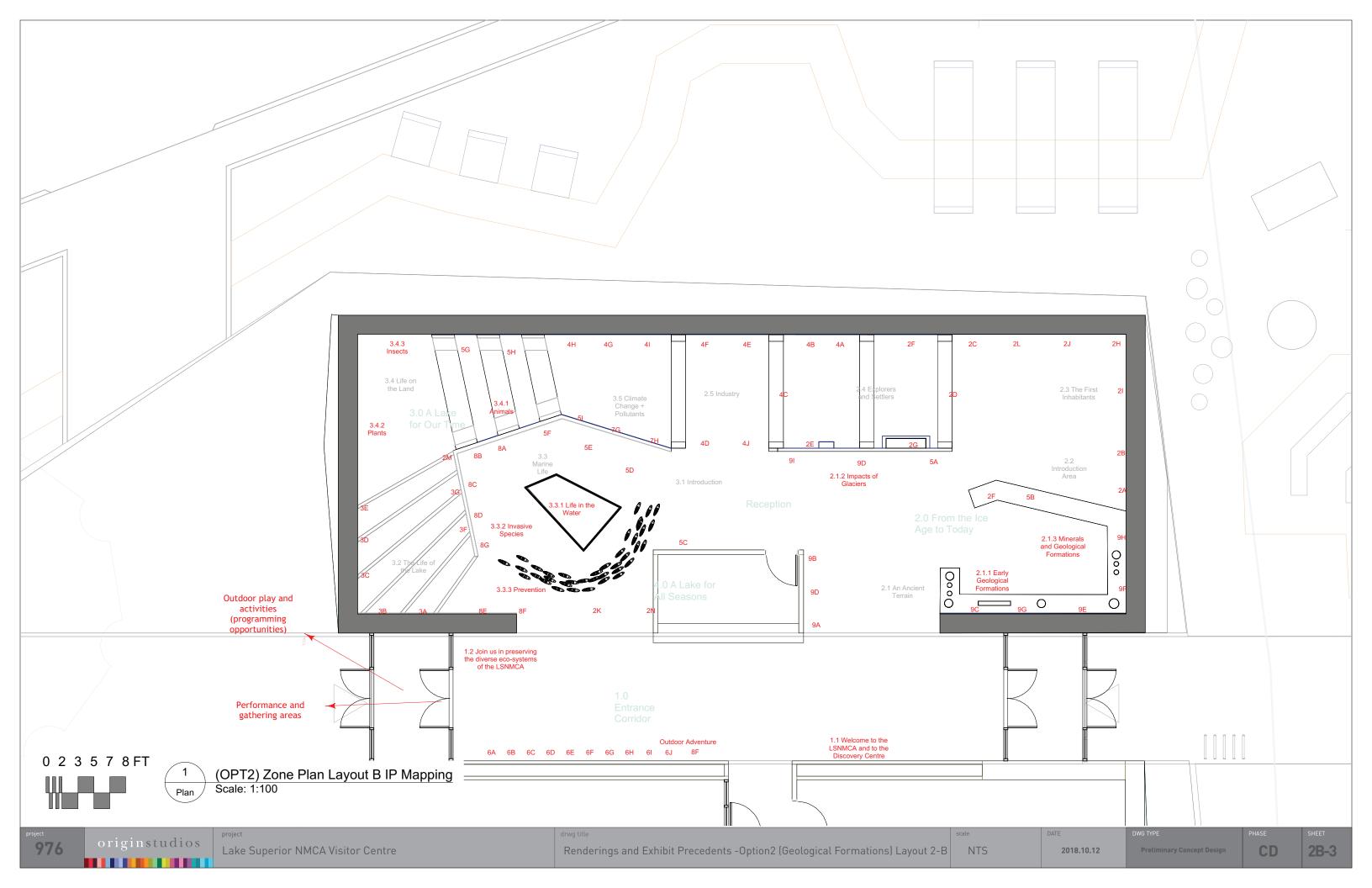




PRELIMINARY CONCEPT RENDERINGS

OPTION 2B

The inspiration behind the design for Option 2B is the connection of the unique and varied cultural identities of the region as well as the industrial and maritime history of the region. The ribs of a canoe or boat are employed as the underlying exhibit morphology that take the visitor through winding pathways with ceiling structures overhead that frame and highlight thematic zones. The exterior exhibits offer the same winding pathways and as the interior exhibits of the Visitor Centre, with the archway/ ribs taking the visitor through the exterior site. Working in conjunction with the architecture team, the metaphor of the Amethyst / Geological Formations compliments the metaphor for the building while the ceiling ribs approach to exhibits are set apart from the architecture in contrast to the angular, rugged metaphor. Shown here are the preliminary concept renderings, graphic styling and the exterior exhibits and site plan package showing approaches to visitor flow and arrival / exit strategies for the site as well as diagrammatic descriptions of exterior exhibit offerings with supporting images and sketches.



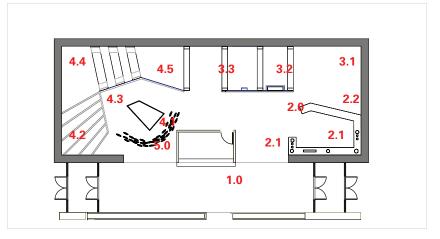


Lake Superior NMCA Visitor Centre

Rendering Package -

Architectural Layout Option 2 (Amethyst)

Exhibition Layout 2-B (Higher Cost Option)



1.0 Entrance Corridor

- 1 NMCA Information
- 6 Outdoor Adventure
- 7 Conservation and Protection

2.0 From the Ice Age to Today

- 9 Geology
- 5 Terrestrial and Marine Ecology
- 2.1 An Ancient Terrain
- 2.2 Introduction

3.0 A Lake of Many Stories 2 – Indigenous History and Culture

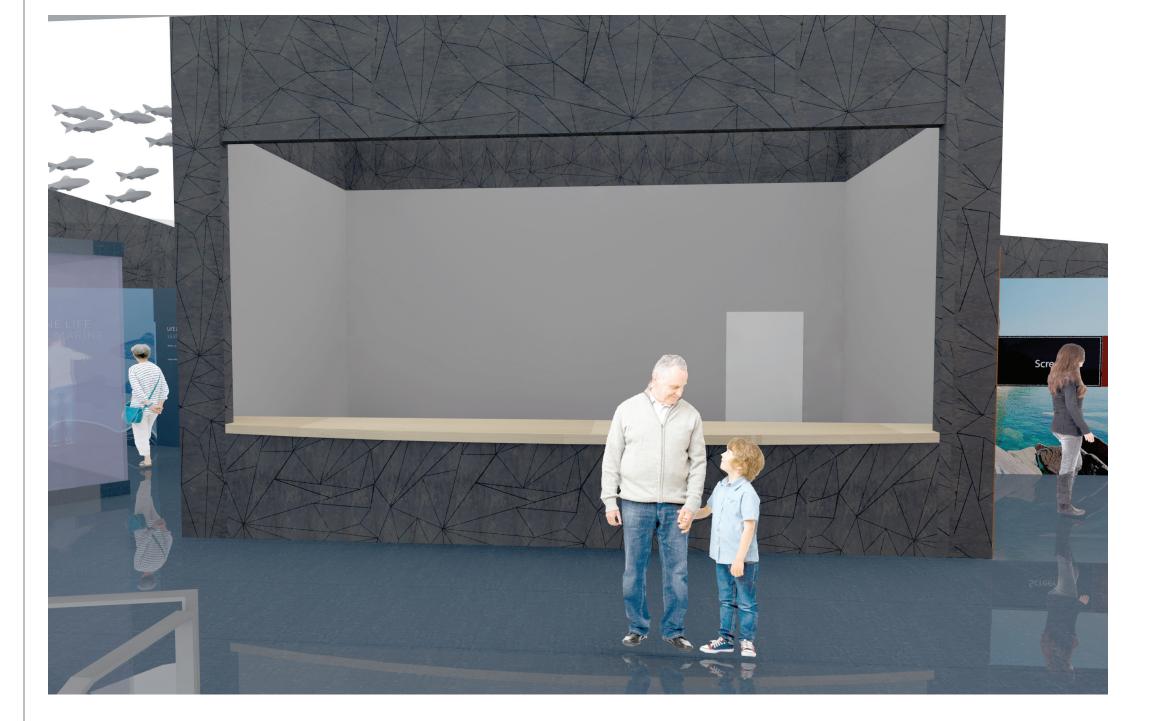
- 4 Maritime and Industrial History
- 3.1 The First Inhabitants
- 3.2 Explorers and Settlers
- 3.3 Industry

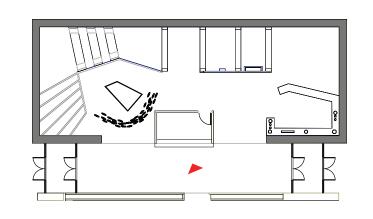
4.0 Wind, Water, and Wilderness

- 2 Indigenous History and Culture 4 Maritime and Industrial History
- 4.1 Introduction
- 4.2 Life of the Lake
- 4.3 Marine Life
- 4.4 Life on the Land
- **4.5** Climate Change and Pollutants

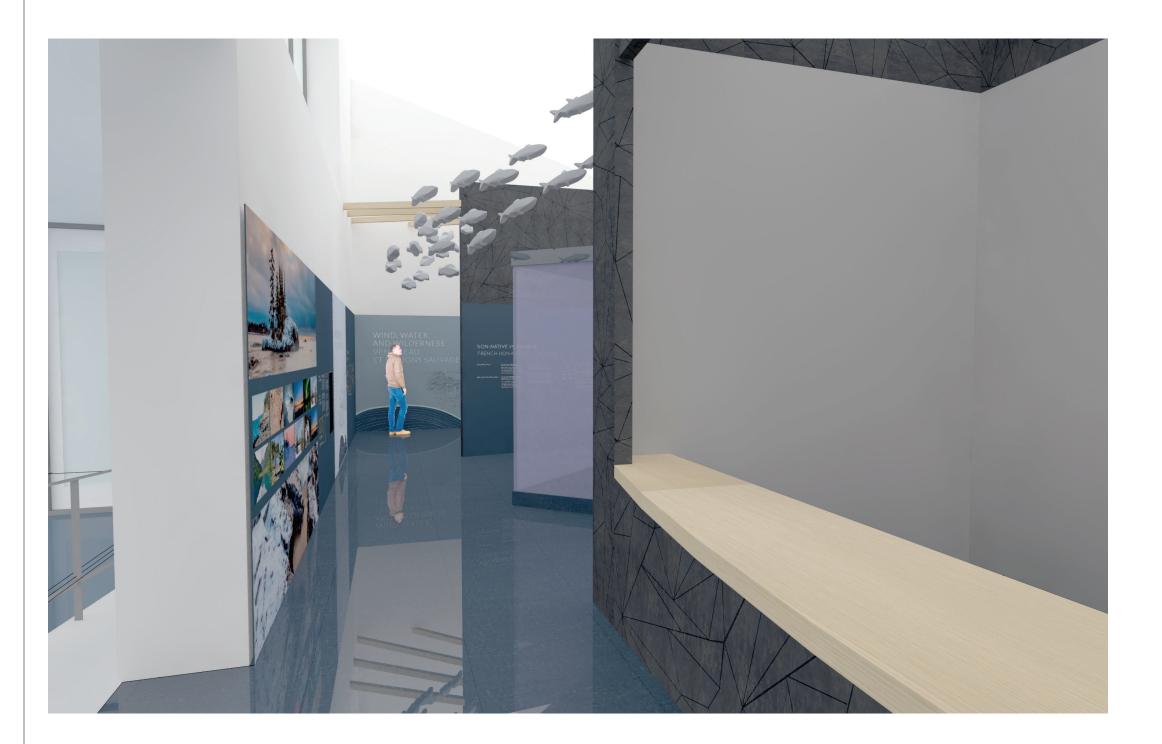
5.0 The Irresistible Lake

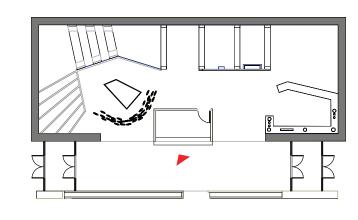
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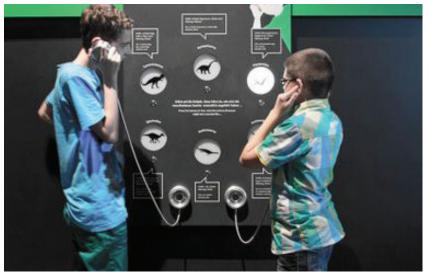
976







5.0 The Irresistible LakeBeautiful and stunning images of Lake Superior help showcase this zone.



5.0 The Irresistible Lake

Visitor-to-visitor zone provides an opportunity for people to share the location of their favourite spot, the best place for fishing, or their happiest moment. Recordings of people capsules could be available that share final wishes, stories, and hopes for the future.

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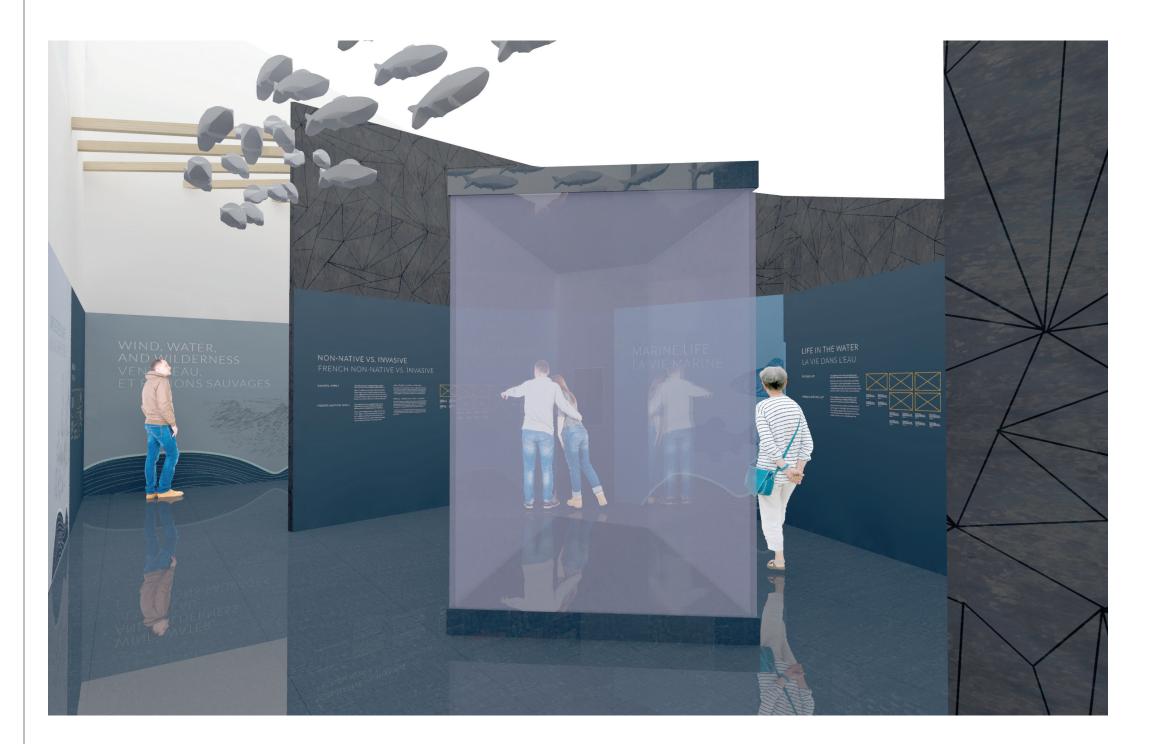
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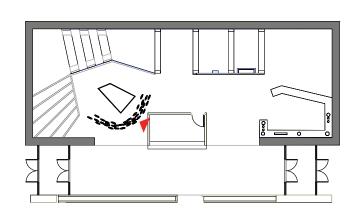




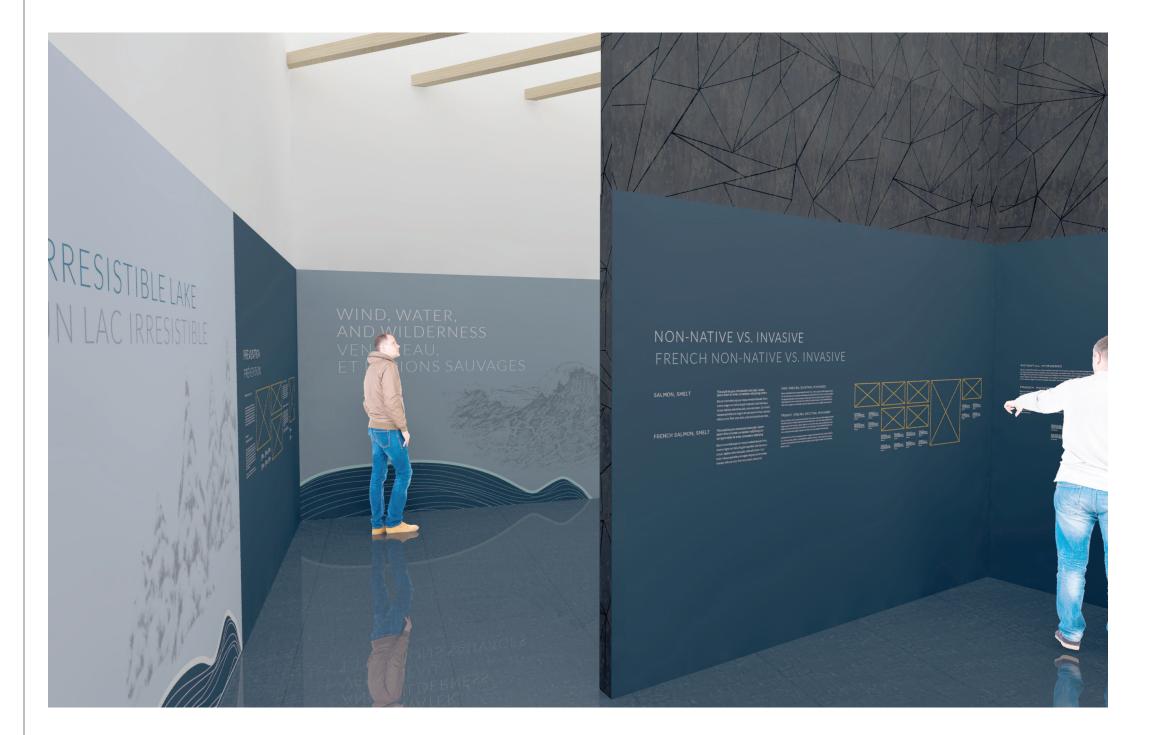


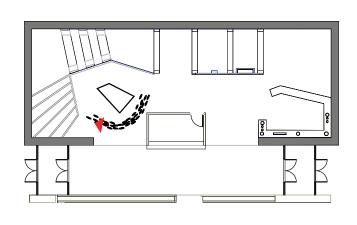
Exhibit Design Precedent
Shown here is an example of the central form that the aquarium would take in the Marine Life room. The angled planes of the aquarium add interest and are the "wow" factor that draws visitors into the Visitor Centre upon arriving at the reception desk area.

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2018.10.12

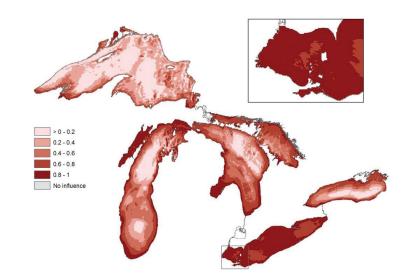
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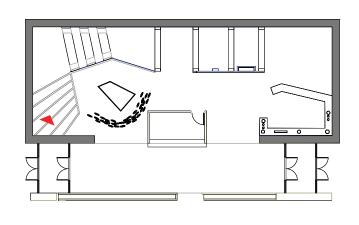
4.3.2 Invasive SpeciesDigital game in which visitors guess if a species is native, introduced, or invasive or, augmented reality interactive identifying and quizzing marine life based on AR overlay on graphic panels.



2018.10.12

4.3.2 Invasive SpeciesNarrated animation exploring the introduction of invasive species (shown here, the introduction of Round Gogy to the Great Lakes)







4.2 Life of the LakeA large-scale video montage of dramatic storms, ice accumulations, waves.

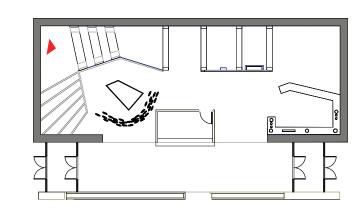


4.4 Life on the LandMystery textures identification game – for example, furs, skins, mosses, exoskeletons.

2B-9

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3.1 The First Inhabitants

Cultural objects showcased in archways, content could include people capsules, first person oral histories with an Indigenous representative sharing stories about early life in the region, ceremonies, teachings along with a representational object.

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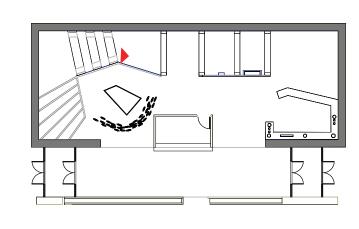




Exhibit Design PrecedentShown here is an example of the archways that create the unique hallway to showcase stories

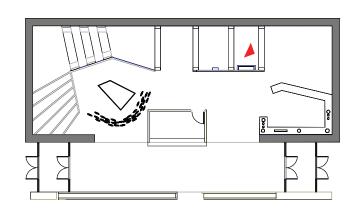


3.3 IndustryDigital album of shipwrecks and related stories, songs, and video clips.

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CD



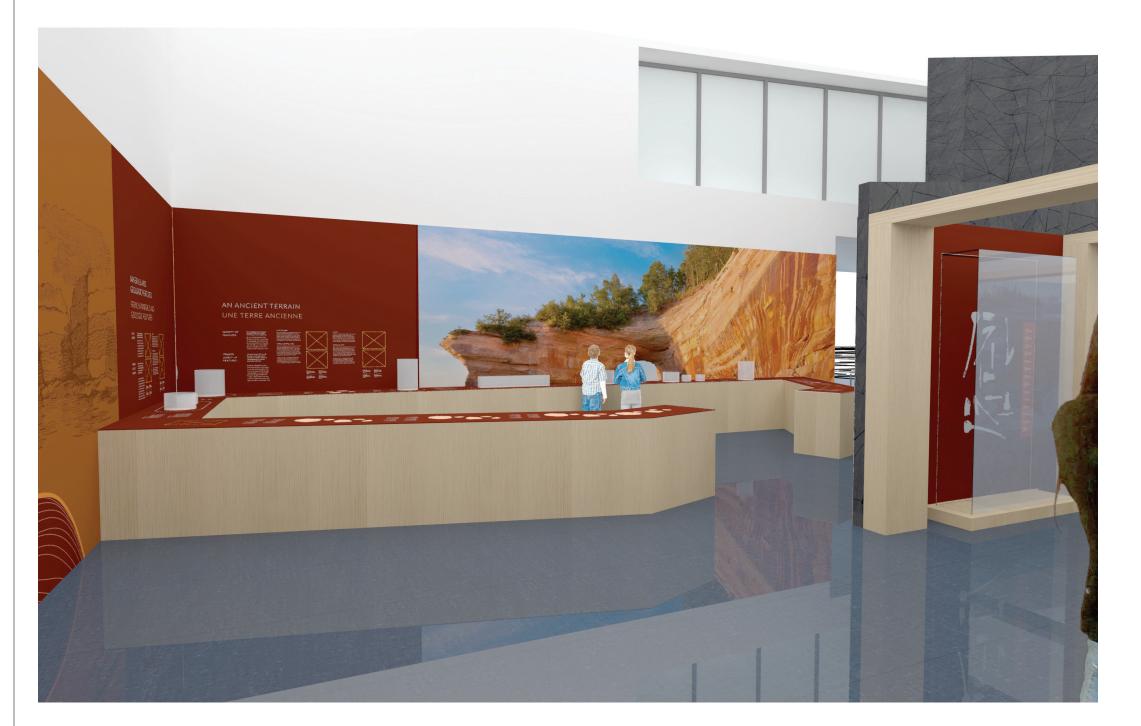




3.1 The First InhabitantsPeople capsules – first person oral histories with an Indigenous representative sharing stories about early life in the region, ceremonies, teachings.



3.1 The First InhabitantsMulti-lingual key-phrase dictionary with audio capacity alongside cultural objects.



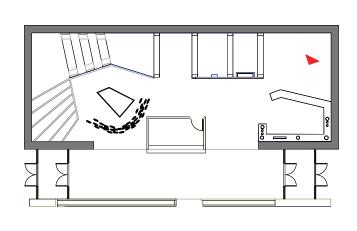




Exhibit Design Precedent

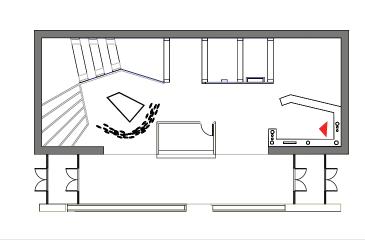
Combining playful graphics, specimens and physical or digital interactives creates hubs of activity and hands-on learning opportunities.



2.1.1 Early geologic formationsFlip panels for additional information and physical interactive game.

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2.1.3 Minerals and geologic features

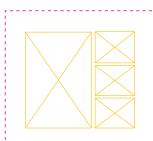
Touchable mineral specimens give visitors a tactile experience related to the region's geological past. A tabletop interactive can provide additional interpretive content.

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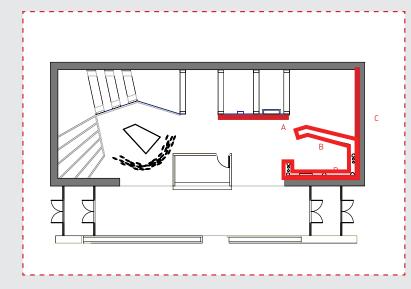
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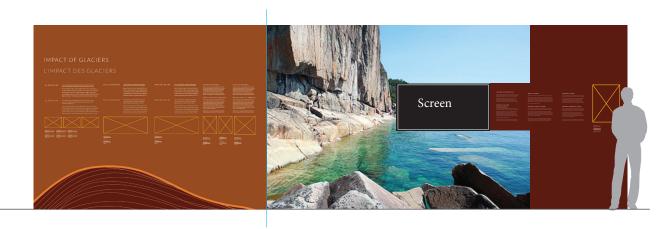
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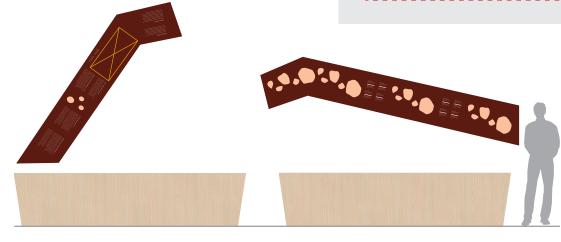
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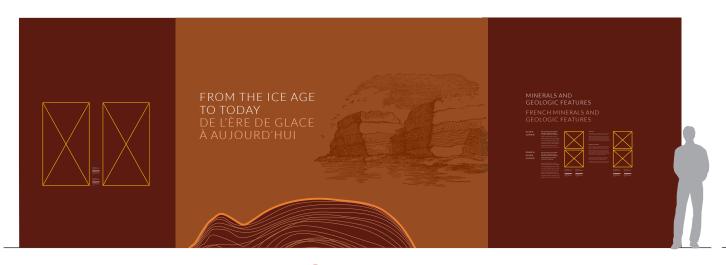




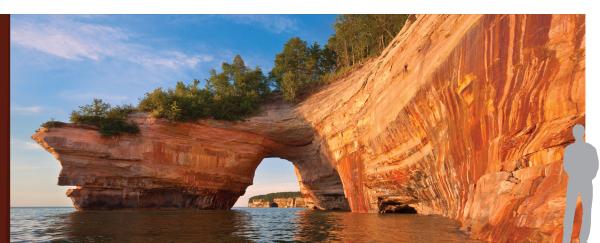






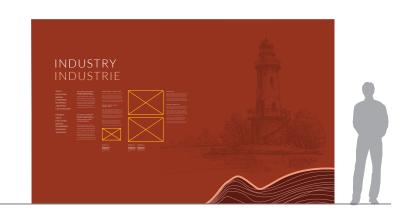




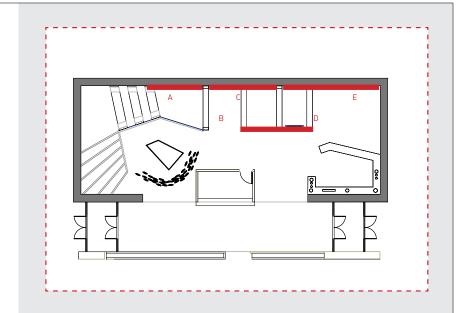


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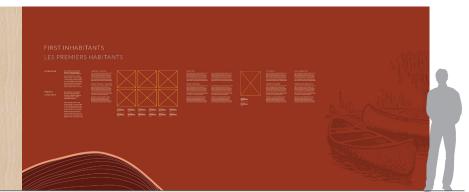




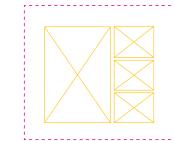






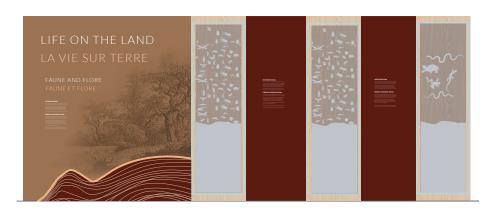


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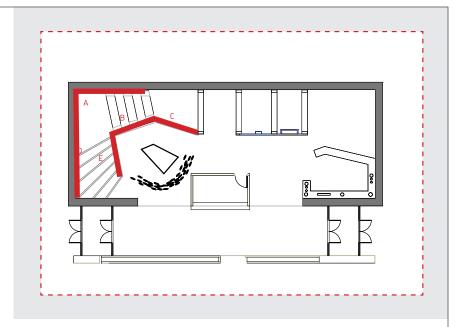
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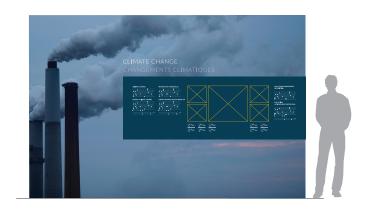


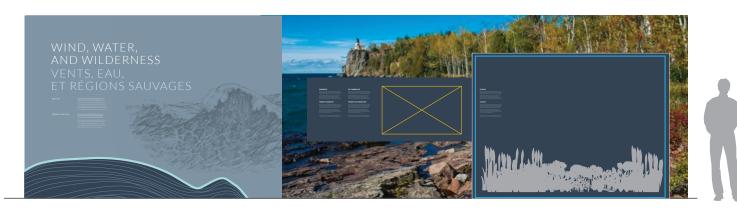
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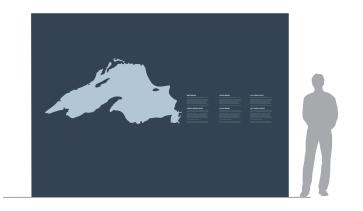














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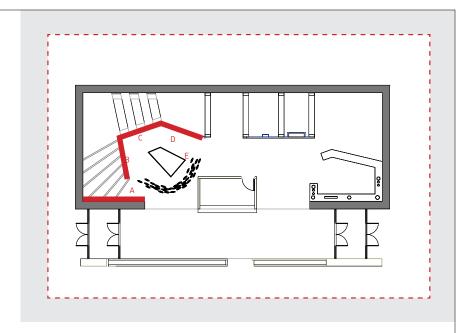
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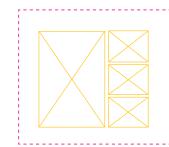
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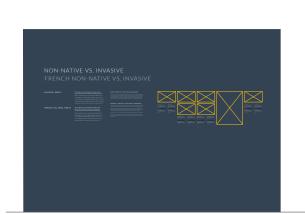
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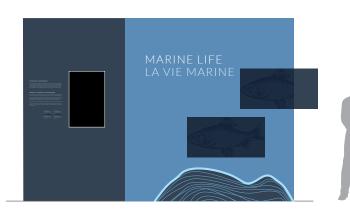


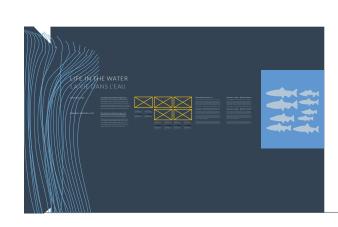




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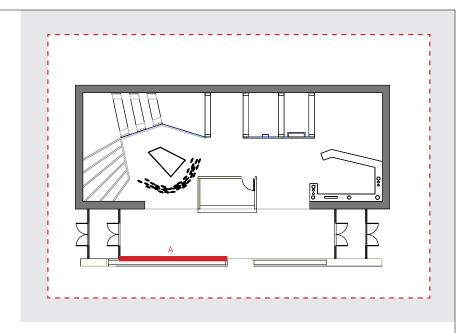


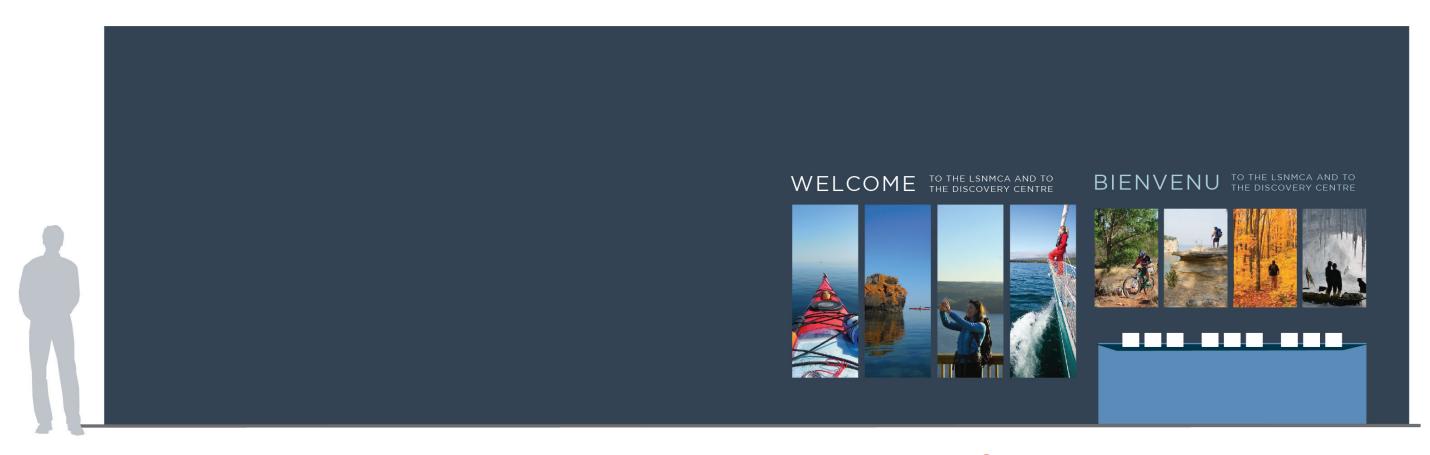
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Typography Approach

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Communication Strategy

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Zone Introduction (L1)

Font Size

Word Count

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Title: 2-4 words Subtitle: 3-4 words Intro Text: 15 words Body Text: 45 Words

Primary Text (L2)

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Title: 2-4 words Intro Text: 20 words Body Text: 70 Words

Main text (L3)

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Title: 2-6 words Body Text: 115 Words

Secondary text (L4)

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Quotes

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Quote: 20 Words

Label text (L5)

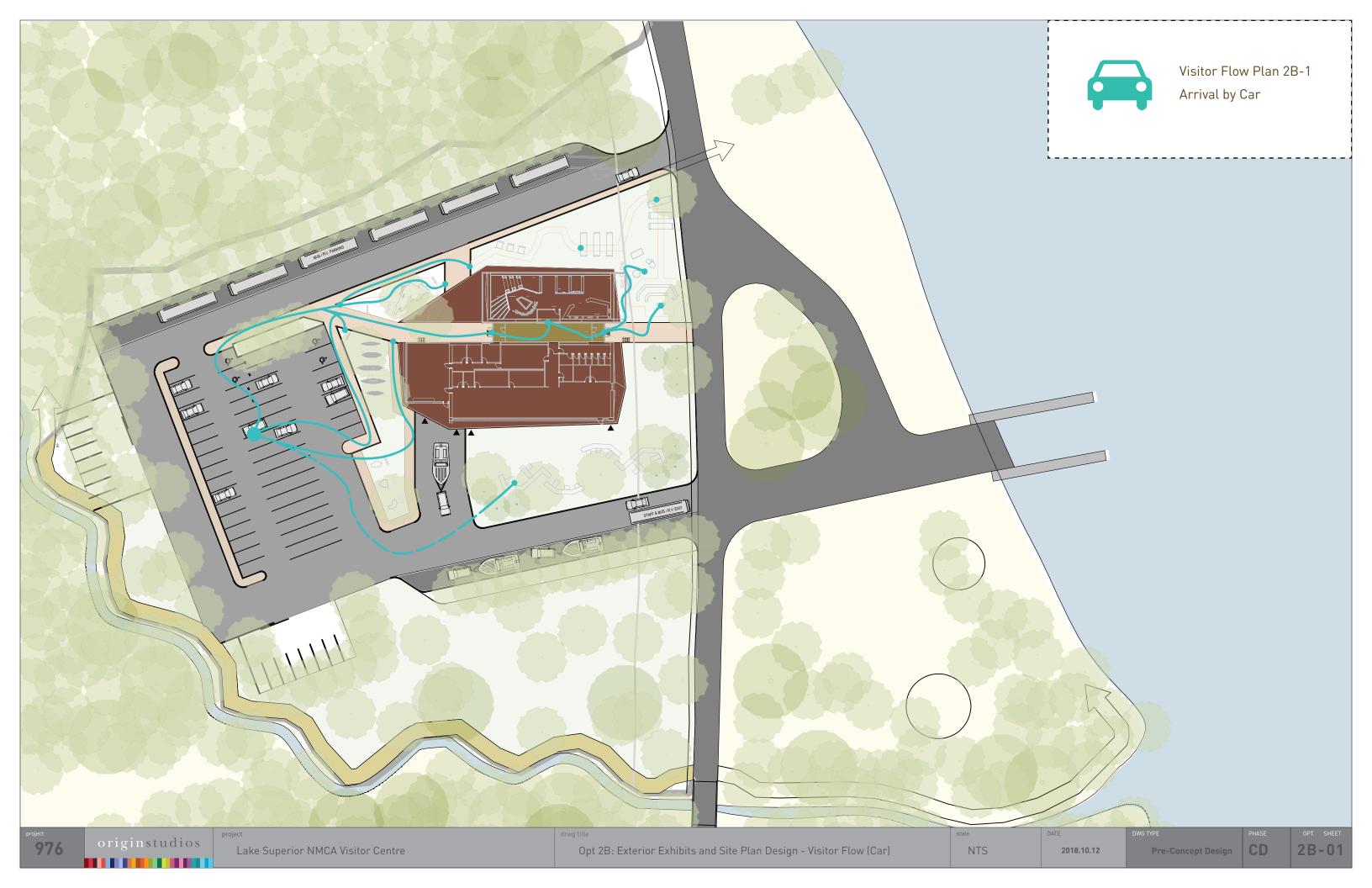
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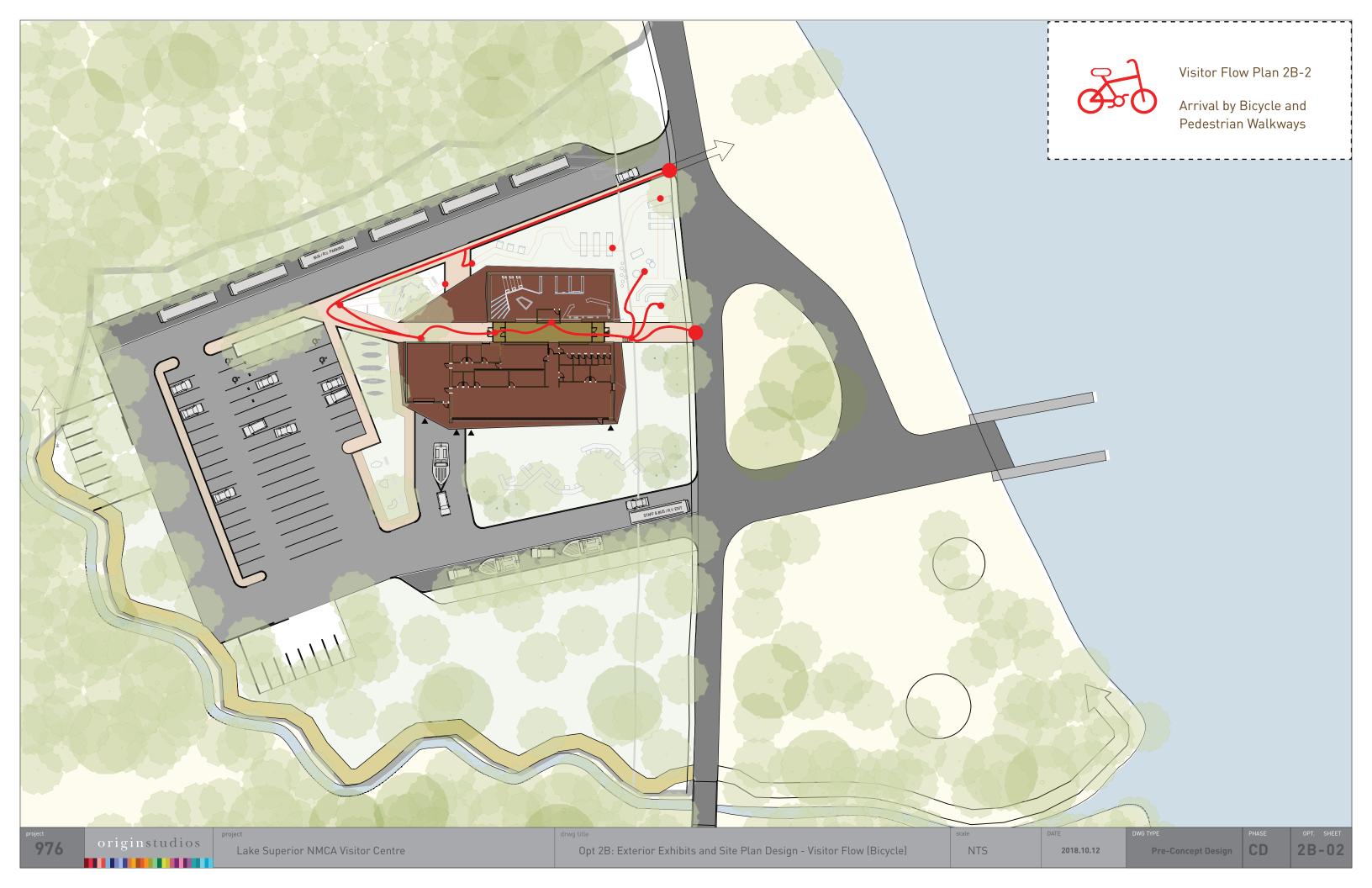
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EXTERIOR EXHIBITS AND SITE PLAN

OPTION 2B









Natural Landscaping

In this area, native plant species relying on little to no maintenance.

Picnic Table Areas

An area for eating and picnics. For the RVs and visitors who come from a longer trek, this could serve as a restful area before or after the VC visit. Intrepretive material is designed into the tables to inspire visitors to learn more about the

Introductory / Interpretive Panel

At the entrance to the site, an introductory / interpretive panel could introduce the LSNMCA and Visitor Centre. Stewardship and conservation messaging could also be included.

Lake Superior Basin

A children's play area consisting of a scaled-down basin of Lake Superior. This play area would also feature the geography and geological features of the lake for programming purposes.

Bench Seating

These benches could be used by parents watching their children play or for programming opportunities learning about features of the site outdoors with stand-alone interpretive content designed into the bench.

Interpretive Messaging

Stand-alone interpretive opportunities for learning about the site in the exterior exhibits. Material connects to the exhibits

Natural Playground Areas

Cut-wood areas for climbing and playing for children with possibilities for additional natural play structures. Large rock samples are areas for climbing and playing for children, with the rocks also serving as interpretive materials for the geology section of the VC.

Discovery Path

The Discovery Path frames views to Nipigon River, allowing for a visual connection, along with stand-alone interpretive information continued from indoors, about marine ecology and Lake Superior. Additional interpretive material is included on the Path with material that connects the interior and exterior exhibits in a seamless approach.

Outdoor Gathering Area and Amphitheatre

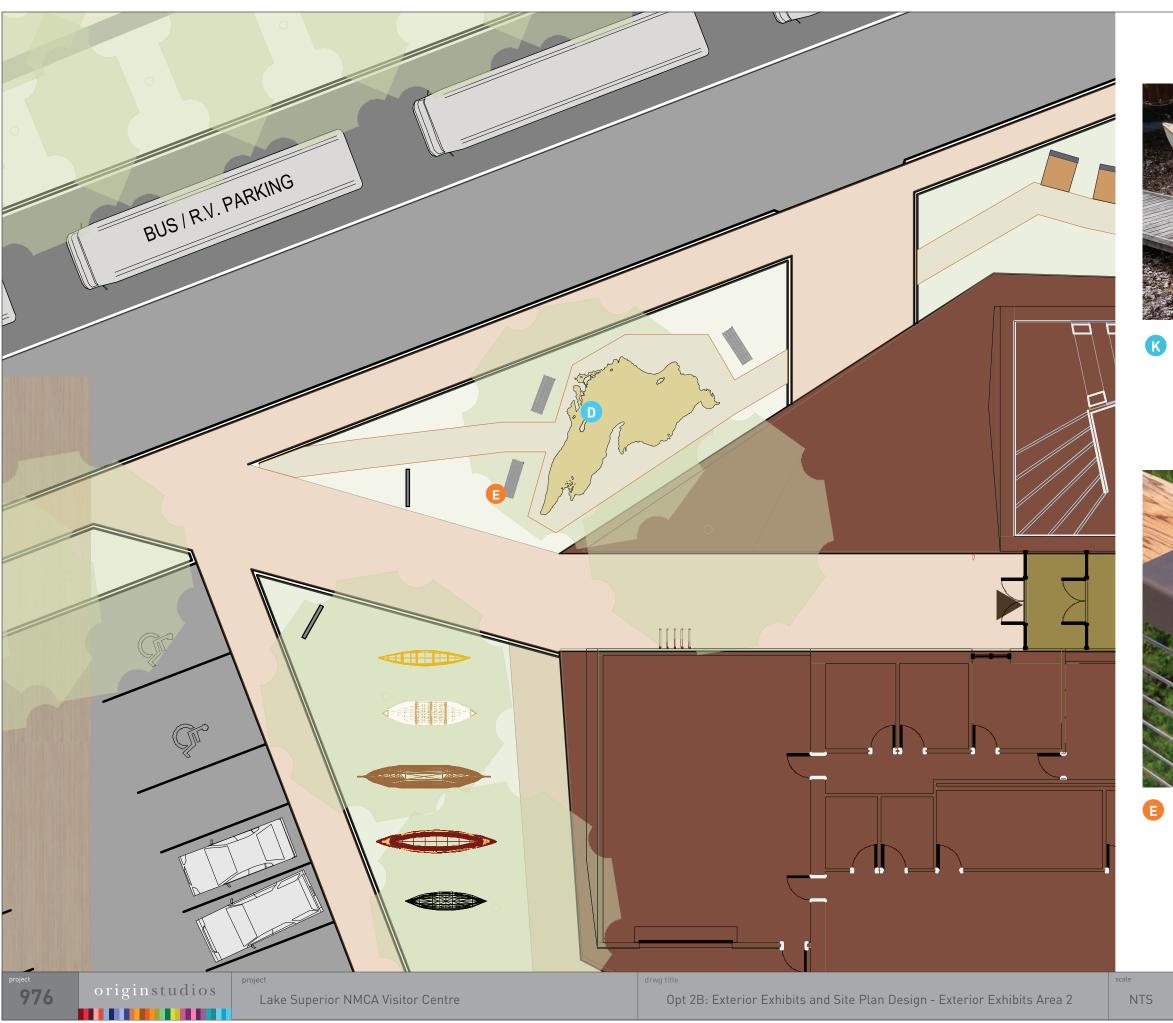
A gathering area, connected to the side doors of the VC, allows for programming opportunities to be taken outdoors. An outdoor performance/storytelling area with an all-season fire pit, would encourage visitors to stay out-of-doors, to sit and listen, to learn, to participate and, in winter, to stay warm next to a roaring fire.

Canoe Play Area

A display of canoes that visitors learn from – ranging from smaller two-person models to the immense Montreal canoes used in the fur trade.

(Optional) Wall reserved Public Art Commission

A design option with walls reserved for public art commissions, a way to reach out to local artists.





Canoe / Boat Play Area

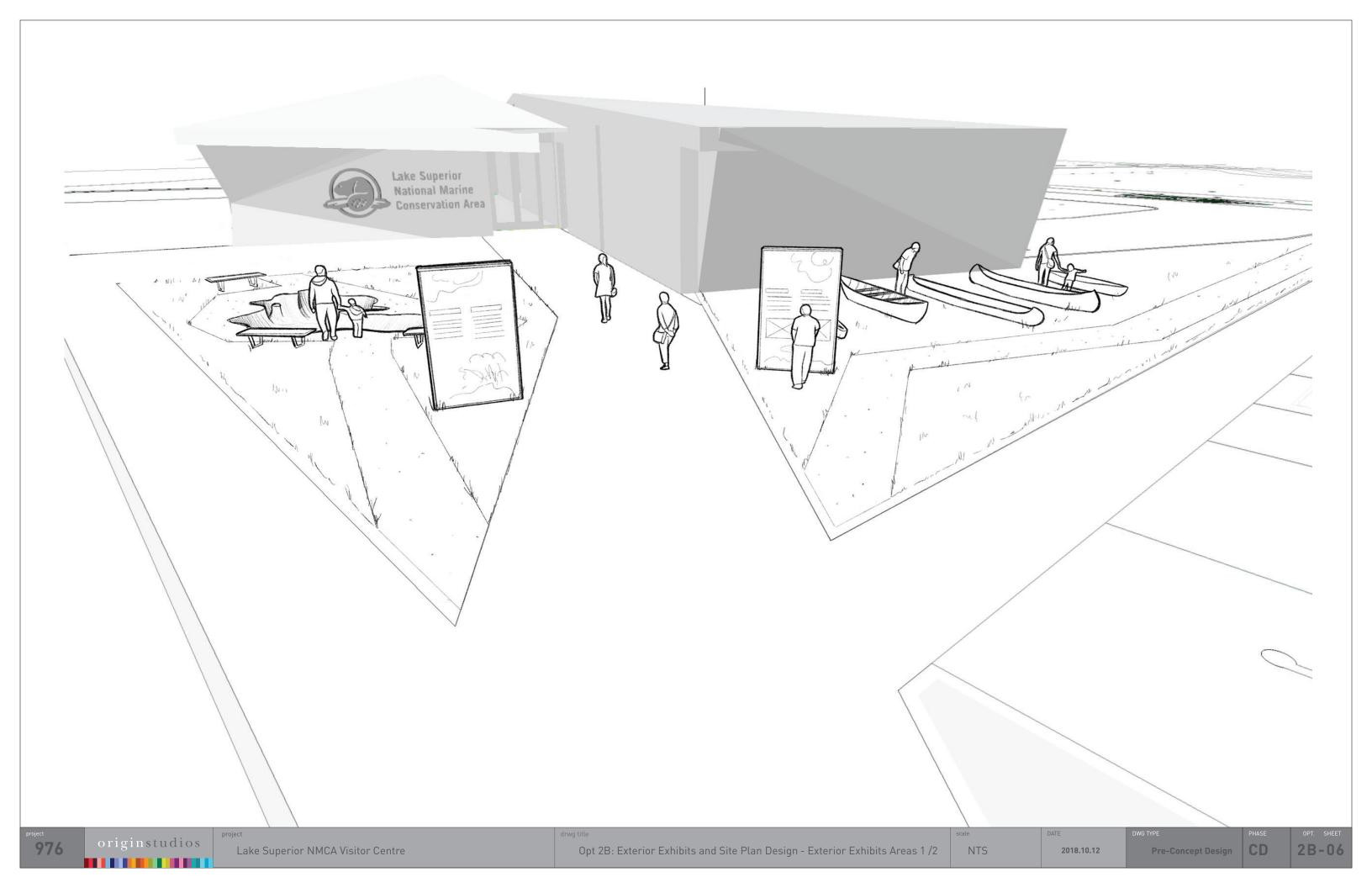
A display of canoes or boats - some that visitors can sit in - ranging from smaller two-person models to the immense Montreal canoes used in the fur trade - will provide an opportunity for imagining life in the earlier centuries, and will inspire some to get out on the water and learn to paddle. Interpretive panels will provide information about construction methods, materials, and uses. Connecting content from within the VC, such as the evolution and changing forms of boat design.

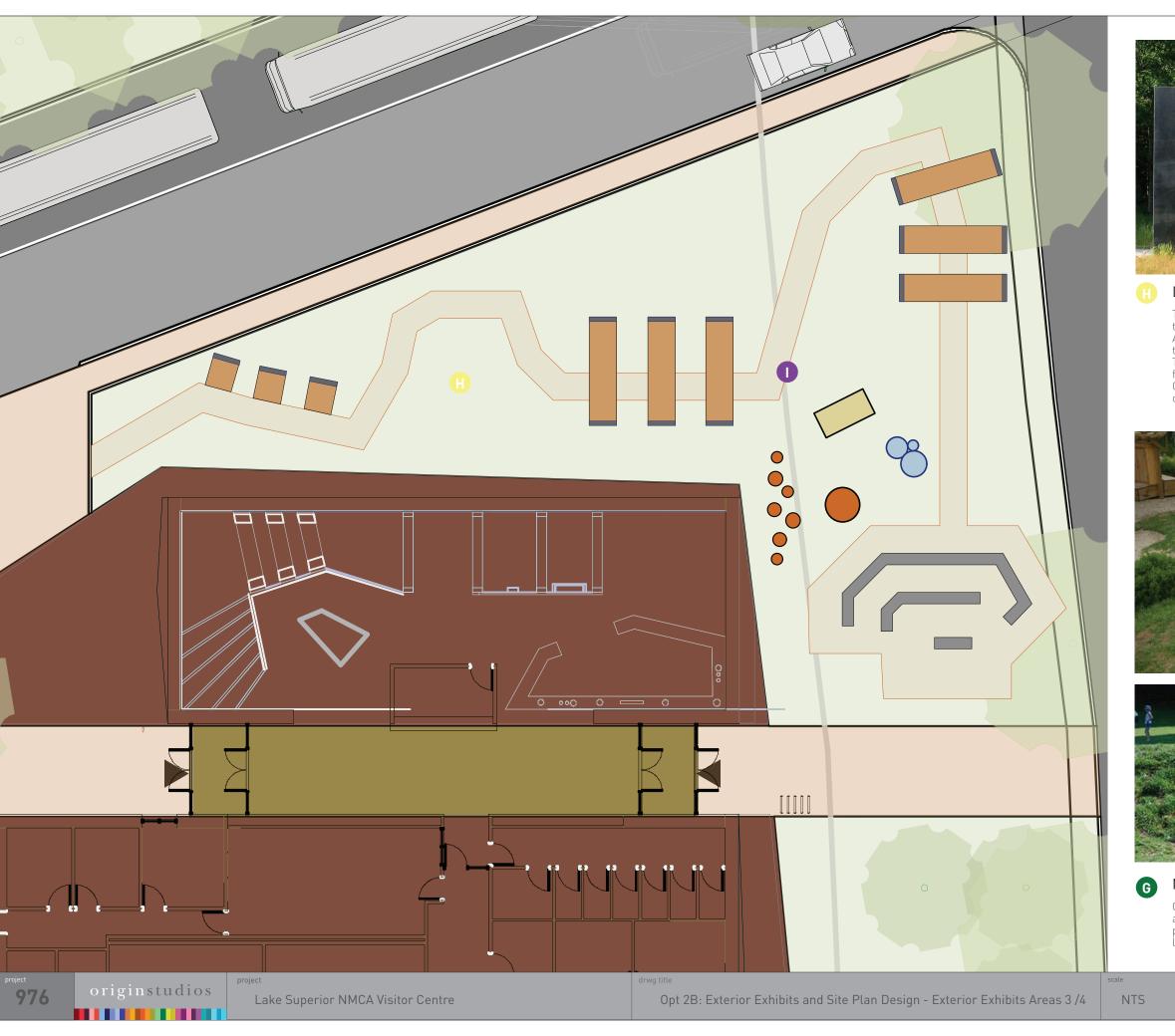


Interpretive Panels on Bench

Benches alongside play areas could be used by parents watching their children play and for programming opportunities learning about features of the site outdoors with stand-alone interpretive content designed into the bench. Content connects to adjacent exterior exhibits and to the interior stories in the VC.

Pre-Concept Design CD 2B-05 2018.10.12







Discovery Path

The Discovery Path emulates the exhibitry inside the VC. Walking through the Path, visitors will learn about the marine ecology and Lake Superior. Additional interpretive exhibits are included on the Path with material that connects the interior and exterior exhibits in a seamless approach.
The exterior interpretive panels in the higher cost option have the option for additional interactive content, such as digital interactive moments, i.e. QR codes, or physical interactives, i.e. games, that allow for programming opportunities and connections to interior exhibit content.

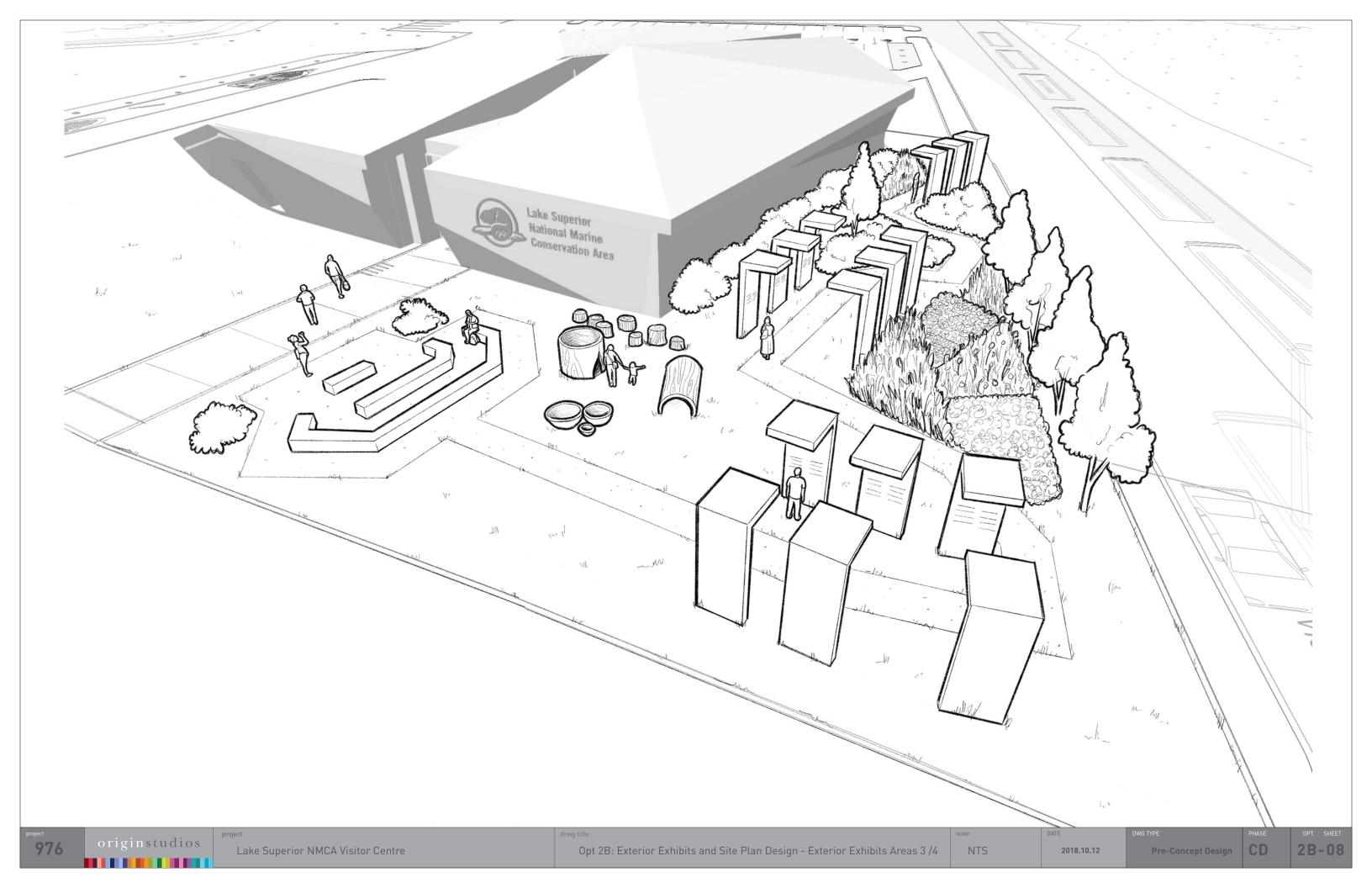




Natural Playground Areas

Cut-wood areas for climbing and playing for children with possibilities for additional natural play structures. These structures could take the form of playful constructions of lake habitats or fish spawning areas for interpretive learning opportunities and programming activities.

Pre-Concept Design CD 2B-07 2018.10.12





Lake Superior National Marine Conservation Area Discovery Center (LSNMCA DC)

Feasibility Study on Passive House Compliance

January 21, 2019

Prepared for:

Parks Canada

Prepared by:

Stantec Consulting Ltd.

Revision	Description	Autho	r	Quality Cl	heck	Independent	Review
Nov	Final	Junru	Shen	Victor	Ngan	Andrea	Frisque
26,2018							-
Jan	Revised	Junru	Shen	Victor	Ngan	Andrea	Frisque
21,2019							-



Sign-off Sheet

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Prepared by Junru Shen, LEEP AP, CMVP, CPHD

Reviewed by Andrea Frisque, P.Eng., Dipl.-Ing., LEED AP, CPHD



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Executive Summary

This report presents the feasibility study for Passive House compliance of the Lake Superior National Marine Conservation Area Discovery Center. Stantec has performed analyses for different design options, and proposed the most feasible ways to achieve Passive House compliance for each option. Through the analyses design recommendations have been provided to change the design to be more Passive House friendly, which lead to a significantly reduction in envelope insulation levels.

Different heating options have also been explored to evaluate their impacts on the Passive House metrics, that is, Primary Energy (PE) and Primary Energy Renewable (PER). Between direct electricity resistance, ground source heat pump, and biomass, the ground source heat pump heating plant provides the lowest PER value because of its high efficiency. Based on the same architectural design, using a ground source heat pump would greatly reduce the required envelope thermal performance to achieve Passive House compliance.

Assuming year around operation, with a compact building form and implementation of a ground source heat pump system, the thermal performance of the envelope needed could potentially go as low as R53 for exterior wall, R66 for roof and R40 for the floor. For the Paddle Scheme, the envelope thermal performance has been reduced significantly from unreasonably high R-values to a reasonable range, R60 to R100, by changing the design on south glazing, net air volume and insulation location. The Amethyst Scheme, in its most recently proposed form, requires a minimum envelope thermal performance level of R114 for exterior walls, R141 for the roof, and R85 for the floor, even with the use of a ground source heat pump system and solar PV. There is, however, potential to reduce these numbers through further design changes.

Seasonal operation of the exhibit space makes Passive House certification even more achievable. It was found that the thermal performance levels of the envelope are significantly reduced. For example, the exterior wall thermal performance is reduced from R120 to R65 with the same space heating option (direct electric resistance) and building form (Paddle Scheme).



Introduction

1.0 INTRODUCTION

This report presents the feasibility analysis of achieving Passive House compliance for the Lake Superior National Marine Conservation Area Discovery Center. Two design schemes, the Paddle Scheme and the Amethyst Scheme, have been developed by the Architect for the project. Based on the area take-offs from the architectural drawings and a conceptual framework for electrical and mechanical designs, a PHPP model has been developed for each scheme, which provides information on Passive House certification compliance. The PHPP model also provides the thermal performance of the envelope components required to meet the thermal energy demand intensity limit required for Passive House certification. By changing the design parameters in the PHPP model, Stantec provided recommendations for design changes to make Passive House feasible. In addition to the two developed design schemes, a simple box model based on the floor plan layout of the Amethyst scheme, has also been included in this report to reveal the benefits of a more compact building shape.



Passive House Compliance Criteria

2.0 PASSIVE HOUSE COMPLIANCE CRITERIA

The Passive House dashboard, the summary sheet in the PHPP, presented in Figure 1 below, displays the specific building characteristics and their compliance criteria. The design related criteria are:

- Heating demand ≤ 15 kWh/m²a, OR heating load ≤ 10 W/m²
- Cooling demand ≤ 15 kWh/m²a, OR cooling load ≤ 11 W/m²; AND frequency of excessively high humidity ≤ 10%
- Two pathways are currently accepted by the Passive House Institute to demonstrate compliance with the primary energy limit:
 - Primary Energy (PE) ≤ 120 kWh/ m²a
 - Primary Energy Renewable (PER) ≤ 60 kWh/ m²a, OR alternative PER criteria with renewable energy generation (refer to Figure 2 below)

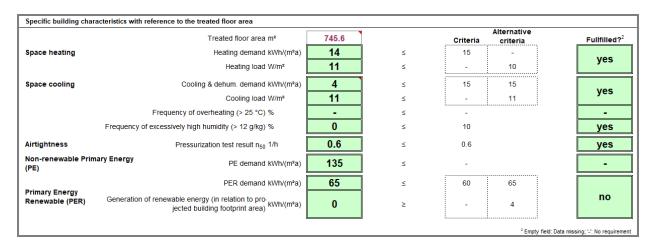


Figure 1. Passive House Dashboard

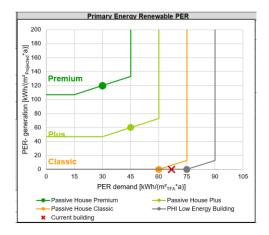


Figure 2. Primary Energy Renewable Compliance Graph



Design and Operations Parameters

3.0 DESIGN AND OPERATIONS PARAMETERS

The design assumptions of the project are summarized below. They are the same for all design options.

Table 1. Design Assumption Inputs to PHPP

Categories	Inputs to PHPP		
Occupancy	From May to October:		
	21 office staff, 5 exhibition space staff and 4 bus loads per day (each bus load brings in 30 visitors, staying for 1 hour long)		
	From Nov to April:		
	15 office staff, 4 exhibition space staff and 1 bus load per day (each bus load brings in 30 visitors, staying for 1 hour long)		
Occupancy schedule	Office: 9am – 5 pm Exhibition Space: 9am – 5 pm		
Absenteeism	The absenteeism is calculated based on the actual occupancy x hours divided by the peak occupancy x hours. The following numbers are the weighted annual absenteeism for each space type.		
	Office: 14% of time absent		
	Exhibition Space: 31% of time absent		
Setpoints	Winter: 20 °C		
	Summer: 22 °C		
	RH: 30% -60%		
Climate data set	Nipigon		
Exterior Door U value	0.2 W/(m ² K)		
Glazing product	Guardian - ClimaGuard Premium2 (4:/16/4/16/:4 Ar 90%)		
g-Value	0.53		
U _g -Value	0.53 W/(m ² K)		
Window frame	OPTIWIN GmbH - FUTURA - SWISSPACER Ultimate		
Ventilation type	Balanced PH ventilation with heat recovery		
Design air flow rate (maximum)	1020 m ³ /h		
Maximum operation time	100% ventilation for 8 hours/day		
Basic ventilation operation time	40% ventilation for 2 hours/day		
No ventilation	0% ventilation for 14 hours/day		
Ventilation Concept	Ventilation is provided by two HRV units (model: Zehnder – ComfoAir550), one for the office area and one for the visitor center. Air transfer is allowed between the office and visitor center.		
	Supplementary ventilation, outside of the heating season, can be provided by natural ventilation using operable windows.		
	Other HRV parameters:		
	HRV inside thermal envelopeElectric frost protection		



Design and Operations Parameters

Categories	Inputs to PHPP		
_	 Demand control ventilation Effective Heat Recovery Efficiency 82.5% 		
Summer Ventilation	HRV with automatic bypass, controlled by temperature difference Operable windows		
Cooling method	On/Off recirculation cooling with dehumidification Seasonal energy efficiency ratio: 3.0 Minimum supply air temperature: 17°C		
Heating method	Heating methods analyzed in this report includes: Direct electric resistance; Biomass; Ground source heat pump. Temperature control in the exhibit space will be provided by a fan coil unit with DX cooling and hot water heating. A duct mounted dehumidifier will be provided if required. Heating for the office spaces will be provided using a hydronic heating system such as radiant floor.		
DHW Equipment	Electric resistance 1 DHW storage tank (200 L) Inside thermal envelope Heat loss rate: 3.0 W/K		
Lighting control	Everywhere except exhibit space: Manual with motion detector Exhibit space: Manual without motion detector		
LPD	Offices: 6 W/m ² Main reception: 10 W/m ² Exhibit: 8 W/m ²		
Equipment	PC Monitor Copier Printer		
Kitchen equipment	None		
Renewables	The following renewables have been evaluated: Wind; PV; Solar thermal; Geothermal.		



Recommendations to the Original Design

4.0 RECOMMENDATIONS TO THE ORIGINAL DESIGN

The original design, proposed in June 2018, required a very high envelope thermal performance to meet the heating and cooling demand criteria. The envelope thermal performance levels needed for both Paddle and Amethyst schemes are extremely high, and are listed in Table 2 below.

Table 2. Thermal Performance Levels of the Envelope Needed for Original Design

Categories	Paddle Scheme	Amethyst Scheme	
Exterior Wall	0.028 W/(m ² K) (R 200 BTU/h/ft ² °F)	0.039 W/(m ² K) (R 144 BTU/h/ft ² °F)	
Main Roof	0.023 W/(m ² K) (R 248 BTU/h/ ft ² °F)	0.032 W/(m ² K) (R 179 BTU/h/ ft ² °F)	
Floor	0.038 W/(m ² K) (R 149 BTU/h/ ft ² °F)	0.053 W/(m ² K) (R 108 BTU/h/ ft ² °F)	

Two major recommendations have been made to change the design towards a Passive-House-friendly path:

1. Increase the south window area

It was found on the PHPP dashboards that the heating demands for both designs are at their maximum allowance while the cooling demands are significantly below the thresholds. By putting more glazing on the south wall, the building benefits from free heating from the sun so that the heating demand is reduced. Figure 3 shows the comparison of heat gain and heat loss between windows from different directions. The south glazing has the most significant difference between heat gains and heat losses.

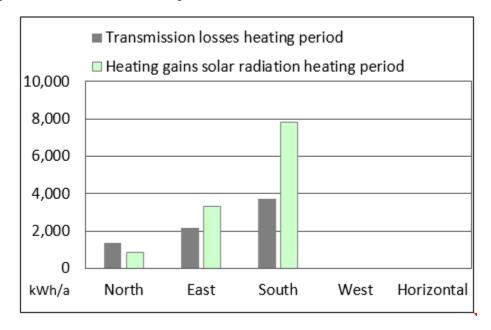


Figure 3. Window Heat Gain and Heat Loss



Recommendations to the Original Design

2. Reduce the interior air volume

The net air volume impacts all Passive House metrics: heating demand, cooling demand, and PE/PER. Reducing the net air volume will lead to a lower heating and cooling demand, and a reduction in HVAC system energy consumption as well. Consequently, higher ceilings increase energy needs for the building by increasing the net air volume of the building.



Design Changes and Results

5.0 DESIGN CHANGES AND RESULTS

5.1 PADDLE SCHEME

The PHPP model inputs have been updated based on the most recent design. The updated design has an increased south window area (as shown in Figure 4) and reduced the net air volume by using suspended ceilings (as shown in Figure 5). Stantec has also advised relocating the insulation to the top of the suspended ceiling to reduce the surface area for heat losses (see Figure 6).

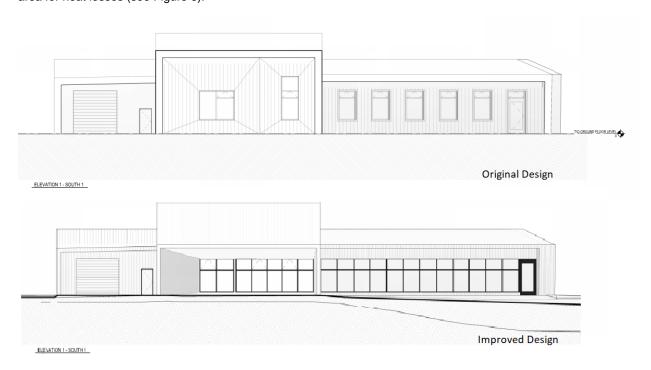


Figure 4. Paddle Scheme Design Change - Increased South-Facing Glazing

Design Changes and Results



Figure 5. Paddle Scheme Design Change – Reduce Net Air Volume



Figure 6. Paddle Scheme Design Change - Relocated Insulation

The differences in required envelope thermal performance levels before and after the design changes are summarized in Table 3. The amount of insulation needed for the building envelope has been greatly reduced.

Table 3. Paddle Scheme - Thermal Performance Levels of the Envelope Before and After Changes

Categories	Paddle Scheme Original Design	Paddle Scheme Improved Design	
Exterior Wall	0.028 W/(m ² K) (R 200 BTU/h/ft ² °F)	0.070 W/(m ² K) (R 81 BTU/h/ft ² °F)	
Main Roof	0.023 W/(m ² K) (R 248 BTU/h/ ft ² °F)	0.057 W/(m ² K) (R 100 BTU/h/ ft ² °F)	
Floor	0.038 W/(m ² K) (R 149 BTU/h/ ft ² °F)	0.094 W/(m ² K) (R 60 BTU/h/ ft ² °F)	

5.2 AMETHYST SCHEME

Figure 7 to Figure 9 show the design changes of the south-facing window area, net air volume, and insulation location for the Amethyst Scheme.

Design Changes and Results

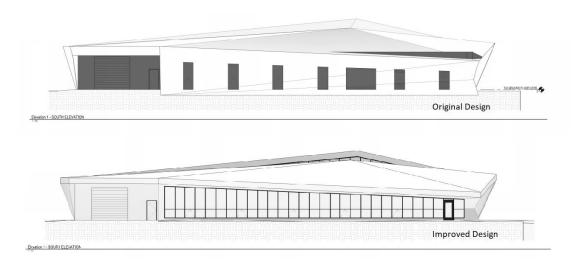


Figure 7. Amethyst Scheme Design Change - Increased South-Facing Glazing



Figure 8. Amethyst Scheme Design Change - Reduce Net Air Volume

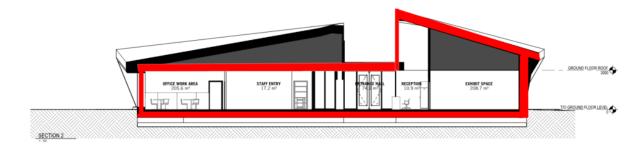


Figure 9. Amethyst Scheme Design Change - Relocate Insulation

As shown in Table 4, the envelope thermal performance levels have also been greatly reduced by the proposed design changes to the Amethyst Scheme, but not as much as the Paddle Scheme. This is caused by a few design characteristics. Firstly, the net air volume of the Amethyst scheme is not reduced to the level as in the case of the Paddle Scheme. Secondly, the large amount of south facing window of the exhibit space is not beneficial to Passive House compliance because it brings in undesired heat gain in the summer but not in winter. It is kept in the design for the benefit of daylight.



Design Changes and Results

Table 4. Amethyst Scheme - Thermal performance levels of the envelope Before and After Changes

Categories	Amethyst Scheme Original Design	Amethyst Scheme Improved Design	
Exterior Wall	0.039 W/(m ² K) (R 144 BTU/h/ft ² °F)	0.050 W/(m ² K) (R 114 BTU/h/ft ² °F)	
Main Roof	0.032 W/(m ² K) (R 179 BTU/h/ ft ² °F)	0.040 W/(m ² K) (R 141 BTU/h/ ft ² °F)	
Floor	0.053 W/(m ² K) (R 108 BTU/h/ ft ² °F)	0.067 W/(m ² K) (R 85 BTU/h/ ft ² °F)	

5.3 TWO STORIES SIMPLE BOX

In addition to the two design schemes created by Perkins Will, Stantec has done further analysis to evaluate a more compact design of the Amethyst Scheme, which stacks the exhibit space on top of the office space.

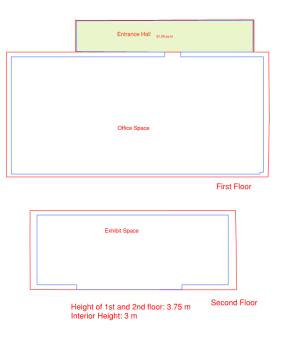


Figure 10. Two Stories Simple Box Model

As it shows in Table 5, by simply rearranging the building form the envelope thermal performance levels are significantly reduced by more than 50% due to the reduction of surface area to volume ratio.

Table 5. Thermal Performance Levels of the Envelope Comparison between Amethyst Scheme and Two Stories Simple Box Design

Categories	Amethyst Scheme Improved Design	Two Stories Simple Box Design	
Exterior Wall	U: 0.050 W/(m ² K) (R 114 BTU/h/ft ² °F)	U: 0.106 W/(m ² K) (R 53 BTU/h/ft ² °F)	
Main Roof	U: 0.040 W/(m ² K) (R 141 BTU/h/ ft ² °F)	U: 0.086 W/(m ² K) (R 66 BTU/h/ft ² °F)	
Floor	U: 0.067 W/(m ² K) (R 85 BTU/h/ ft ² °F)	U: 0.142 W/(m ² K) (R 40 BTU/h/ft ² °F)	



Design Changes and Results

5.4 ONE STORY SIMPLE BOX

The one-story simple box model has been created based on the floor area of the Paddle Scheme and window area of Amethyst Scheme, with the discovery center side-by-side with the office space.

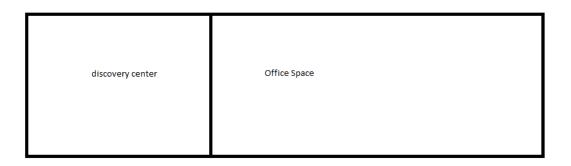


Table 6. Thermal Performance Levels of the Envelope Comparison between Paddle Scheme and One-story Simple Box Design

Categories	Paddle Scheme	One Story Simple Box Design	
Exterior Wall	U: 0.070 W/(m ² K) (R 81)	U: 0.089 W/(m ² K) (R 64)	
Main Roof	U: 0.057 W/(m ² K) (R 100)	U: 0.072 W/(m ² K) (R 79)	
Floor	U: 0.094 W/(m ² K) (R 60)	U: 0.119 W/(m ² K) (R 48)	

5.5 SUMMARY OF CHARACTERISTICS OF DIFFERENT OPTIONS

Table 6 compares building characteristics of different design options. The two stories simple box model has the lowest A/V ratio.

Table 7. Summary of Building Characteristics between Different Designs

	Paddle Scheme	Amethyst Scheme	Two Stories Simple Box	One Story Simple Box
Area of ground floor (m ²)	859.56	886.69	615.03	859.56
Outside wall area (m²)	696.93	517.28	415.55	553.35
Rood area	861.66	977.00	515.03	859.56
Total Surface Area (m²)	2418.15	2380.94	1545.61	2272.47
Total window	North: 6.8	North: 0.0	North: 0.0	North: 0.0



	Paddle Scheme	Amethyst Scheme	Two Stories Simple Box	One Story Simple Box
area per orientatio	South: 76.75	South: 136.86	South: 136.86	South: 136.86
n (m ²)	West: 0.00	West: 12.04	West: 12.04	East: 5.78
()	East: 30.00	East: 17.82	East: 17.82	
Net Air Volume (m³)	2316	3012	2510	2316
A/V ratio	1.04	0.79	0.62	0.98
Insulation location	Control Colonia III III	de local are to the loc	Dodd Otto	discovery senter Office figure

Compliance paths for design options

6.0 COMPLIANCE PATHS FOR DESIGN OPTIONS

In this section, different heating options are explored for each design and the thermal performance levels of the envelope required for each heating option are summarized in the same table for comparison. The most optimum compliance path of each design option is highlighted.

6.1 PADDLE SCHEME COMPLIANCE PATH

The Paddle Scheme is able to achieve Passive House compliance by either direct electricity, ground source heat pump or biomass. Among these heating options, ground source heat pump requires the least amount of insulation for the building envelope.

Table 8. Paddle Scheme - Compliance Paths for Different Heating Options

	Direct Electricity	Ground Source Heat Pump	Biomass
Exterior Wall U Value	U: 0.047 W/(m ² K) (R120)	U: 0.070 W/(m ² K) (R 81)	U: 0.043 W/(m ² K) (R132)
Main Roof U Value	U: 0.038 W/(m ² K) (R149)	U: 0.057 W/(m ² K) (R100)	U: 0.035 W/(m ² K) (R164)
Floor U Value	U: 0.063 W/(m ² K) (R 90)	U: 0.094 W/(m ² K) (R 60)	U: 0.058 W/(m ² K) (R99)
Heating Demand (kWh/m²a)	9	14	8
Cooling Demand (kWh/m²a)	10	9	11
PE (kWh/m ² a)	128	121	109
PER (kWh/m ² a)	59	55	60

6.2 AMETHYST SCHEME COMPLIANCE PATH

The Amethyst Scheme is not able to achieve Passive House compliance with direct electricity or biomass due to their low PER factor. The only viable path is using ground source heat pump or a combination of ground source heat pump and solar PV.

Table 9. Amethyst Scheme - Compliance Paths for Different Heating Options

	Ground Source Heat Pump + PV	Ground Source Heat Pump
Exterior Wall U Value	U: 0.050 W/(m ² K)	U: 0.044 W/(m ² K)
	(R 114)	(R128)
Main Roof U Value	U: 0.040 W/(m ² K)	U: 0.036 W/(m ² K)
	(R 141)	(R159)
Floor U Value	U: 0.067 W/(m ² K)	U: 0.059 W/(m ² K)
	(R 85)	(R 96)
Heating Demand (kWh/m²a)	14	13



Compliance paths for design options

	Ground Source Heat Pump + PV	Ground Source Heat Pump
Cooling Demand (kWh/m²a)	13	14
PE (kWh/m²a)	135	133
PER (kWh/m²a)	61	60
PV Generation Needed (kWh/m²a)	1	-

6.3 TWO-STOREY SIMPLE BOX COMPLIANCE PATH

The two-storey simple box model is able to achieve compliance with either direct electricity or ground source heat pump. The ground source heat pump requires half as much as insulation needed for the building envelope.

Table 10. Two Stories Simple Box Design - Compliance Paths for Different Heating Options

	Direct Electricity	Ground Source Heat Pump
Exterior Wall U Value	U: 0.047 W/(m ² K)	U: 0.106 W/(m ² K)
	(R120)	(R 53)
Main Roof U Value	U: 0.038 W/(m ² K)	U: 0.086 W/(m ² K)
	(R149)	(R 66)
Floor U Value	U: 0.063 W/(m ² K)	U: 0.142 W/(m ² K)
	(R 90)	(R 40)
Heating Demand (kWh/m²a)	6	14
Cooling Demand (kWh/m²a)	14	12
PE (kWh/m ² a)	133	133
PER (kWh/m²a)	60	60

6.4 ONE-STOREY SIMPLE BOX COMPLIANCE PATH

The one-story simple box model is created based on the areas of Paddle Scheme. Instead of its original geometry, this model has assumed a simple box geometry (59.28 m x 14.5 m x 3.75 m). The thermal performance levels of the envelope and PHPP results for different heating options are summarized below.

Table 11. One Story Simple Box Design - Compliance Paths for Different Heating Options

	Direct Electricity	Ground Source Heat Pump
Exterior Wall U Value	U: 0.057 W/(m ² K)	U: 0.088 W/(m ² K)
	(R100)	(R 65)
Main Roof U Value	U: 0.046 W/(m ² K)	U: 0.071 W/(m ² K)
	(R124)	(R 80)
Floor U Value	U: 0.076 W/(m ² K)	U: 0.117 W/(m ² K)
	(R75)	(R 48)



Compliance paths for design options

	Direct Electricity	Ground Source Heat Pump
Heating Demand (kWh/m²a)	8	14
Cooling Demand (kWh/m²a)	10	9
PE (kWh/m ² a)	130	125
PER (kWh/m²a)	60	57

Seasonal Operation analysis

7.0 SEASONAL OPERATION ANALYSIS

This section studies the estimated impact of seasonal operation of the exhibit space based on the Paddle Scheme. To estimate the impact, the interior temperature setpoint has been changed to a weighted average value between the exhibit space and the office space. The annual utilization days of exhibit space has also been changed in the PHPP to model this scenario. Given that the space will still need to be ventilated and the number of people assumed to visit the exhibit space was low, the impact for ventilation is minimum, within 5% difference to the original rate. In this analysis, this small impact is ignored. For a full analysis of seasonal operation, we have been advised that additional dynamic whole building thermal simulations are needed to evaluate the whole impact.

The thermal performance levels of the envelope and PHPP results for different heating options are summarized below.

Table 12. Paddle Scheme Seasonal Operation - Compliance Paths for Different Heating Options

	Direct Electricity	Ground Source Heat Pump
Exterior Wall U Value	U: 0.088 W/(m ² K)	U: 0.099 W/(m ² K)
	(R65)	(R 57)
Main Roof U Value	U: 0.071 W/(m ² K)	U: 0.080 W/(m ² K)
	(R80)	(R 70)
Floor U Value	U: 0.117 W/(m ² K)	U: 0.133 W/(m ² K)
	(R48)	(R 42)
Heating Demand (kWh/m²a)	12	14
Cooling Demand (kWh/m²a)	7	7
PE (kWh/m ² a)	125	111
PER (kWh/m²a)	59	50

Conclusions

8.0 CONCLUSIONS

By exploring the different design options, it was found that Passive House compliance is feasible for the Lake Superior National Marine Conservation Area Discovery Center. With a compact building form and the use of a ground source heat pump system, the envelope thermal performance required could potentially go as low as R53 for exterior wall, R66 for roof and R40 for the floor. For the Paddle Scheme, the thermal performance levels of the envelope have been reduced significantly from unreasonably high R-values to a reasonable range of R60 to R100 by changing the design on south glazing, net air volume, and insulation location. The Amethyst Scheme still requires high thermal performance of the envelope – R114 for exterior wall, R141 for roof and R85 for the floor – however, there is still potential to reduce these numbers by further design changes.

Seasonal operation of the exhibit space makes Passive House Compliance more achievable. It is found that the thermal performance levels required for the envelope are significantly reduced. For example, the exterior wall R-value is reduced from R120 to R65 with the same space heating option (direct electricity). The benefit of using ground source heat pump is less when combined with seasonal operation of the exhibit space, because of the reduced heating needs.

Appendix A Absenteeism Calculation

Appendix A ABSENTEEISM CALCULATION

The absenteeism calculation is based on the following occupancy assumptions:

Season	Office Space Daily Occupancy	Exhibition Space Daily Occupancy		
May to Oct	21 staff (8 hours)	5 staff (8 hours) + 4 Bus Loads (30 people with 1 hour stay)		
Nov to Apr	15 staff (8 hours)	4 staff (8 hours) + 1 Bus Load (30 people with 1 hour stay)		

The "relative absence" (or absenteeism) factor is calculated based on the actual occupancy x hours divided by the peak occupancy x hours.

Office	Staff	Hours	Days	Annual occupant x hours
May to Oct	21	8	125	21000
Nov to Apr	15	8	125	15000
Total				36000
Max Occupancy (always there) 21 8		8	250	42000
			Occupancy rate	85.7%
			Relative absence	14.3%
			Full Occupancy	21

Exhibition Space	Sta ff	Hou rs	Visitors (from Bus)	Bus Frequency	Hours	Days	Annual occupant x hours
May to Oct	5	8	30	4	1	125	20000
Nov to Apr	4	8	30	1	1	125	7750
Total							27750
Max Occupancy (always there)	5	8	30	4	1	250	40000
						Occupancy rate	69.4%
						Relative absence	30.6%



A.1