WALK THROUGH TIME

DEVELOPMENT PERMIT APPLICATION

September 25 2020

SUBMITTED TO

Development Services, Campus and Community Planning
The University of British Columbia | UBC Vancouver |
Musqueam Traditional Territory
2210 West Mall | Vancouver, BC | V6T 1Z4

BY

UBC Project Services
and
PWL Partnership Landscape Architects

WALK THROUGH TIME
DEVELOPMENT PERMIT APPLICATION

CONTENTS

THE WALK THROUGH TIME

At its simplest, the design brief for the Walk Through Time project endeavours to take visitors on an interactive journey through Earth's 4.5-billion-year history while visually connecting the tucked-away entrance of Pacific Museum of the Earth to the Beaty Biodiversity Museum and broader Campus community.

Conceptually, this presents an opportunity for all campus visitors to reflect on the scale of time and explore how humans influence and fit within the greater universe. As a Campus dedicated to being a Living Lab, it offers an engaging experience not just for the Faculty of Science, but also for facilities that explore philosophy, art and education and for school-aged children visiting the museums.

Aesthetically, it provides elegant and integrated elements that celebrate the best of a campus environments: the incitement of curiosity and the sharing of knowledge and ideas.

The intervention's strength lies in its paradoxical qualities of being both simple in form but complex in content. Its ability to be explored at many different levels incites curiosity and a range of experiences.

The positioning of the Ribbon and Ripple were carefully considered and calculated to have precise meaning for the Scientific Community while integrating closely with the existing infrastructure and guidelines provided by the CC+P. Along the façade of the Earth and Ocean Sciences Building, the flush timeline markers, denoting 100 million years, are positioned in direct alignment with the columns. Whilst the raised extrusions were selected for both their biological importance and to ensure they land in locations that do not impede views or circulation.

The strength of this design is in its simplicity and consistency of form across both the Ribbon and the Ripple.

The Ribbon is a continuous ground plane element with 10 raised extrusions. Each timeline marker is 3.2m apart, representing 100million year increments, meeting the design brief's objective of visualizing the awe-inspiring scale of biological and geological deep time.

The geological timeline is expressed on the ground-plane with metal inlays to illustrate the vast span of these key geological events. The biological timeline, in the form of extrusions rising out of the corten band, is overlaid onto the geological one to showcase how geological events gave rise to the explosion of life. As the user walks through time, the frequency of biological extrusions increases showcasing the emerging biodiversity and the 'heart beat' of life. At the point oxygen occurs life is extremely simple, and the simple fold of the metal band illustrates this simplicity. A single small LED light on the underside of the extrustion conveys the story in the dusk and evening time.

The colour band running the length of the ribbon is rich in meaning for the scientific community, being based on the chronostratigraphic chart - where each time period pertains to a specific colour. For the average passerby, this gradient of colour will not immediately be understood but can still be enjoyed for its bold and bright display. This layer of meaning encourages curiosity and can be discovered during a tour or visit to either museum.

The Ripple expands upon the segment of time at the end of the Ribbon where most biological events occurred. Here time is understood in the form of a phylogenetic tree; the user is able to stand in the middle of the tree and look outwards as the ripples of biodiversity emerge over time.

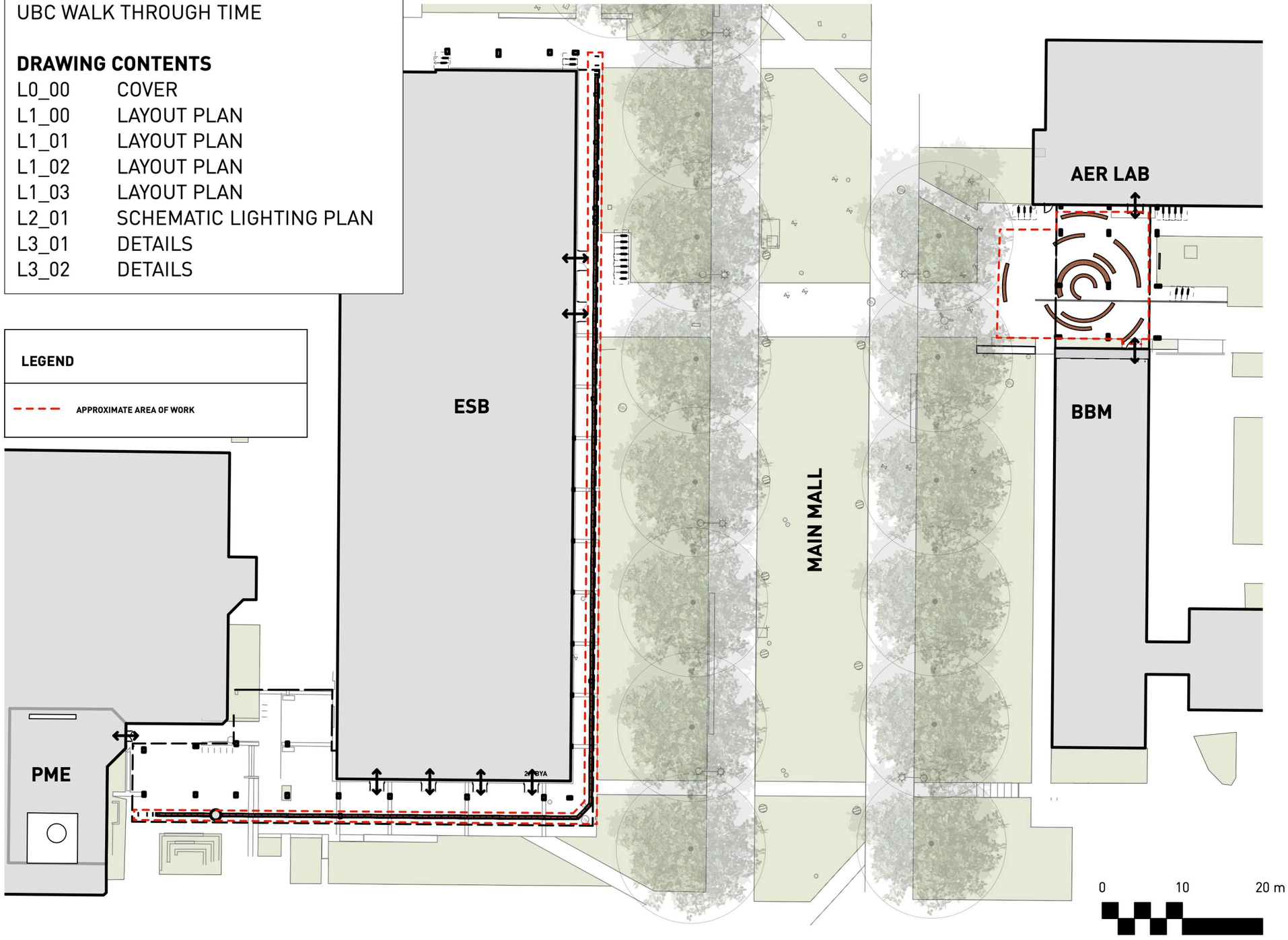
The Ripple employs the same corten band language as the Ribbon however here the band is expressed in segments and the emphasis is on the relationship of the band segments to one another - illustrating the evolutionary connection between organisms. The portion of the Ribbon timeline representing the explosion of life will be replicated and situated within this Ripple creating a physical link between the two timelines and museums, meeting one of the design brief's objectives.

PROJECT NAME
UBC WALK THROUGH TIME

DRAWING CONTENTS

LEGEND

APPROXIMATE AREA OF WORK



PWL partnership

PWL Partnership Landscape Architects Inc

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www.pwlpartnership.com

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F 604.688.6112

REVISIONS AND ISSUES

NO.	DATE	DESCRIPTION

PROJECT

UBC
WALK THROUGH TIME

ADDRESS

BEATY BIODIVERSITY CENTRE, UBC

2212 MAIN MALL,
VANCOUVER, BC

DRAWING TITLE

COVER

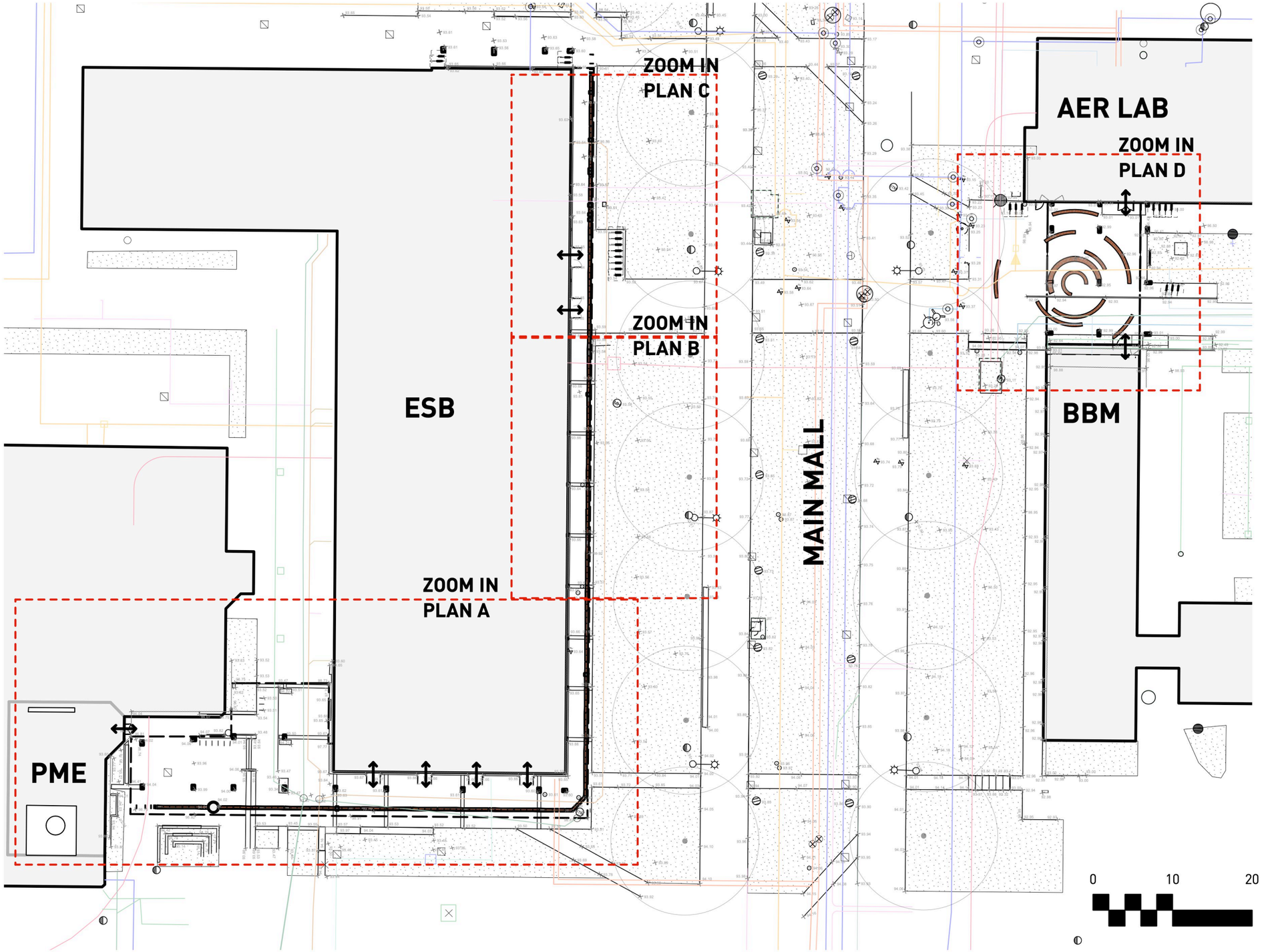
NORTH

SCALE **1:500**

PROJECT NO.	**18081**	
DATE	**2019-05-10**	
FILE NAME	**18081 PLAN.vwx**	
PLOTTED	**2019-05-10**	
DRAWN	**SM/KM**	REVIEWED

DRAWING

L0_00



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2212 MAIN MALL,
VANCOUVER, BC

DRAWING TITLE

LAYOUT PLAN

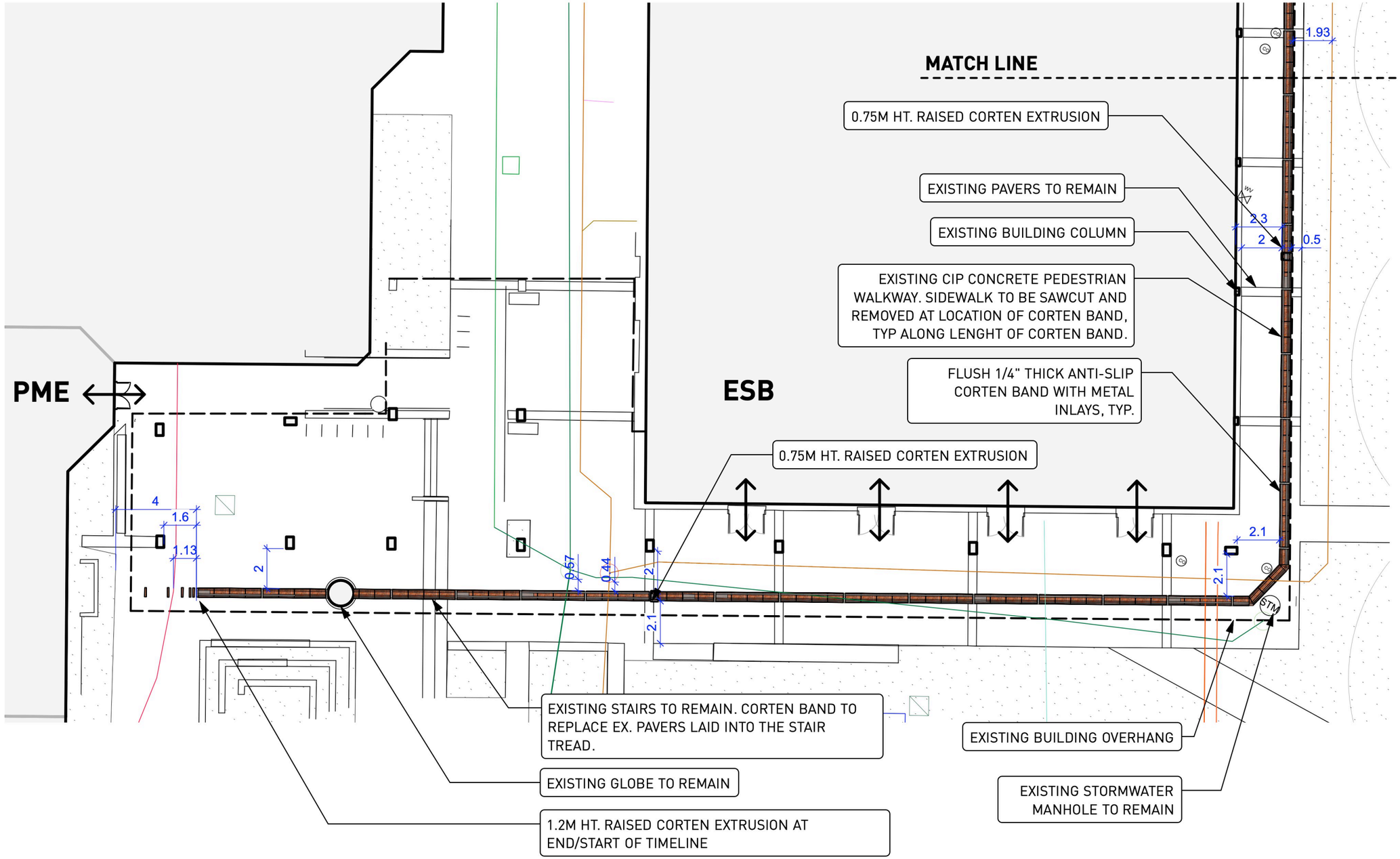
NORTH

SCALE **1:500**

PROJECT NO.	**18081**		
DATE	**2019-05-10**		
FILE NAME	**18081 PLAN.vwx**		
PLOTTED	**2019-05-10**		
DRAWN	**SM/KM**	REVIEWED	

DRAWING

L1_00



1 RIBBON DETAIL LAYOUT PLAN A
SCALE 1:200

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LAYOUT PLAN

NORTH

SCALE 1:200

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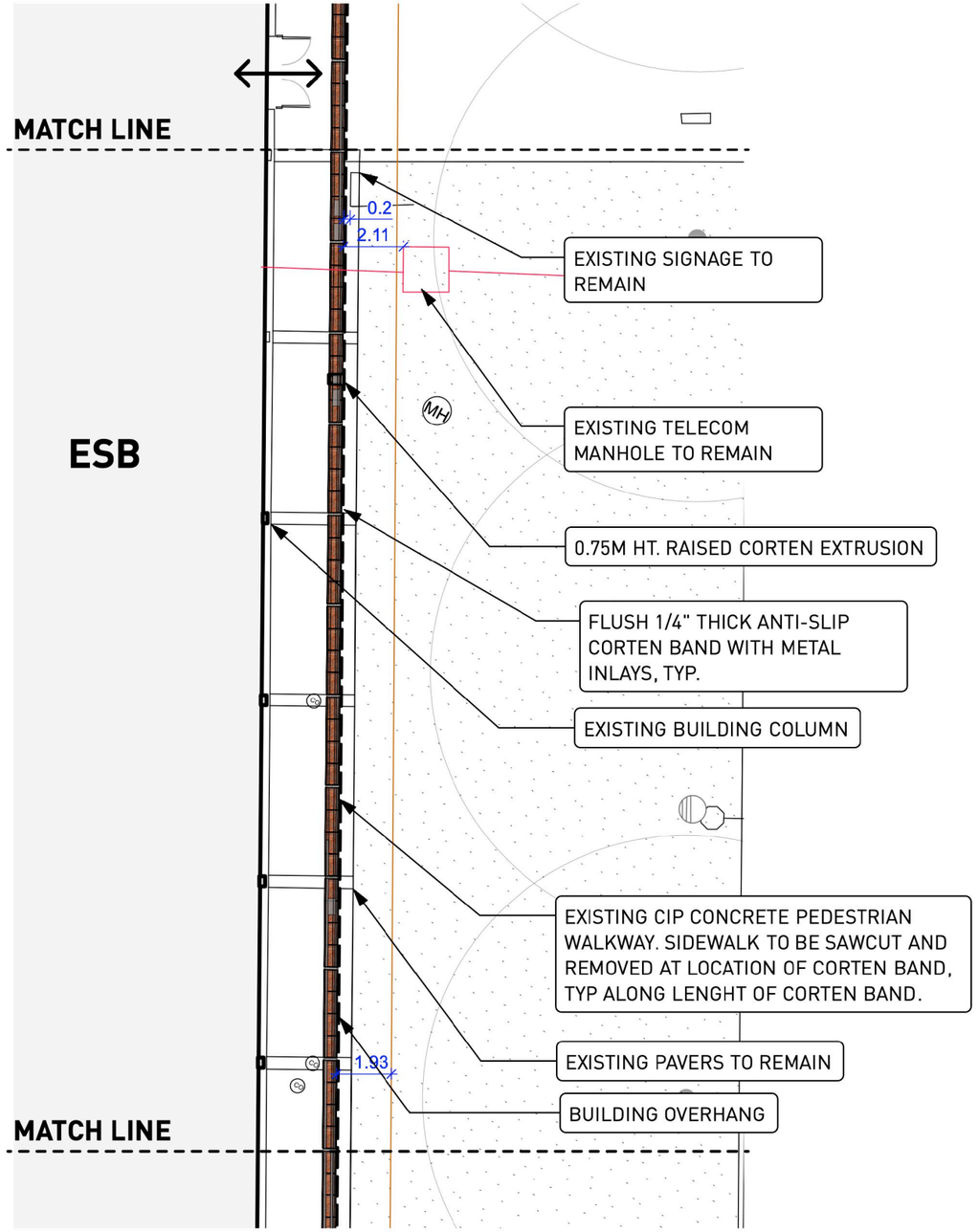
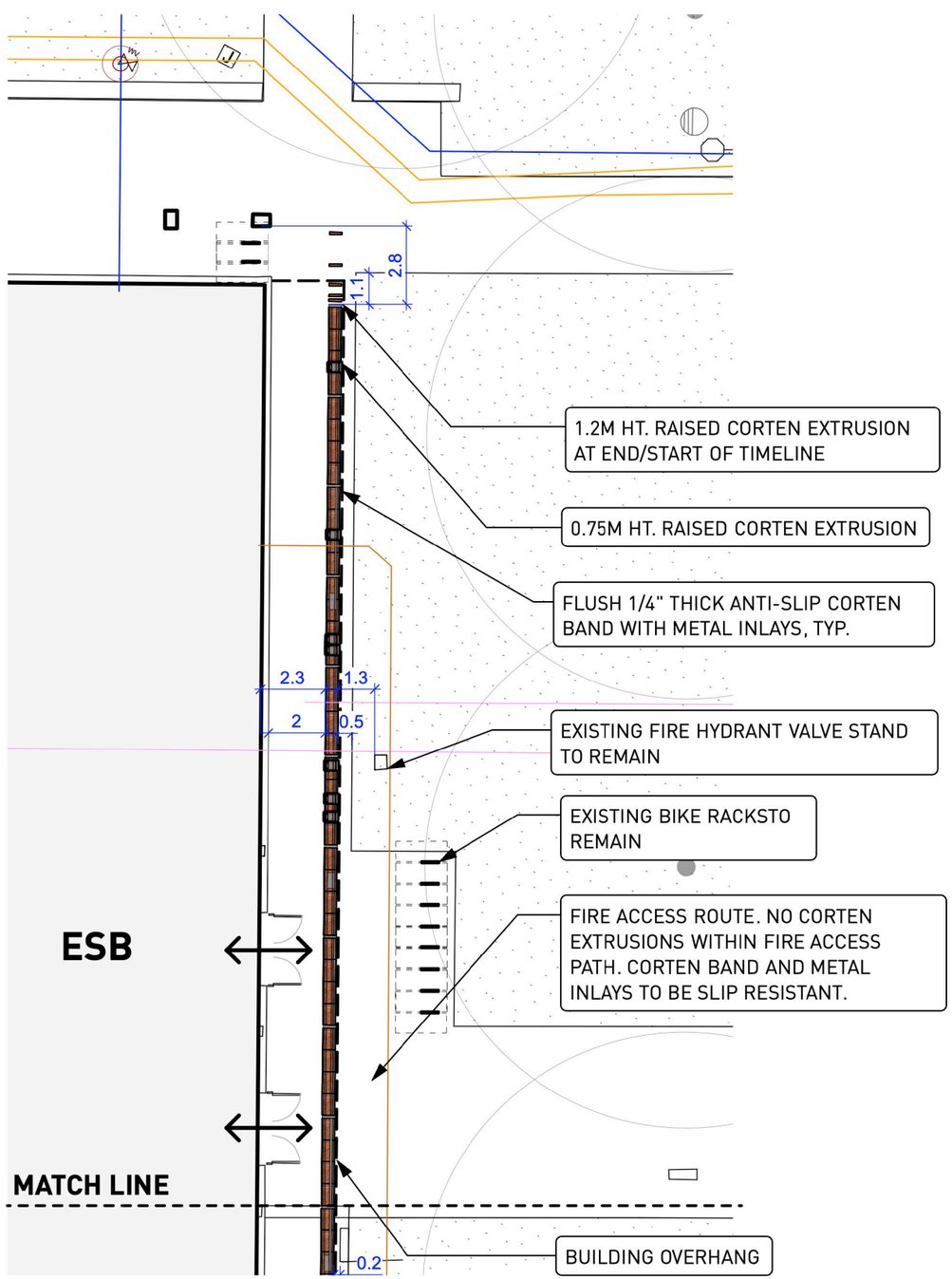
DRAWN	SM/KM	REVIEWED	

DRAWING

L1_01



1 RIBBON DETAIL LAYOUT PLAN B
SCALE 1:200



2 RIBBON DETAIL LAYOUT PLAN C
SCALE 1:200

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BEATY BIODIVERSITY CENTRE, UBC

2212 MAIN MALL,
VANCOUVER, BC

DRAWING TITLE

LAYOUT PLAN

NORTH

SCALE 1:200

PROJECT NO.	18081	
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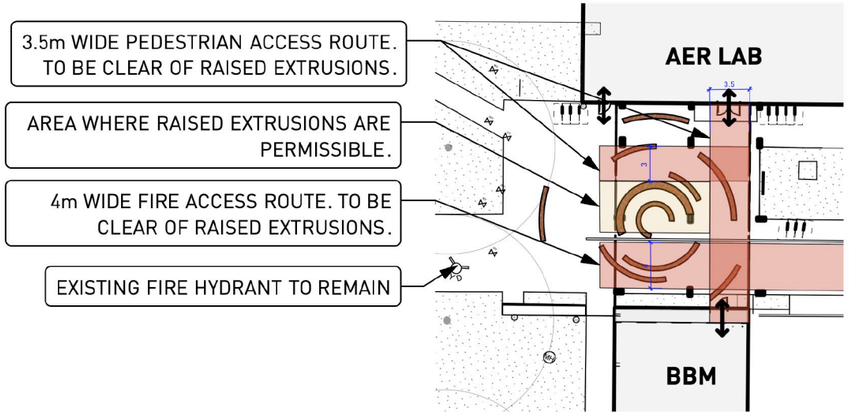
PLOTTED	2019-05-10	
DRAWN	SM/KM	REVIEWED

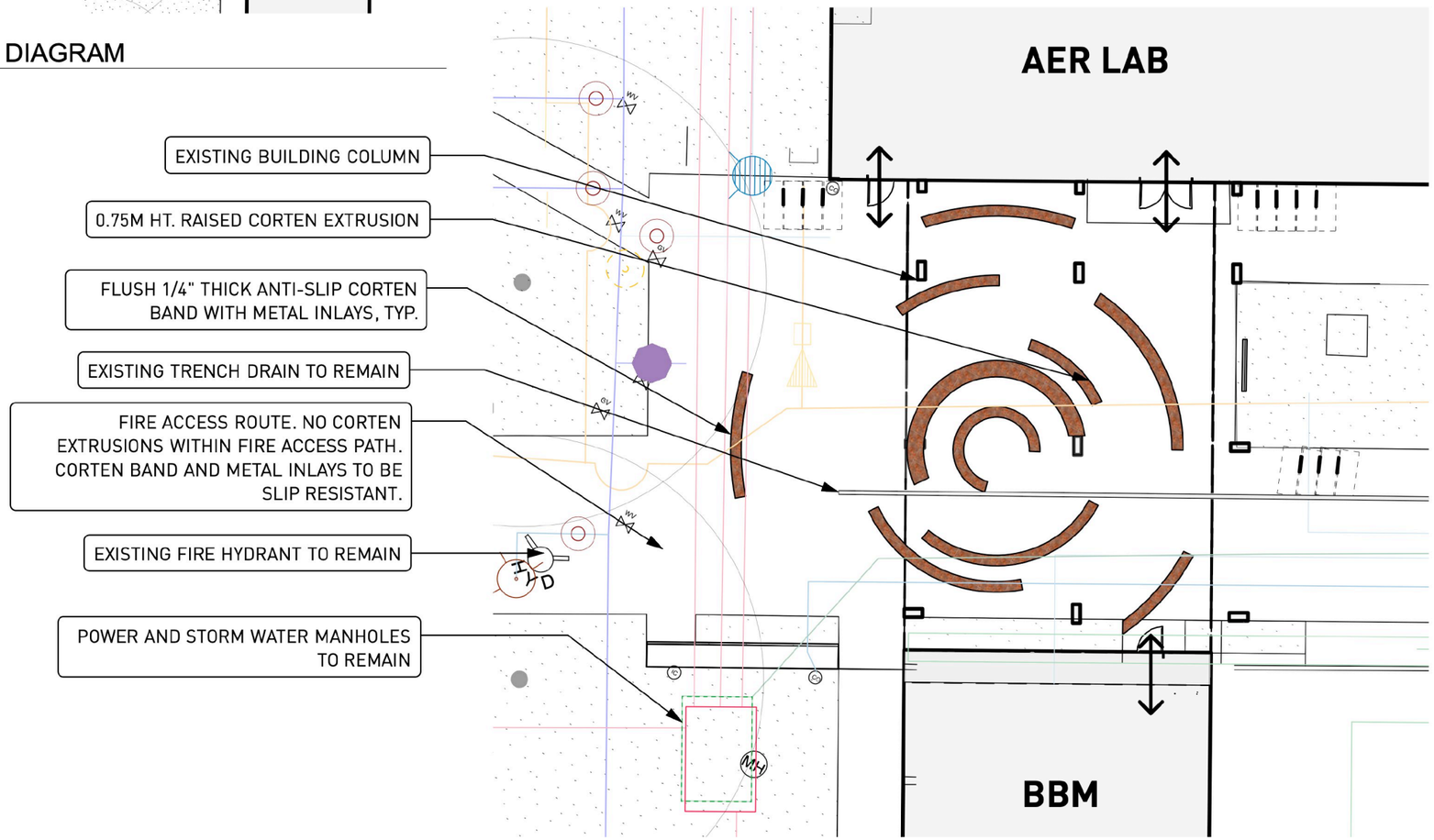
DRAWING

L1_02



1 RIPPLE FIRE ROUTE DIAGRAM
SCALE 1:500

NOTE:
The design development of The Ripple is still ongoing, in close collaboration with Beaty's working group. The current plan shows the Design Intent, materiality and form. Exact locations and content on bands are still to be determined.



2 RIPPLE DETAIL LAYOUT PLAN D
SCALE 1:200

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DRAWING TITLE

LAYOUT PLAN

NORTH

SCALE **1:200**

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DRAWN	SM/KM REVIEWED

DRAWING

L1_03

LIGHTING LEGEND

DRAWINGS HAS BEEN DEVELOPED FOR REFERENCE TO FACILITATE COORDINATION BETWEEN CONTRACTORS.

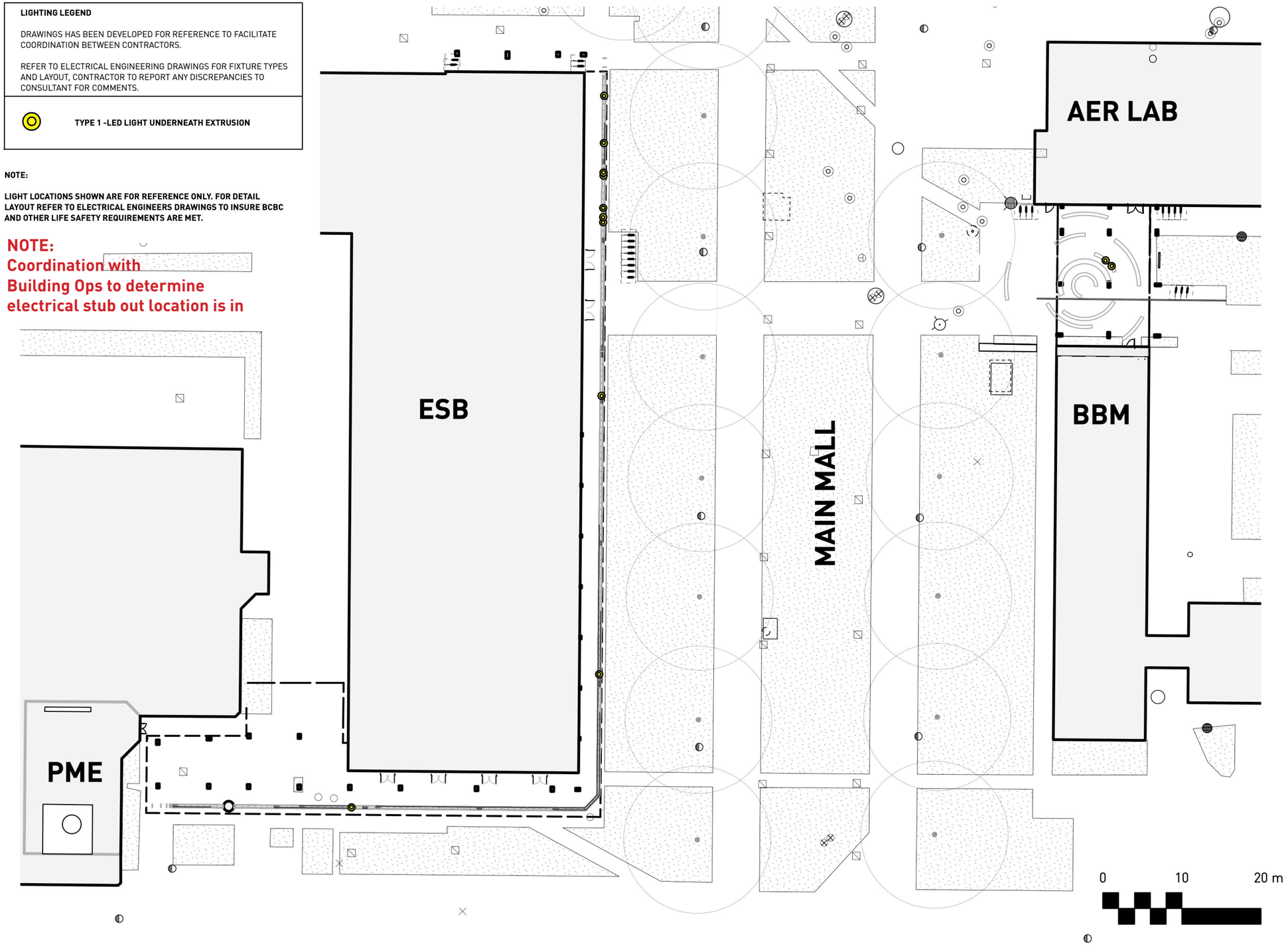
REFER TO ELECTRICAL ENGINEERING DRAWINGS FOR FIXTURE TYPES AND LAYOUT, CONTRACTOR TO REPORT ANY DISCREPANCIES TO CONSULTANT FOR COMMENTS.

TYPE 1 -LED LIGHT UNDERNEATH EXTRUSION

NOTE:

LIGHT LOCATIONS SHOWN ARE FOR REFERENCE ONLY. FOR DETAIL LAYOUT REFER TO ELECTRICAL ENGINEERS DRAWINGS TO INSURE BCBC AND OTHER LIFE SAFETY REQUIREMENTS ARE MET.

NOTE:
Coordination with Building Ops to determine electrical stub out location is in



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DRAWING TITLE

LIGHTING PLAN

NORTH

SCALE **1:500**

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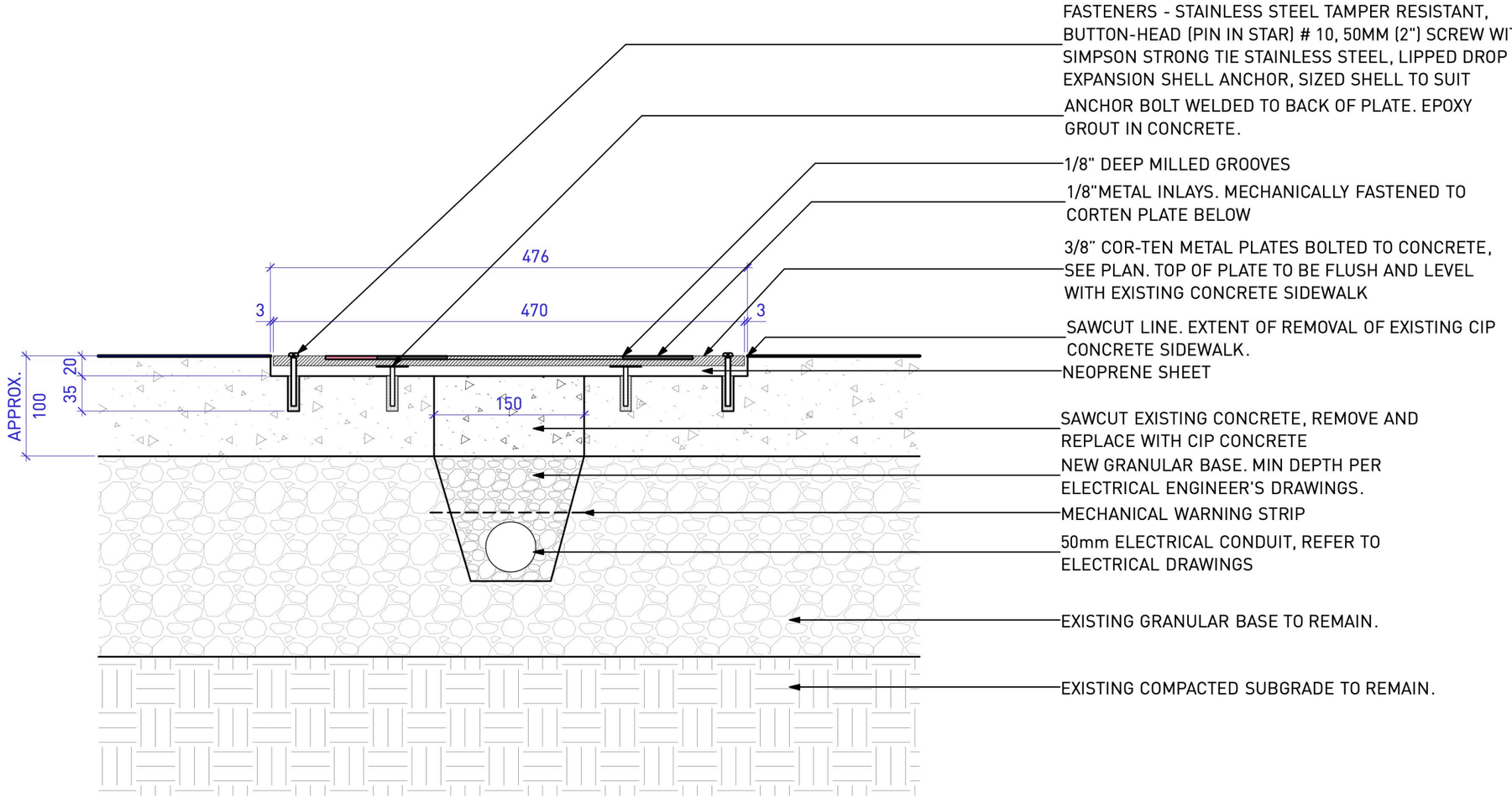
PLOTTED	**2019-05-10**	
DRAWN	**SM/KM**	REVIEWED

DRAWING

L2_01



1 CORTEN BAND DETAIL - PRELIMINARY
SCALE 1:5

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REVISIONS AND ISSUES

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ADDRESS

BEATY BIODIVERSITY CENTRE, UBC

2212 MAIN MALL,
VANCOUVER, BC

DRAWING TITLE

DETAILS

NORTH

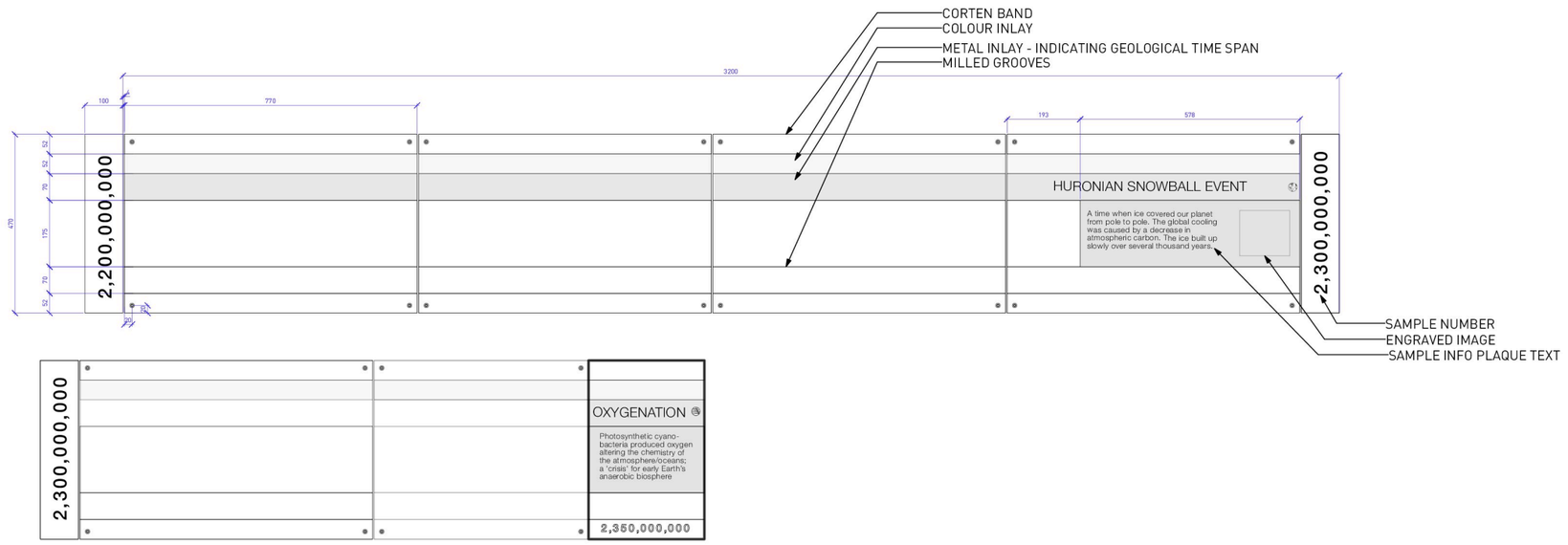
SCALE

AS SHOWN

PROJECT NO.	**18081**		
DATE	**2019-05-10**		
FILE NAME	**18081 PLAN.vwx**		
PLOTTED	**2019-05-10**		
DRAWN	**SM/KM**	REVIEWED	

DRAWING

L3_01



1 CORTEN BAND LAYOUT PLAN - PRELIMINARY
SCALE 1:15

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DRAWING TITLE

DETAILS

NORTH

SCALE **AS SHOWN**

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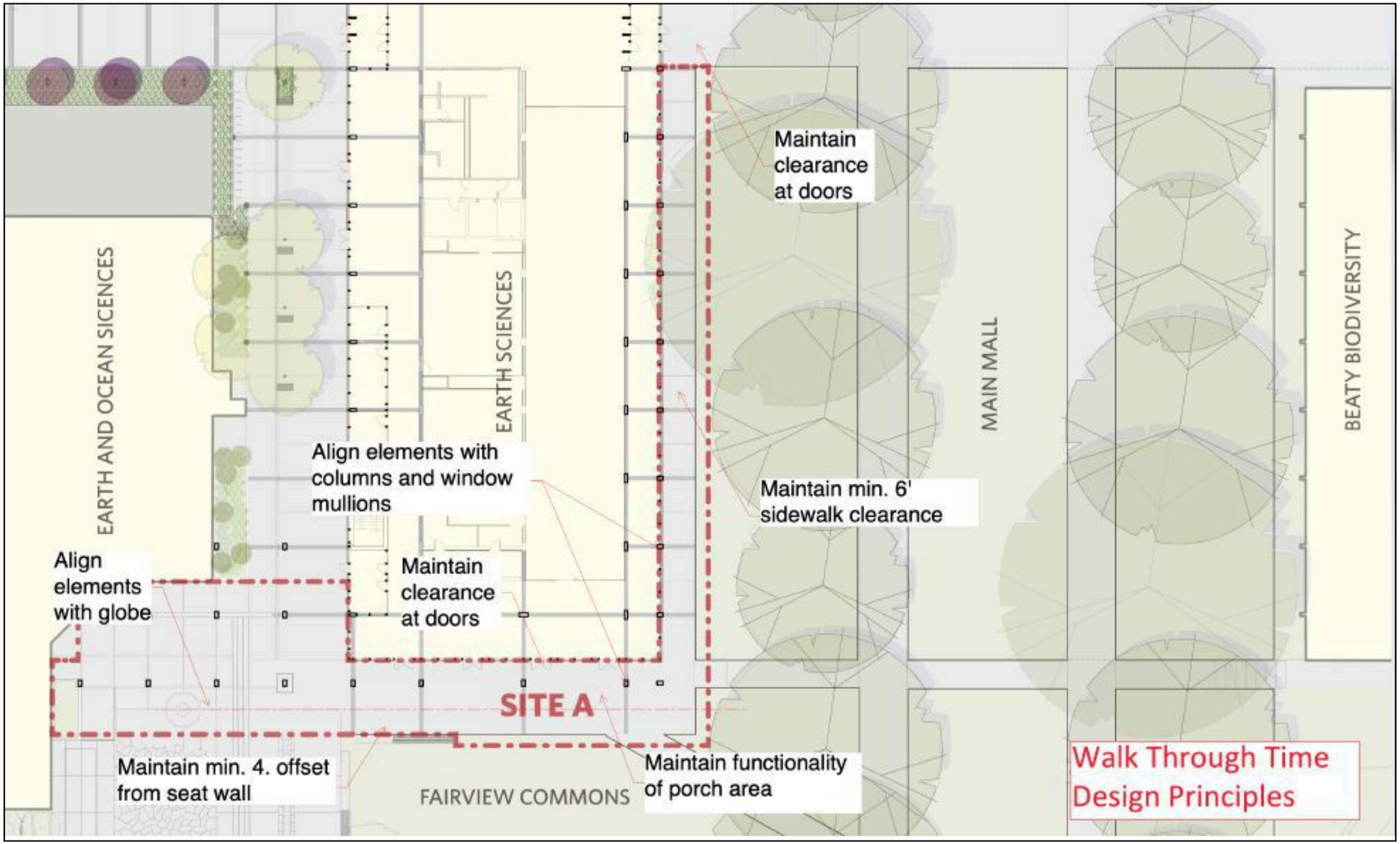
DRAWING

L3_02

WALK THROUGH TIME

GUIDELINES FROM UBC CAMPUS + COMMUNITY PLANNING



WALK THROUGH TIME GOALS

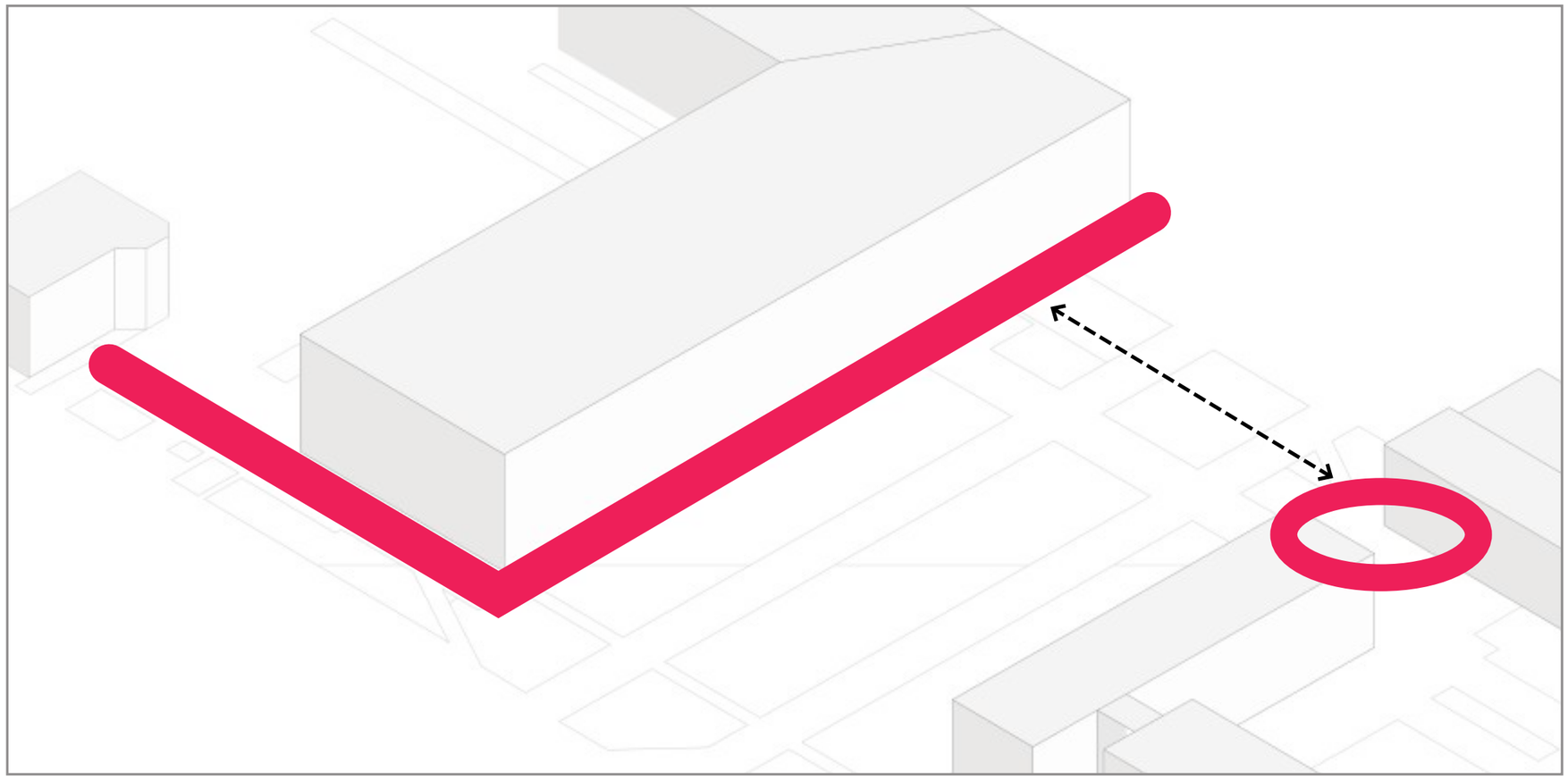
1. **Expose visitors and students to the awe-inspiring scale of geological and biological deep time;**

2. **Showcase emerging biodiversity, the explosion of life and evolving geology of Earth using conceptually consistent features** near the Earth Sciences Building and the Beaty Biodiversity Museum;

3. **Inspire further learning at the BBM and PME** to discover how Earth changes over time in terms of biodiversity and the landscapes & resources important to communities of British Columbia and Canada, and

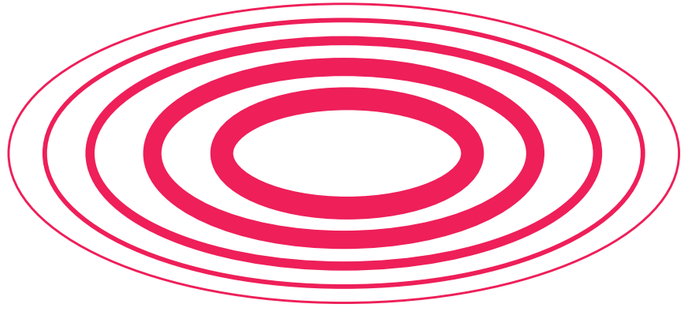
4. **Represent UBC's prominence in natural sciences education and research** with an outdoor exhibit that is visually striking, intellectually inspiring, and consistent with the elegance and permanence of existing spaces.

ONE EXHIBIT, TWO ELEMENTS



TIMELINE + PLAZA connected by material and form

THE RIBBON AND THE RIPPLE



THE TIMELINE (**THE RIBBON**)

A continuous element

Literal representation of time as linear

Has a beginning and end

A journey

THE PLAZA (**THE RIPPLE**)

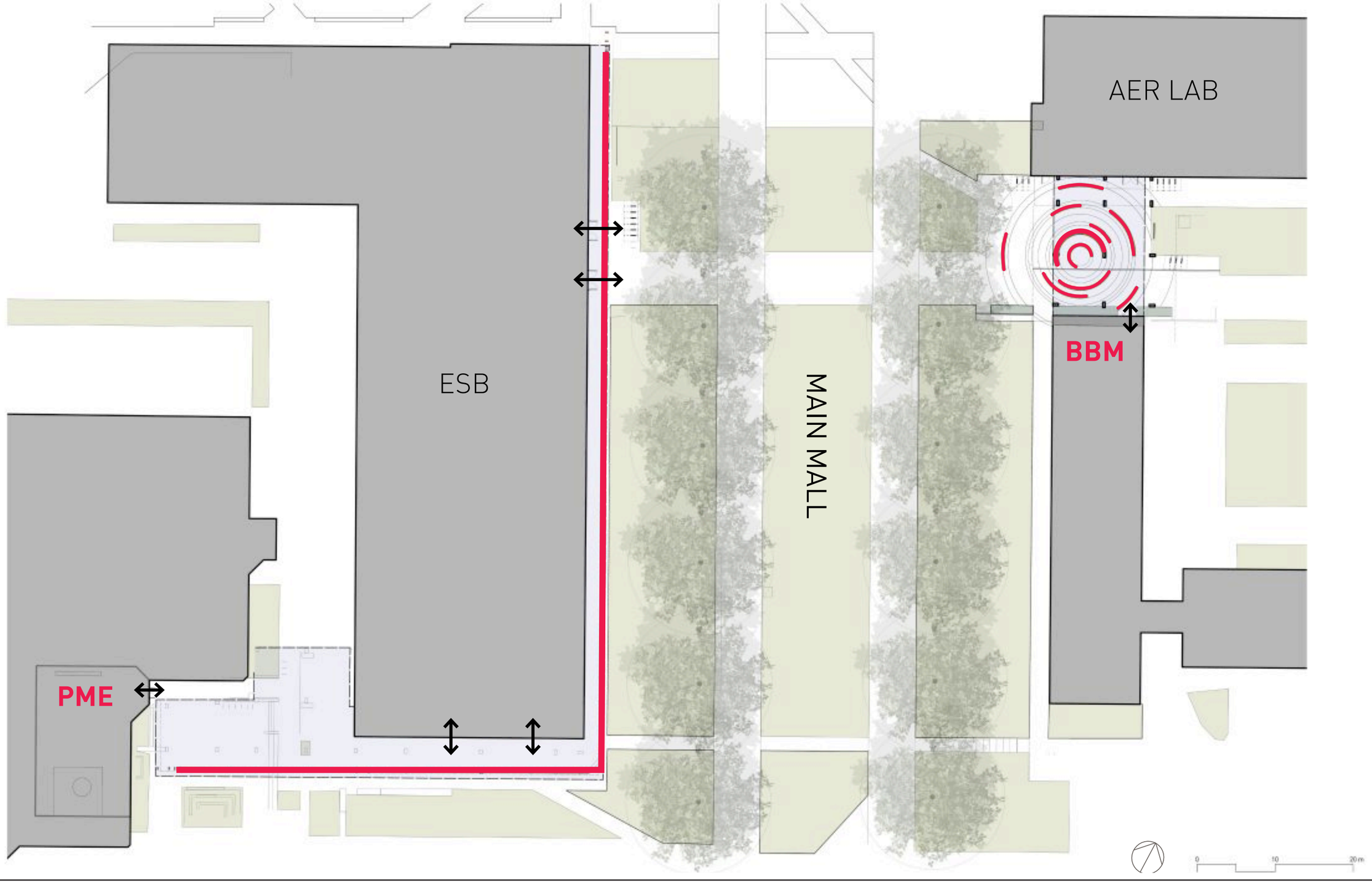
Multiple elements

Conceptual representation of life as cyclical

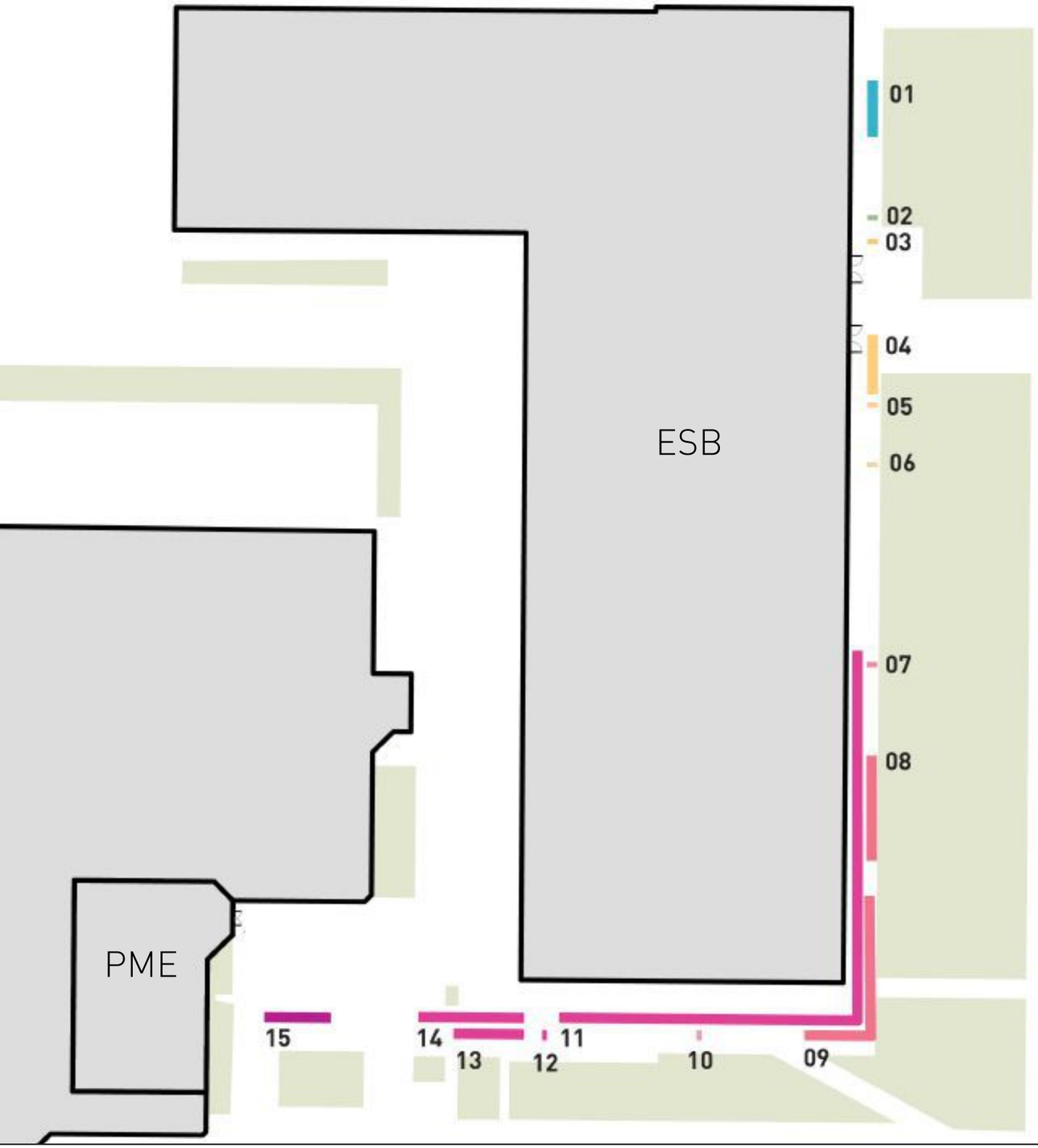
Potential to grow and expand

A place

THE RIBBON AND THE RIPPLE



THE RIBBON **GROUND-PLANE EVENTS (GEOLOGICAL)**



01 **SUPERCONTINENT PANGEA**
335 -175 MYA

02 **BURGESS SHALE**
508 MYA

03 **SNOWBALL EARTH**
645 - 635 MYA

04 **SUPERCONTINENT RODINIA**
1.07 - 0.9 BYA

05 **MID CONTINENT RIFT (NA)**
1.1 BYA

06 **MACKENZIE MAGMA INTRUSIONS**
1.27 BYA

07 **SUDBURY IMPACT**
1.85 BYA

08 **HURONIAN SNOWBALL EARTH**
2.4 - 2.1 BYA

09 **CANADA'S SLAVE & SUPERIOR PROVINCES**
3 - 2.5 BYA

10 **EMERGENCE OF PLATE TECTONICS**
3 BYA

11 **BANDED IRON FORMATIONS**

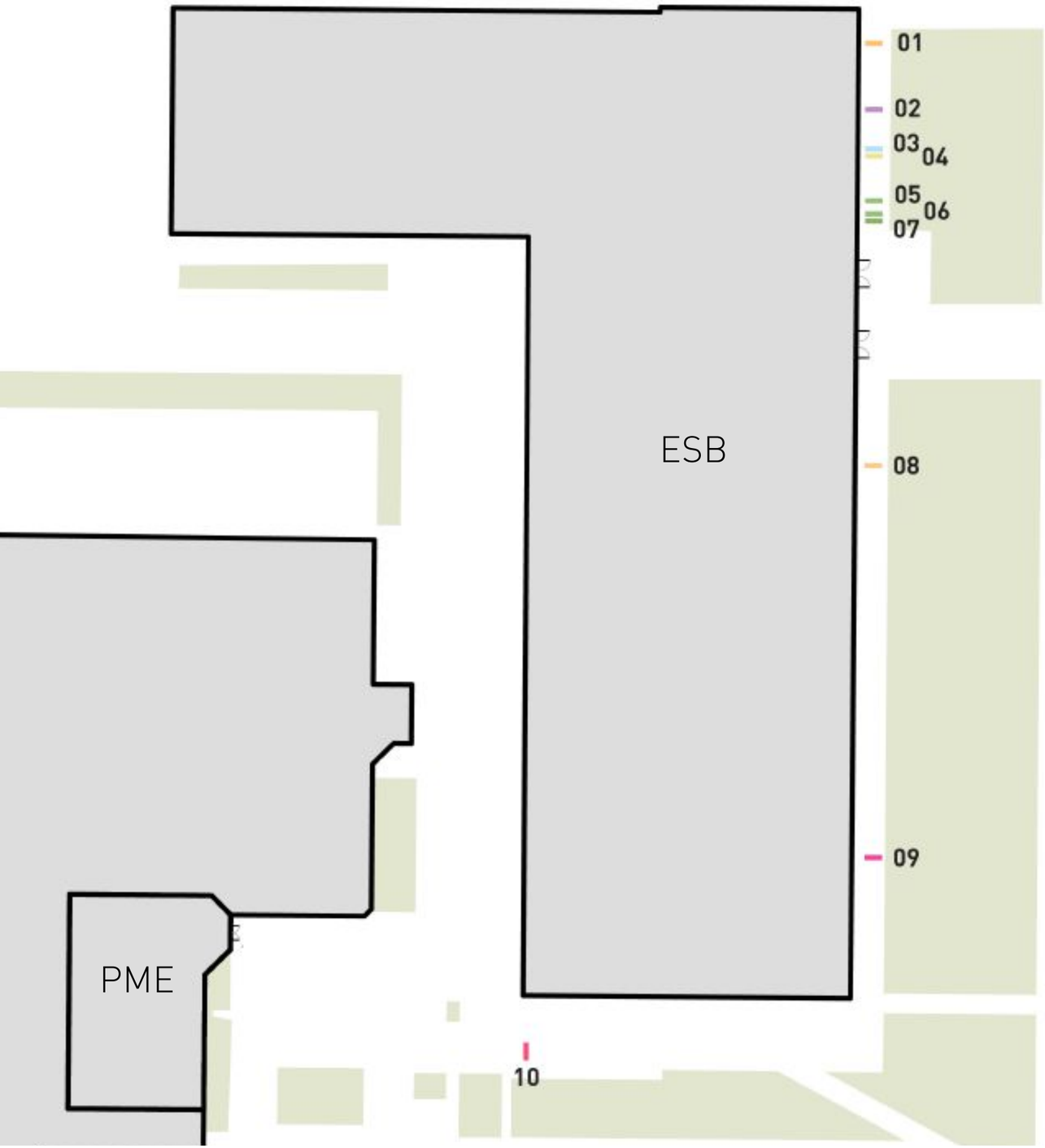
12 **ISSUA GREENSTONE BELT**
3.8 - 3.7 BYA

13 **ACASTA GNEISS**
3.9 BYA

14 **LATE HEAVY BOMBARDMENT**
4.1 - 3.8 BYA

15 **FORMATION OF EARTH AND MOON**
4.54 - 4.35 BYA

THE RIBBON **VERTICAL EVENTS (BIOLOGICAL)**



01 **CRETACEOUS-PALEOGENE EXTINCTION**
66 MYA

02 **TRIASSIC-JURASSIC EXTINCTION**
201 MYA

03 **PERMO-TRIASSIC EXTINCTION**
252 MYA

04 **FIRST FORESTS**
308 MYA

05 **BURGESS SHALE FOSSILS**
508 MYA

06 **CAMBRIAN EXPLOSION**
545 MYA

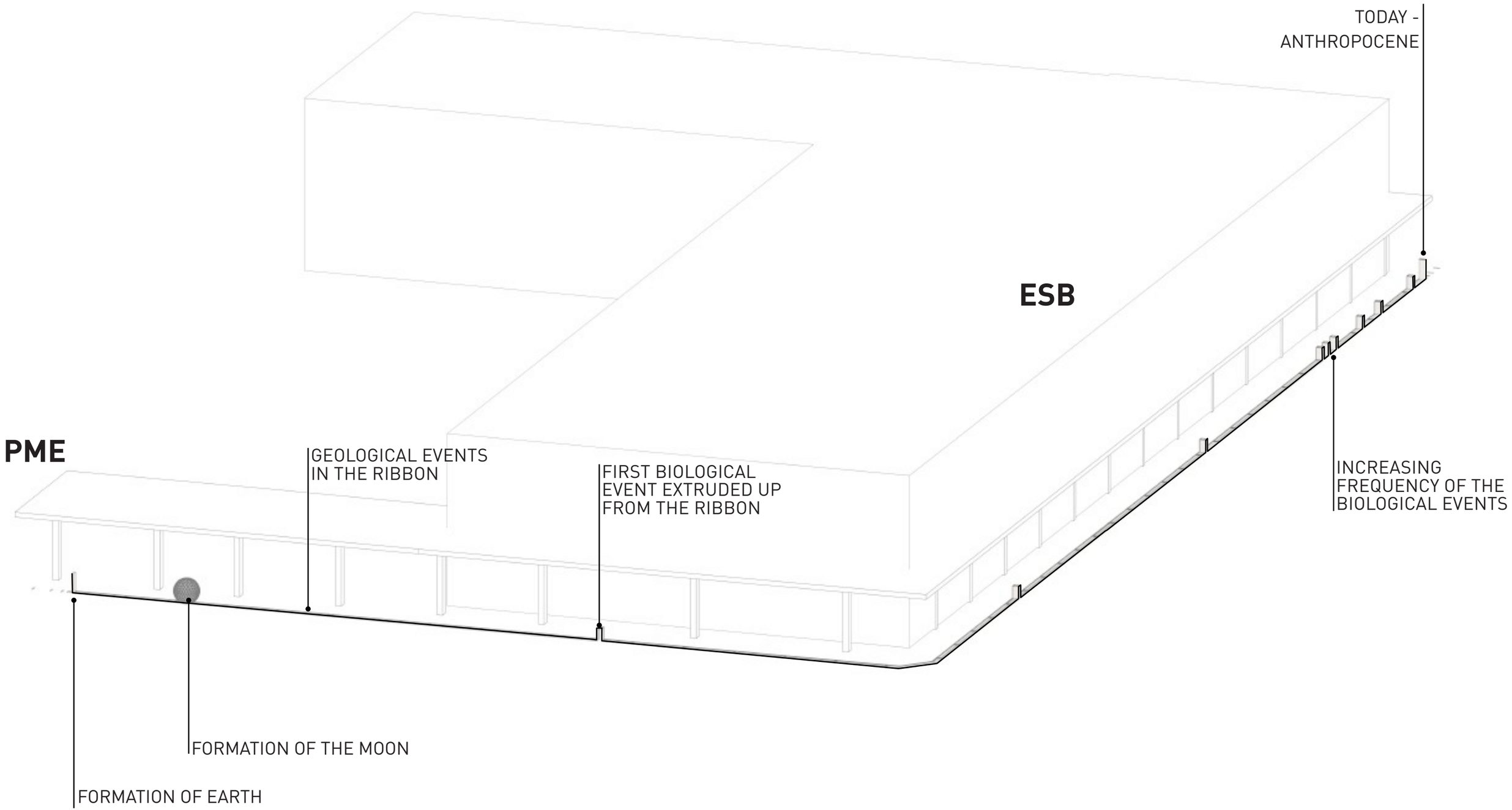
07 **MISTAKEN POINT FOSSILS**
565 MYA

08 **CHLOROPLASTS**
1.25 BYA

09 **OXYGENATION**
2.3-2.4 BYA

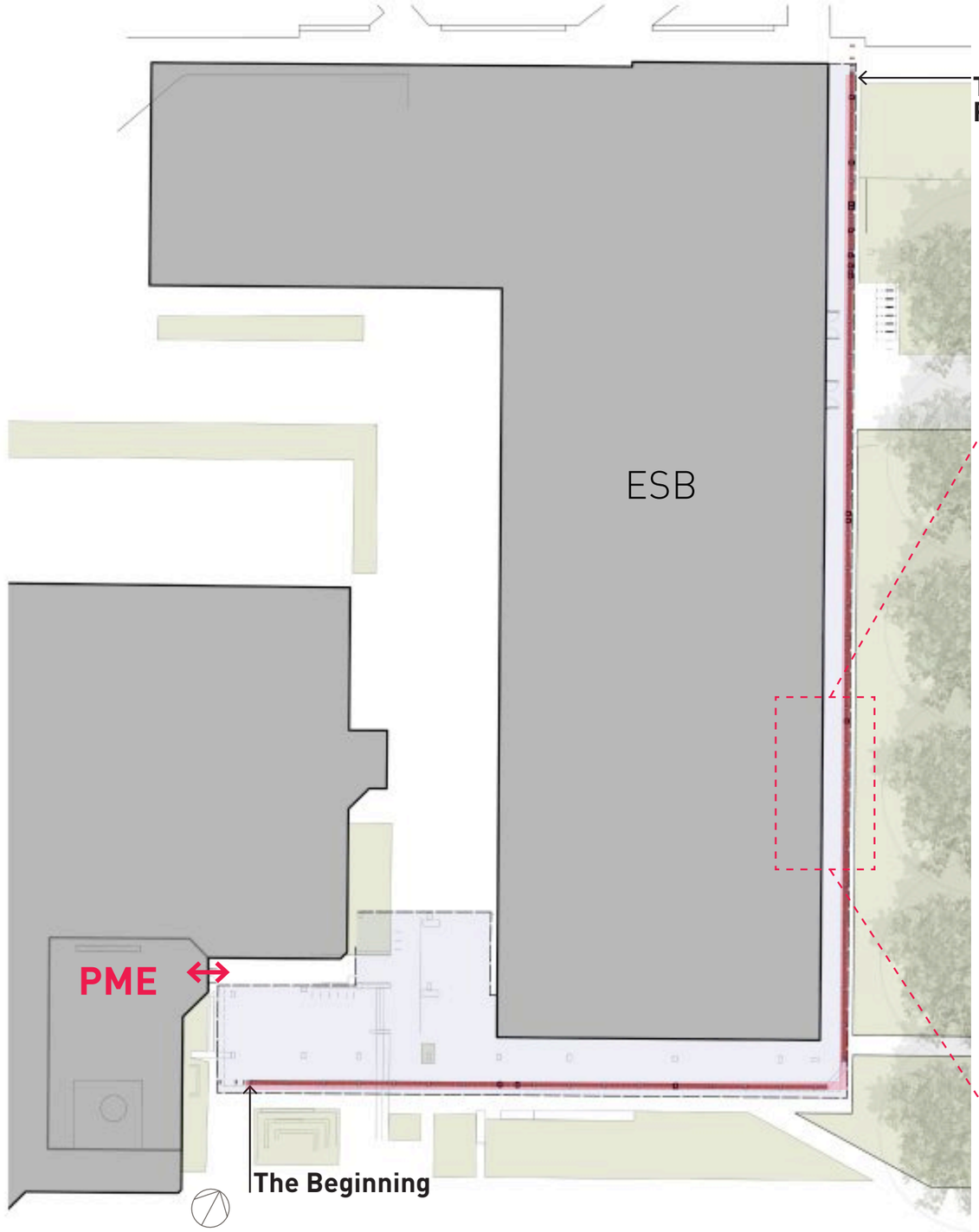
10 **FIRST MICROFOSSILS**
3.3 BYA

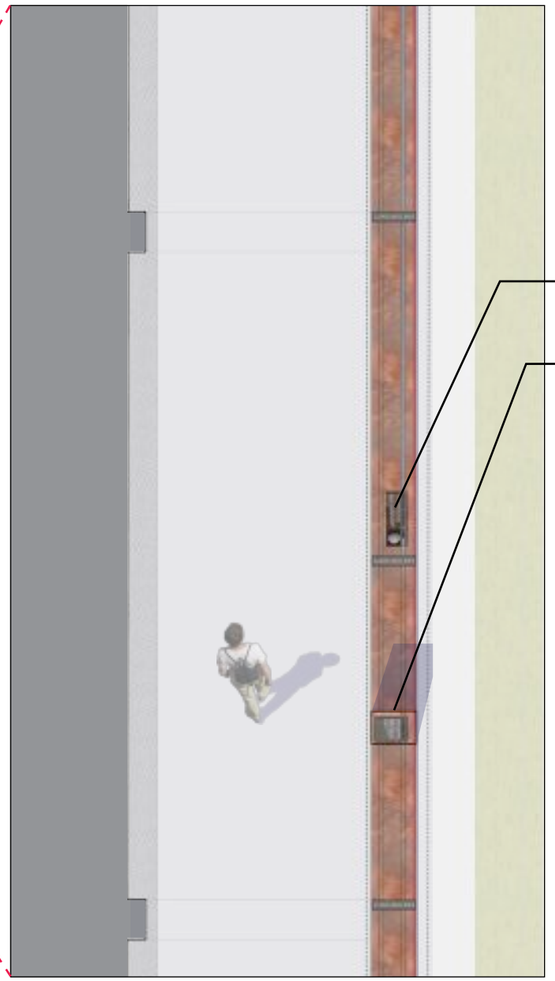
THE RIBBON **PUNCTUATED EQUILIBRIUM**



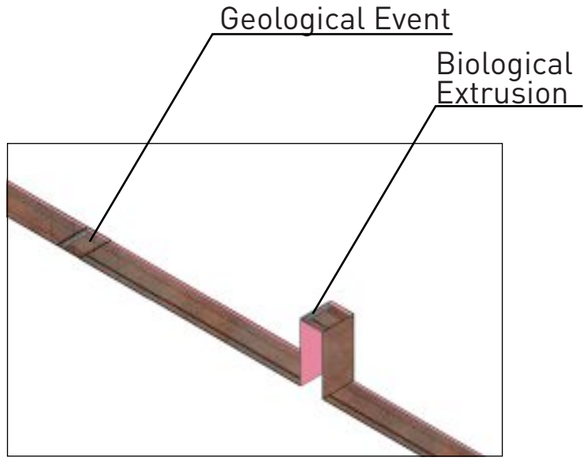
THE RIBBON **AN OVERVIEW**

- A 140 METER LONG "TIME-LINE" REPRESENTING 4.5 BILLION YEARS
- 3.2M = 100 MILLION YEARS
- INCLUDES GEOLOGICAL AND BIOLOGICAL EVENTS





Enlargement



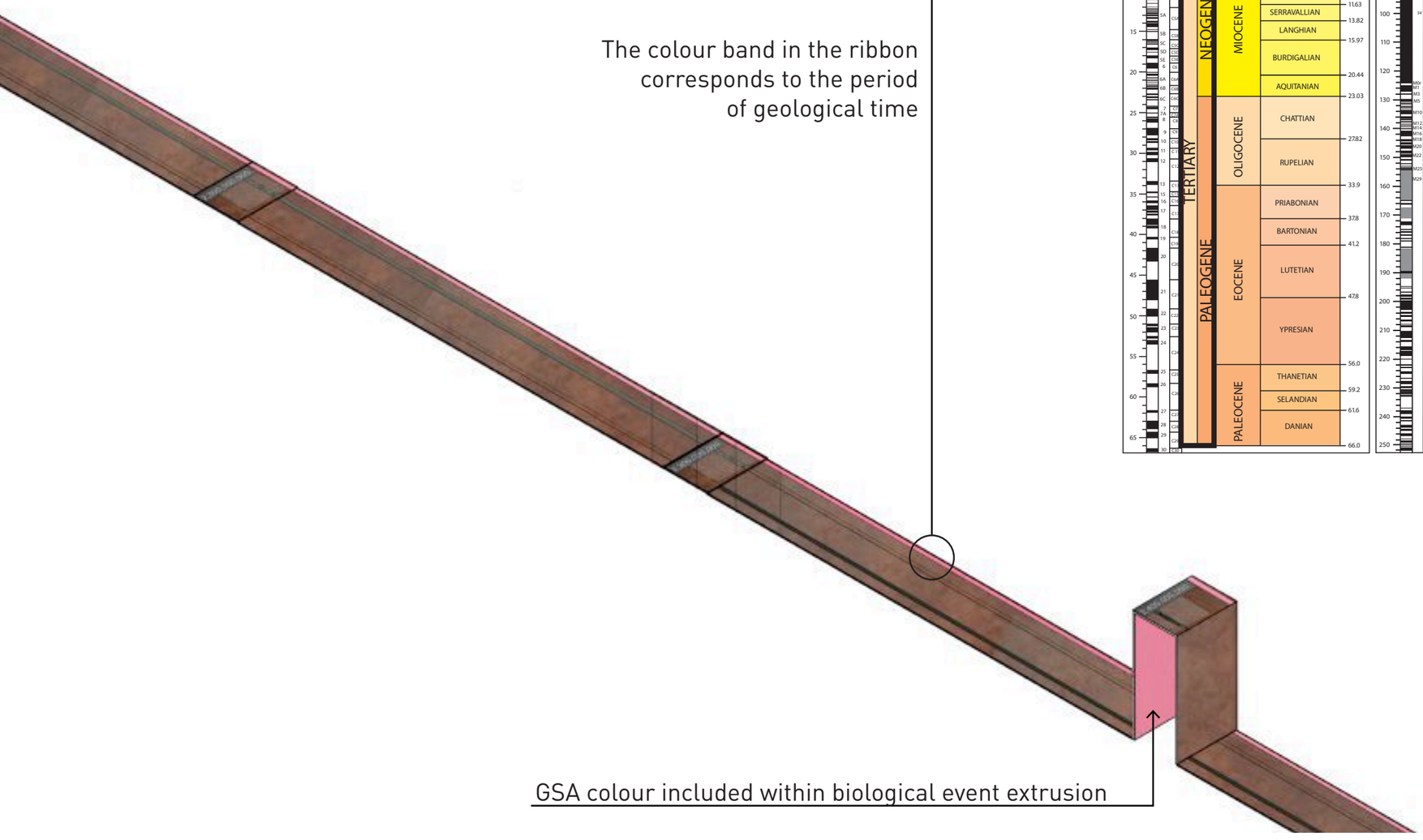
Axonometric View

THE RIBBON **COLOUR**

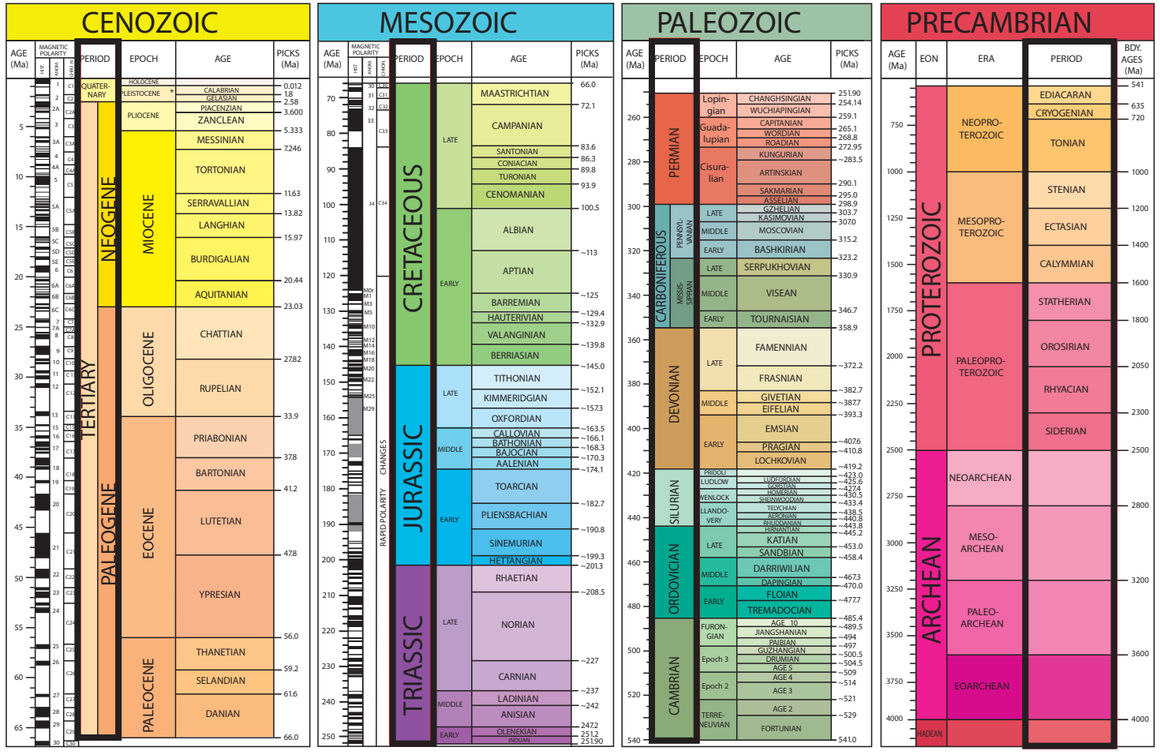
4,500,000,000 YA

PRESENT

The colour band in the ribbon corresponds to the period of geological time

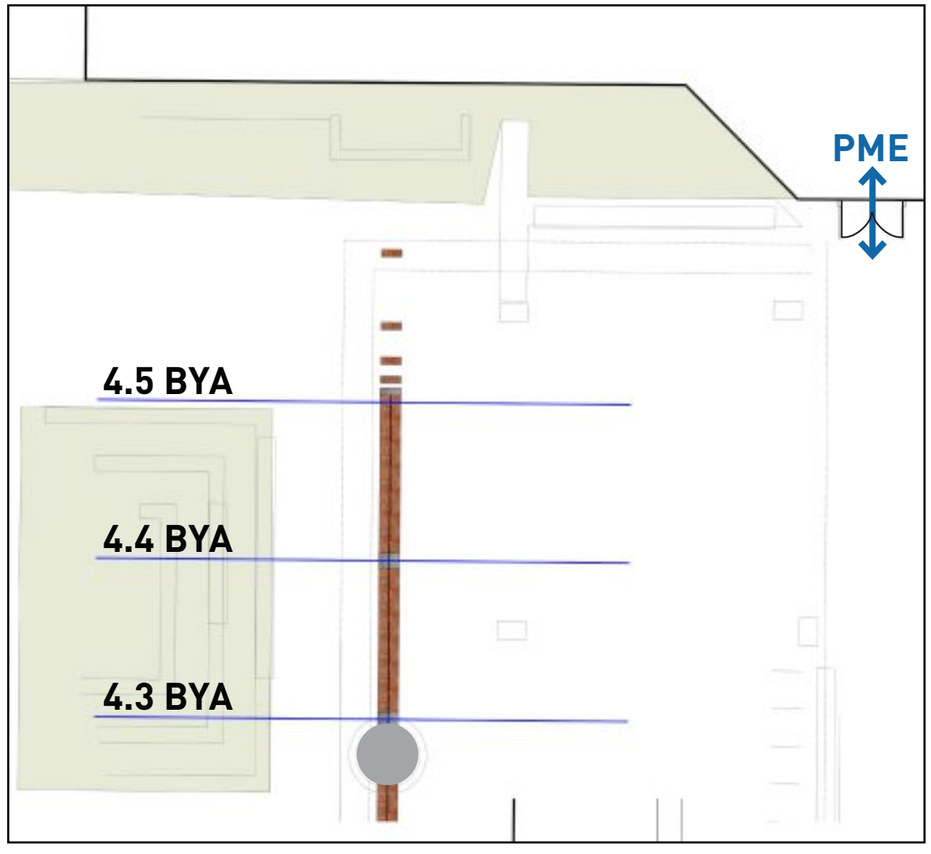


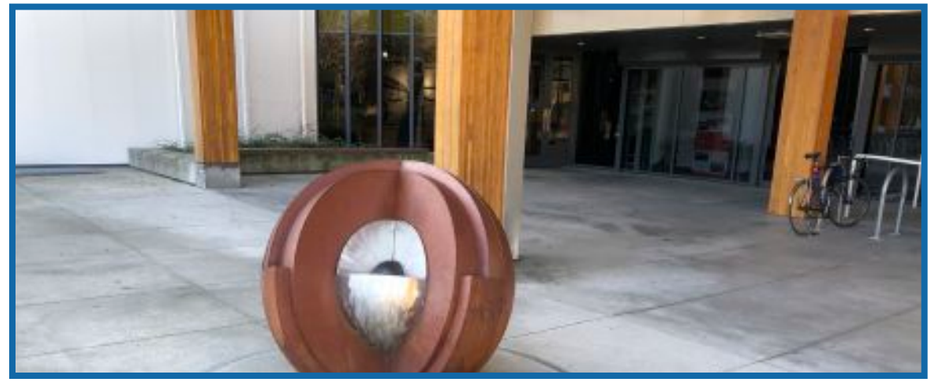
GSA GEOLOGIC TIME SCALE v. 5.0



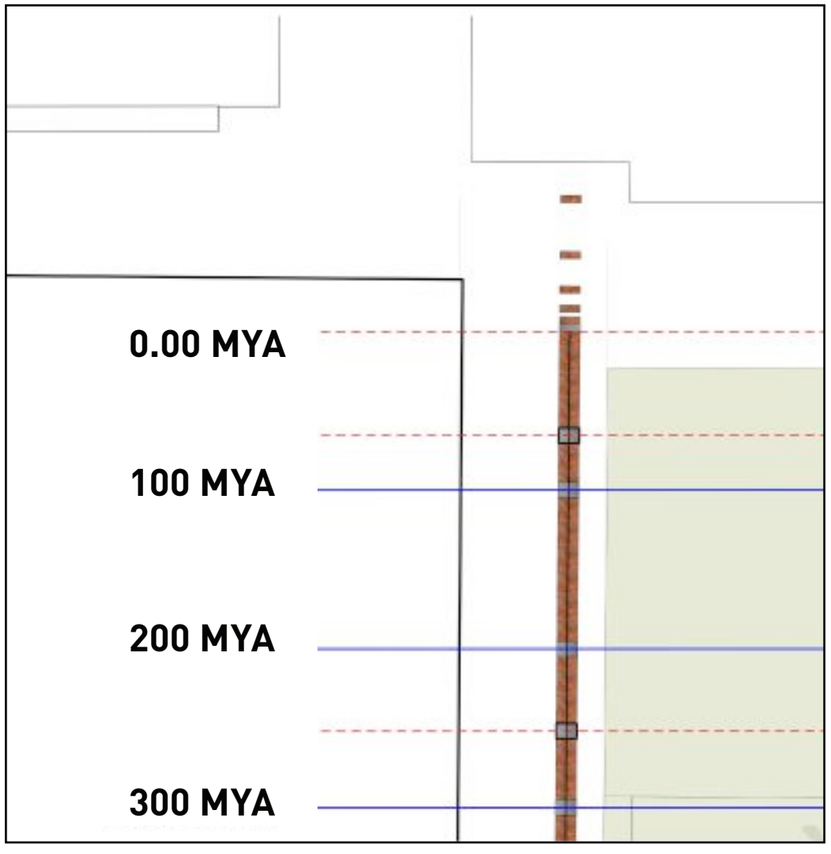
THE RIBBON **BEGINNINGS AND ENDS**

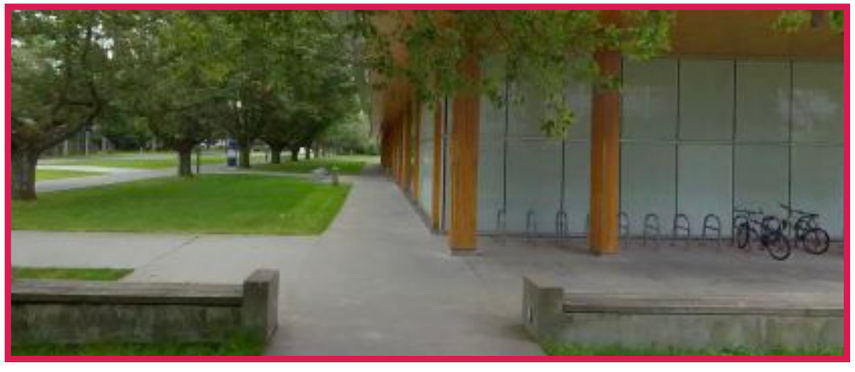
EARTH'S ORIGINS
("BEGINNING" OF RIBBON)

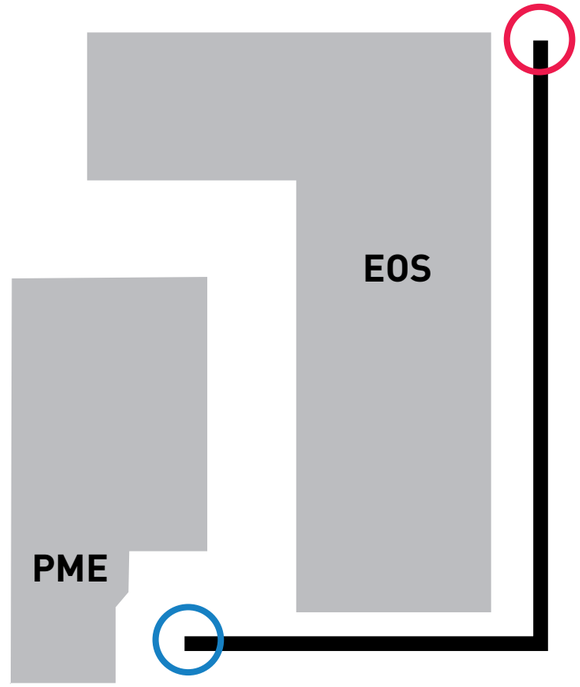




PRESENT DAY
("END" OF RIBBON)

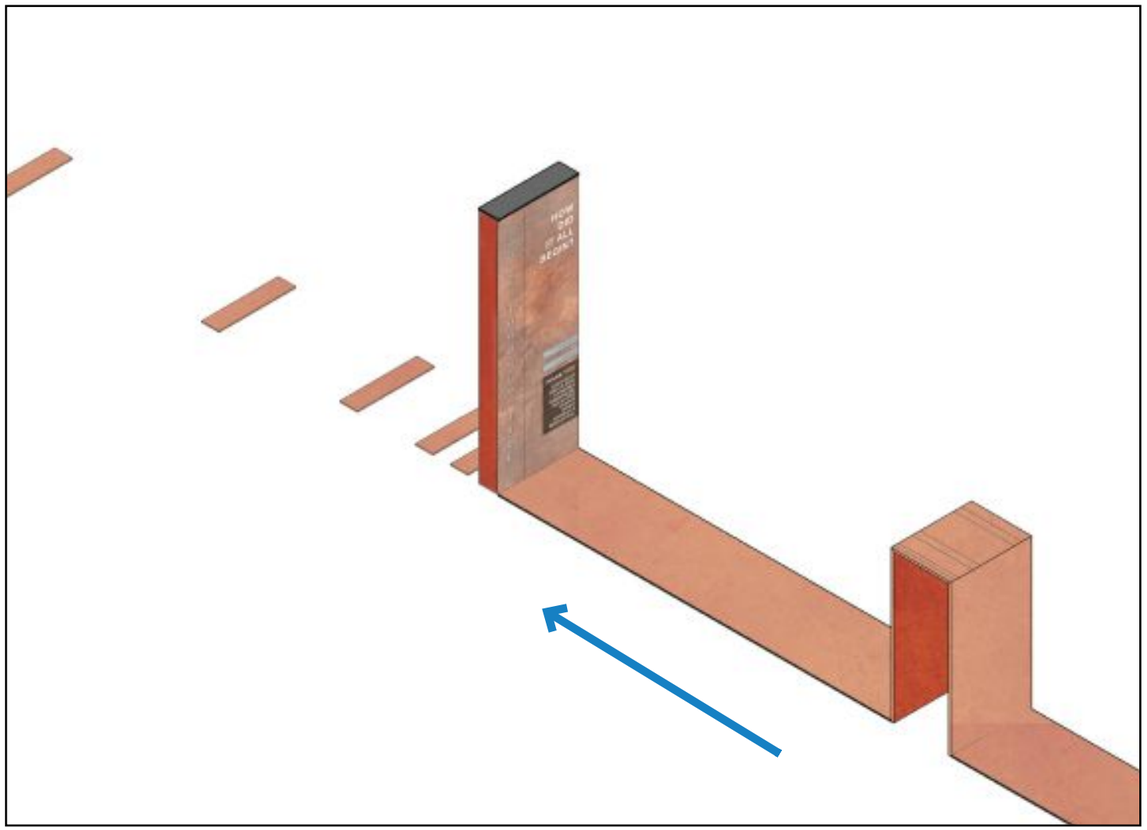


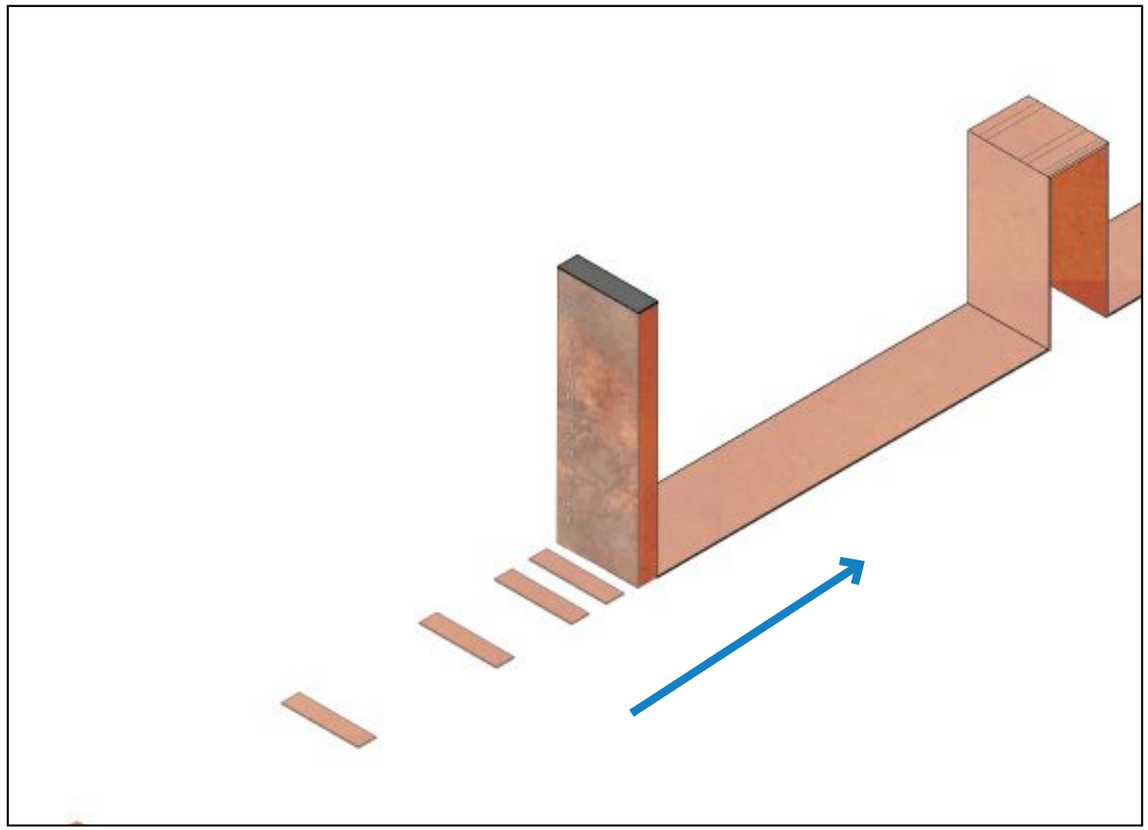




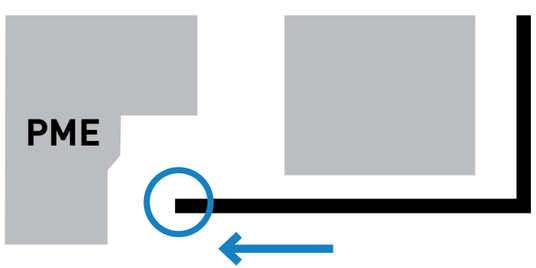
THE RIBBON **BEGINNINGS AND ENDS**

EARTH'S ORIGINS
("BEGINNING" OF RIBBON)

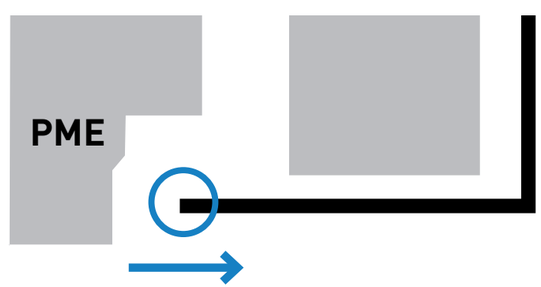




LOOKING WEST

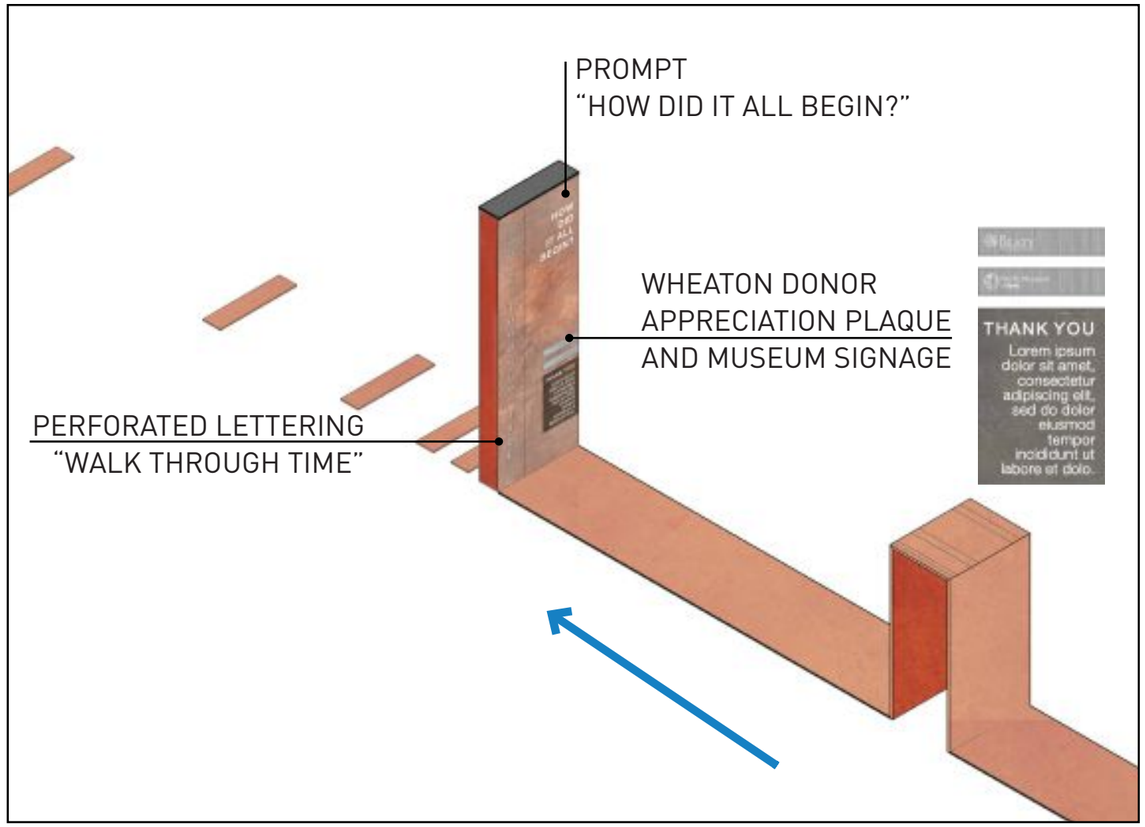


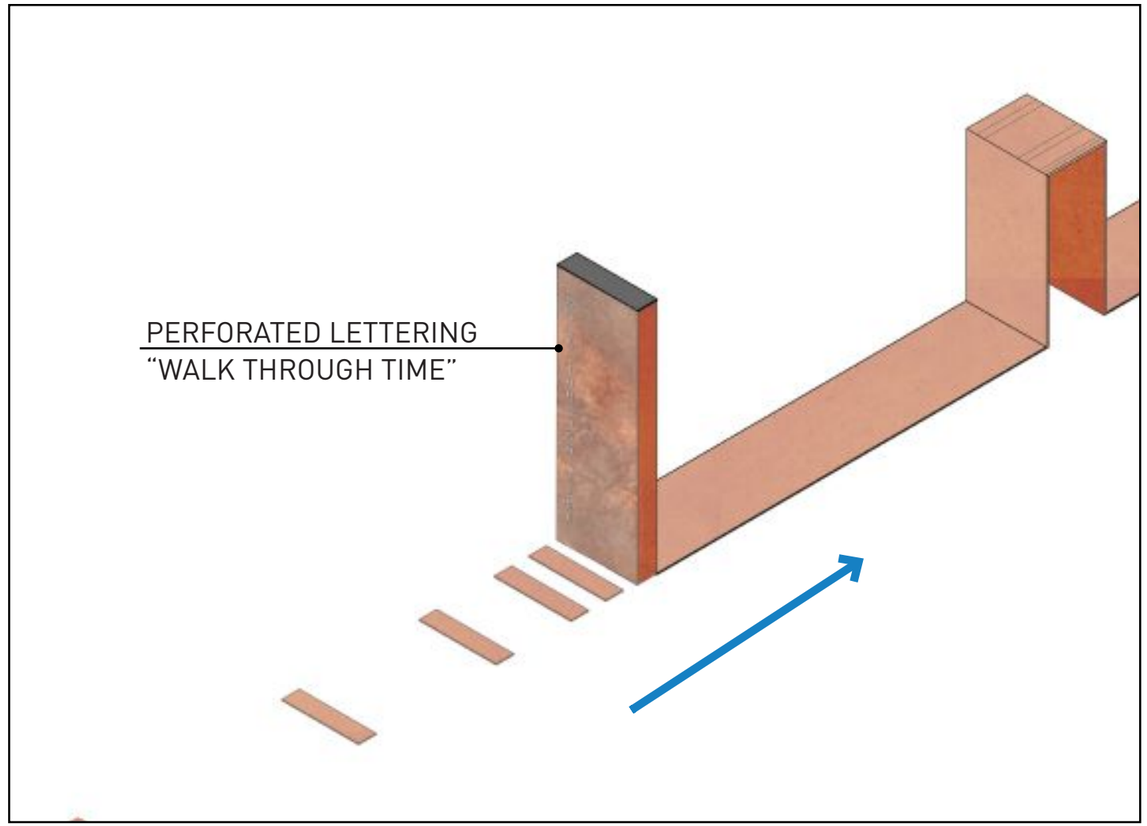
LOOKING EAST



THE RIBBON **BEGINNINGS AND ENDS**

EARTH'S ORIGINS
("BEGINNING" OF RIBBON)





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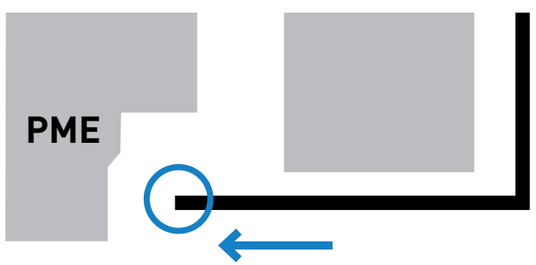

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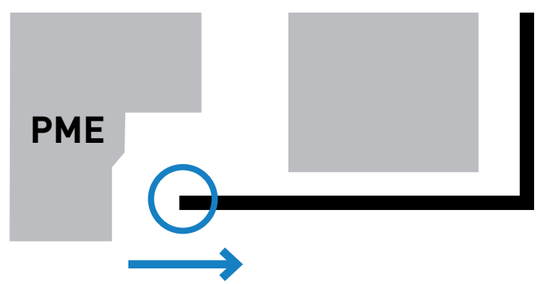
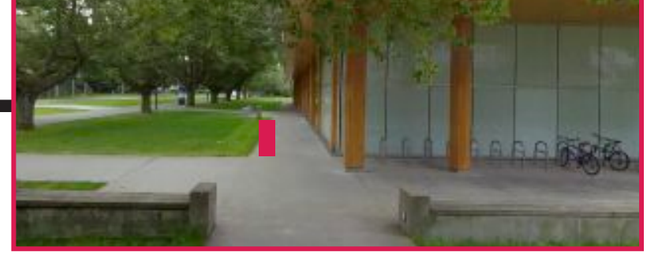
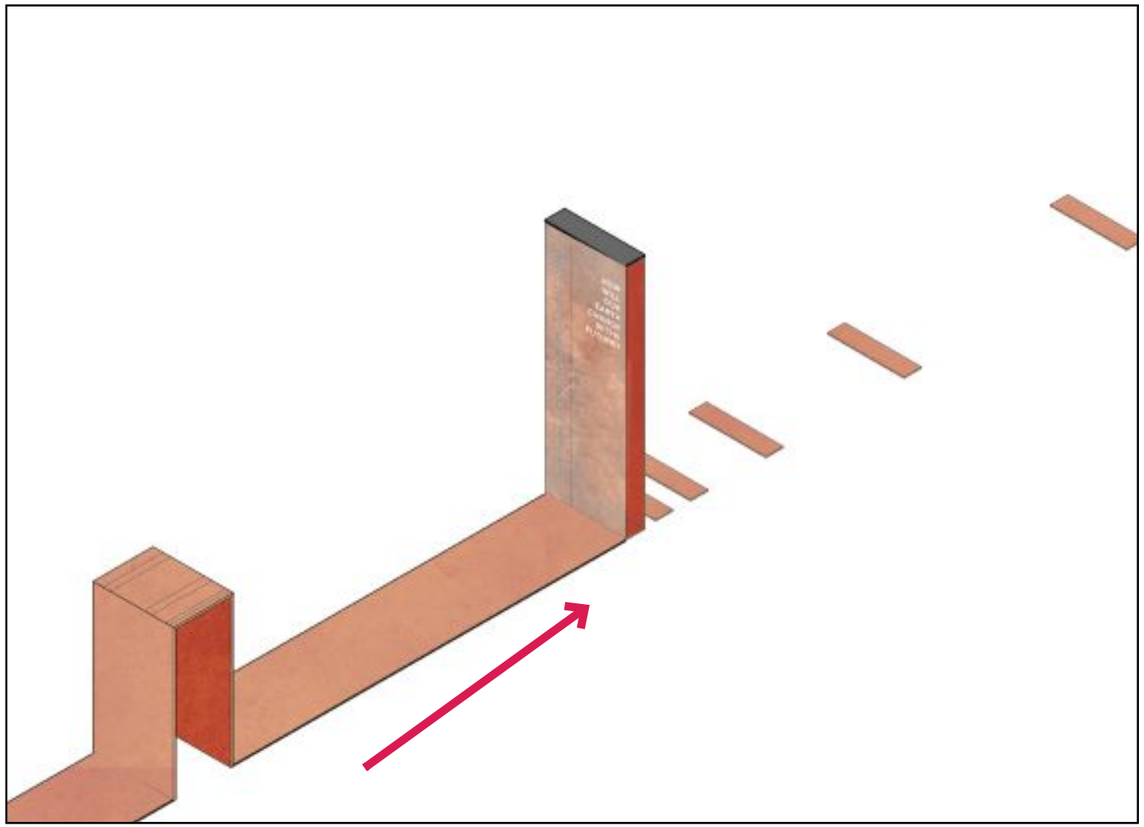
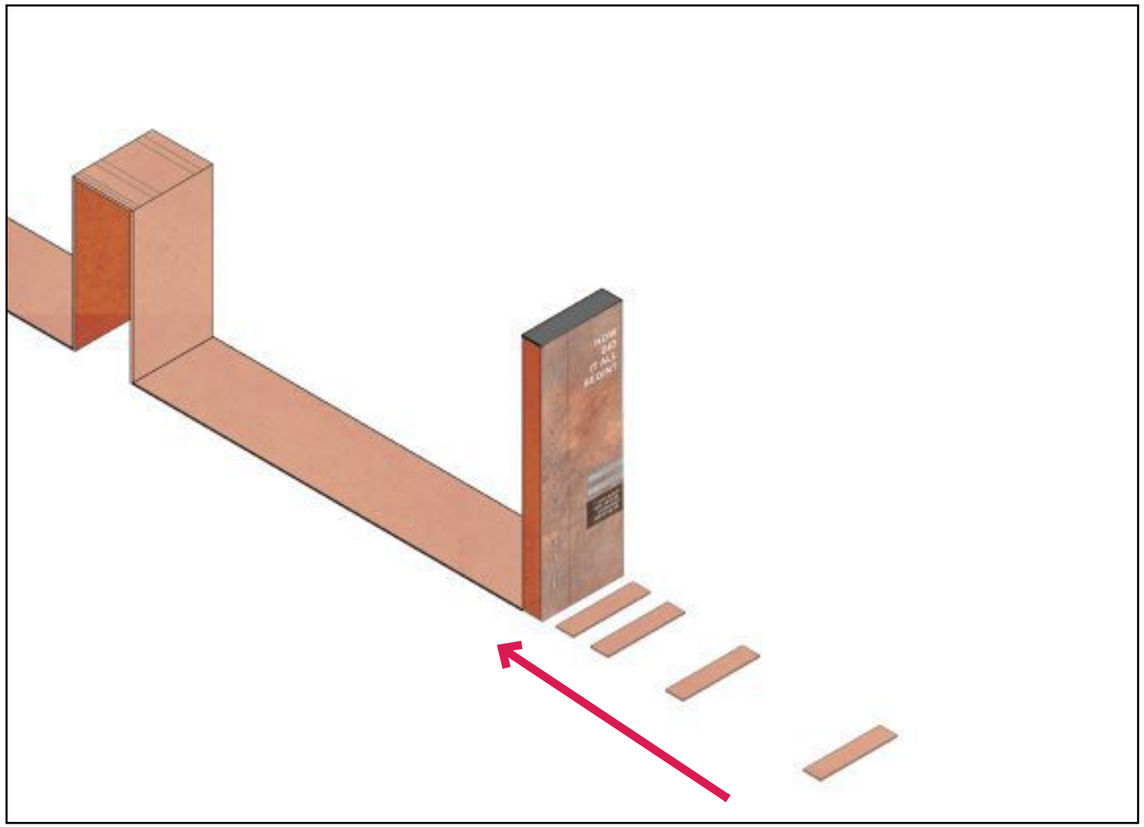


THE RIBBON **BEGINNINGS AND ENDS**



PRESENT DAY
("END" OF RIBBON)





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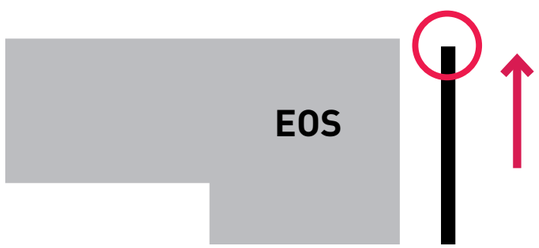

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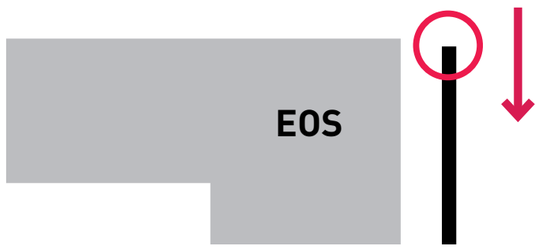
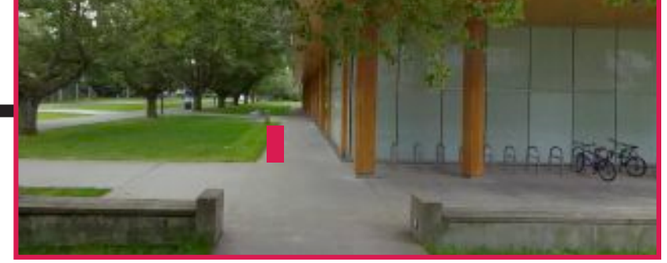
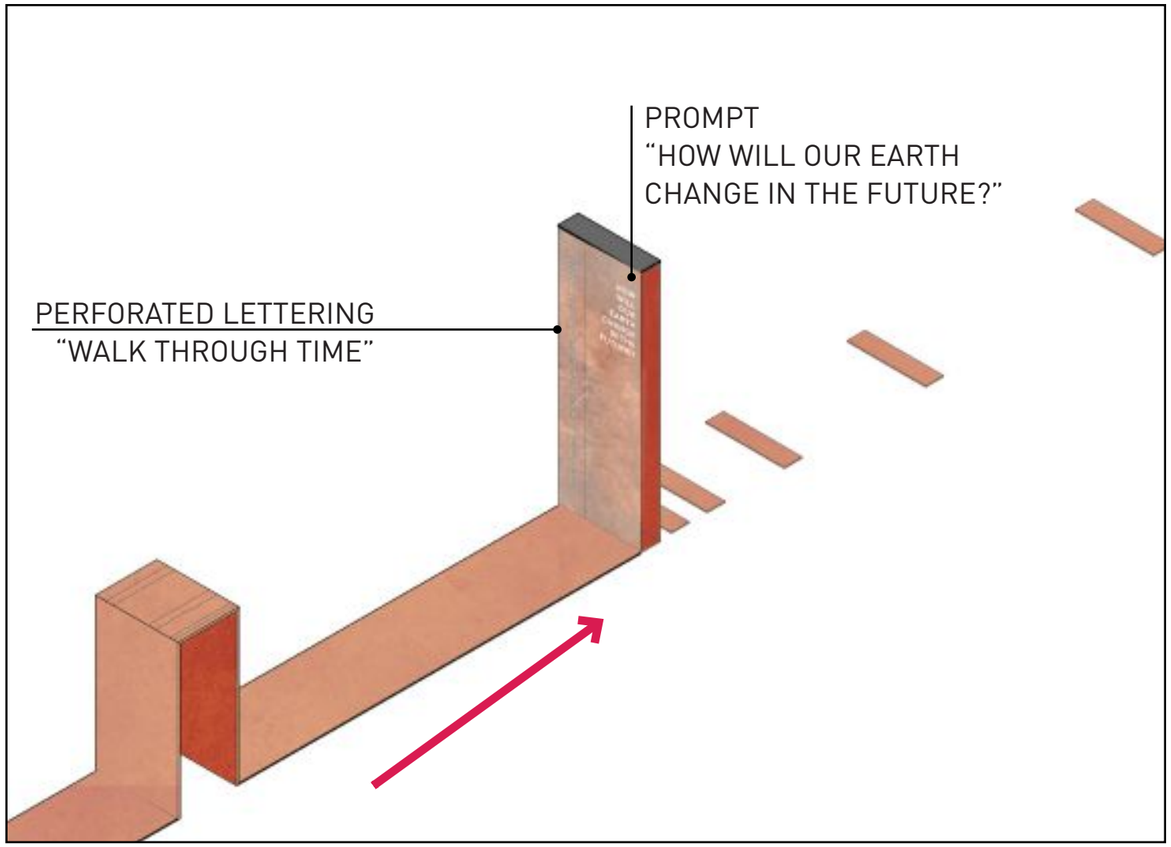
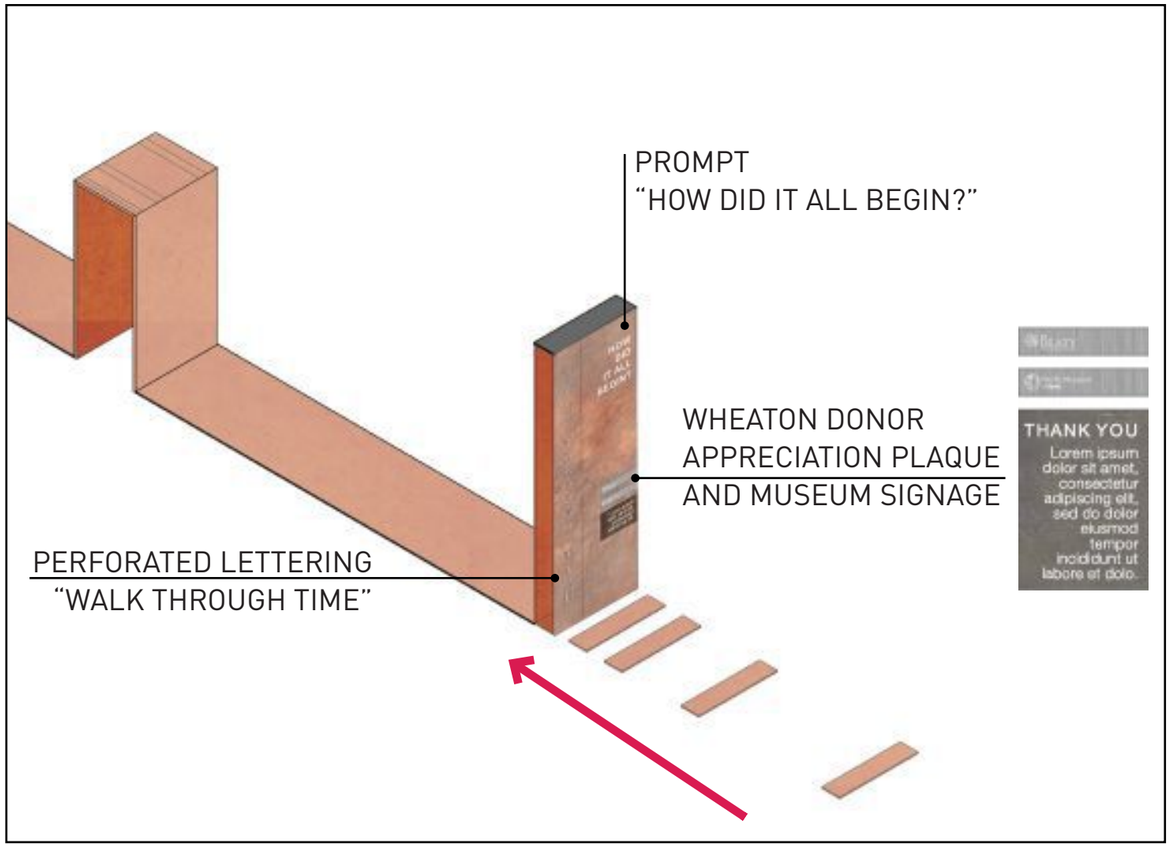


THE RIBBON **BEGINNINGS AND ENDS**



PRESENT DAY
("END" OF RIBBON)





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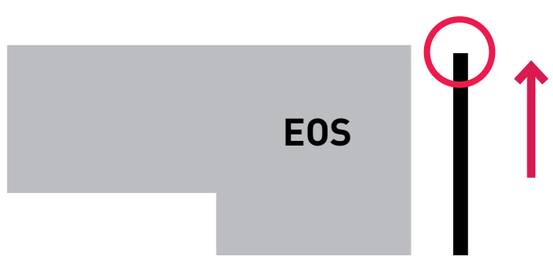

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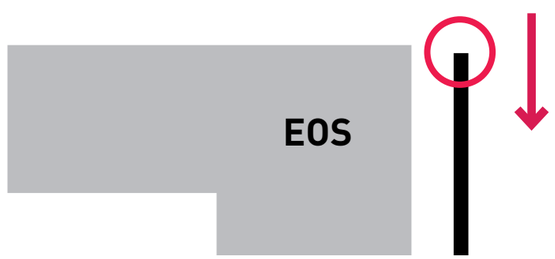
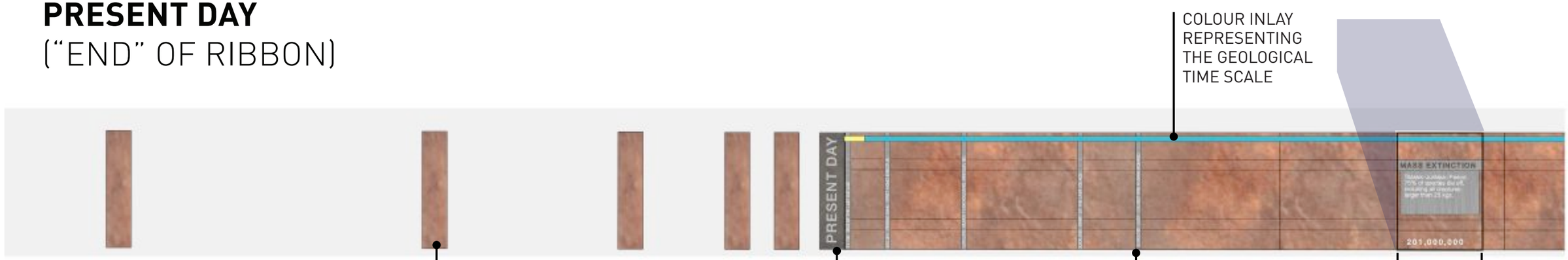


THE RIBBON **DETAILS**

PRESENT DAY
("END" OF RIBBON)



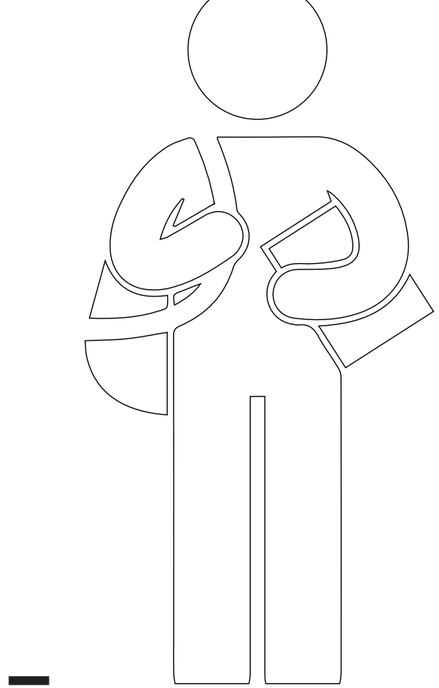
COLOUR INLAY REPRESENTING THE GEOLOGICAL TIME SCALE

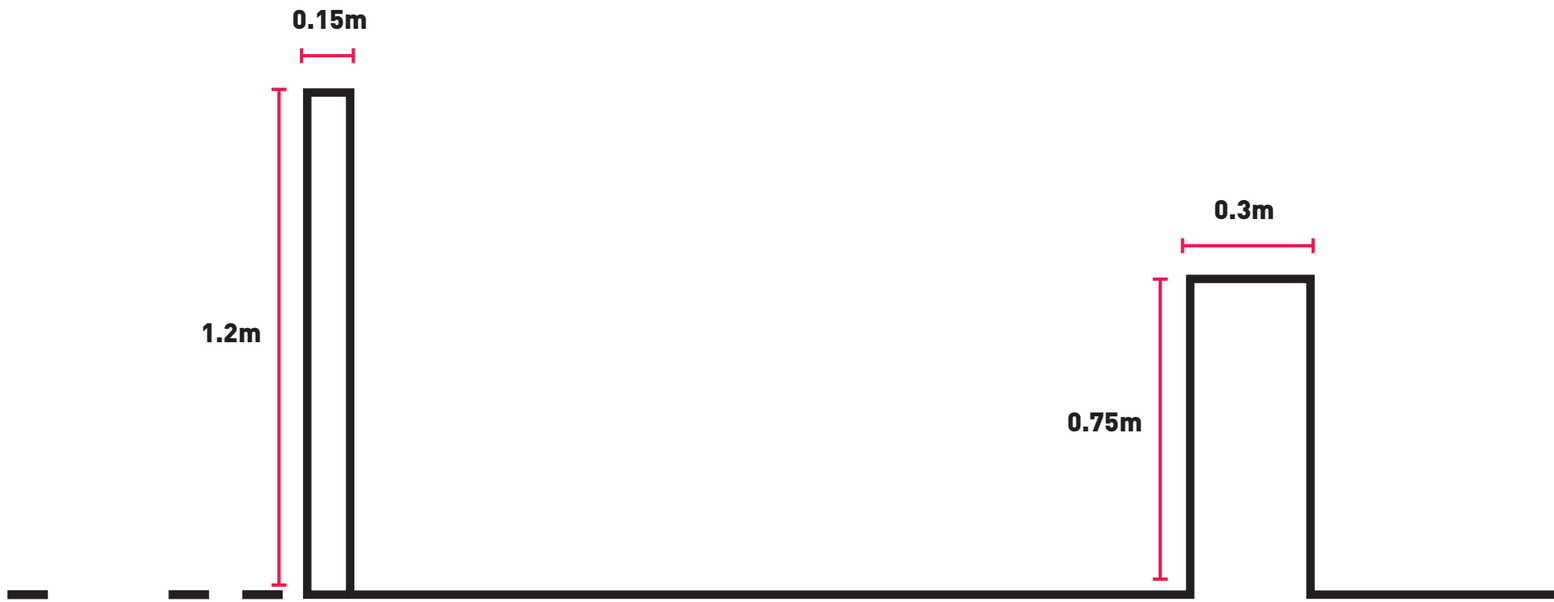
CORTEN BAND SEGMENTS CONTINUE PAST PRESENT DAY MARKER TO REPRESENT CONTINUATION OF EVOLUTION AND TIME

PERFORATED TIME MARKER AT 3.2M SPACING REPRESENTING THE PASSING OF 100 MILLION YEARS

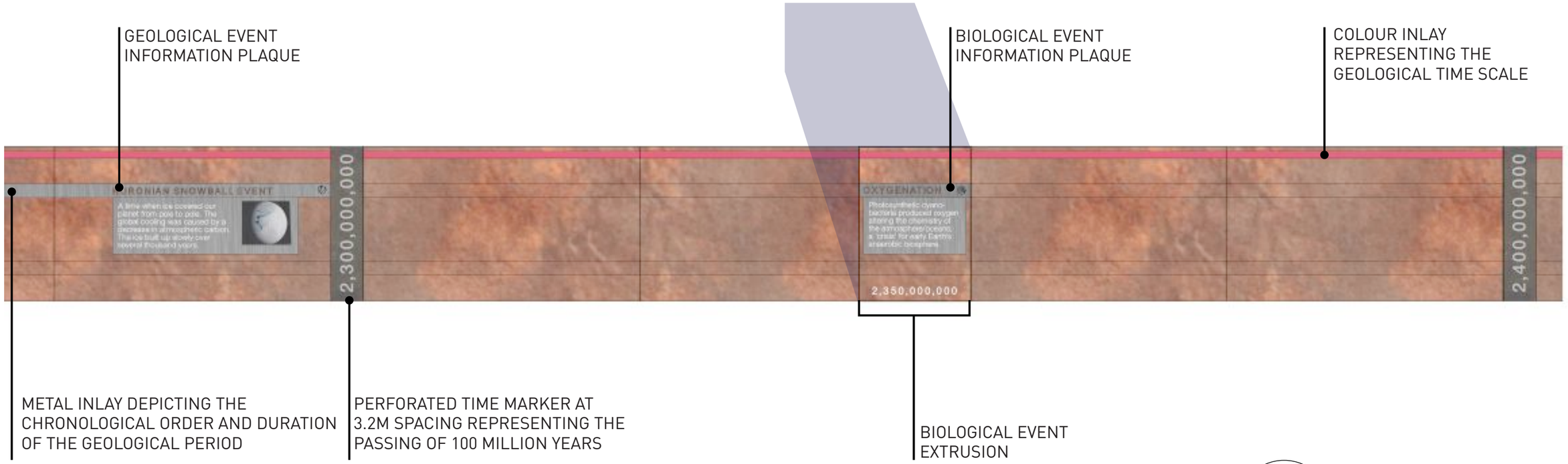
CNC ENGRAVED METAL INLAYS NOTING THE MANY BIOLOGICAL EVENTS THAT OCCURRED AFTER THE MASS EXTINCTION

THE MASS EXTINCTION BIOLOGICAL EVENT

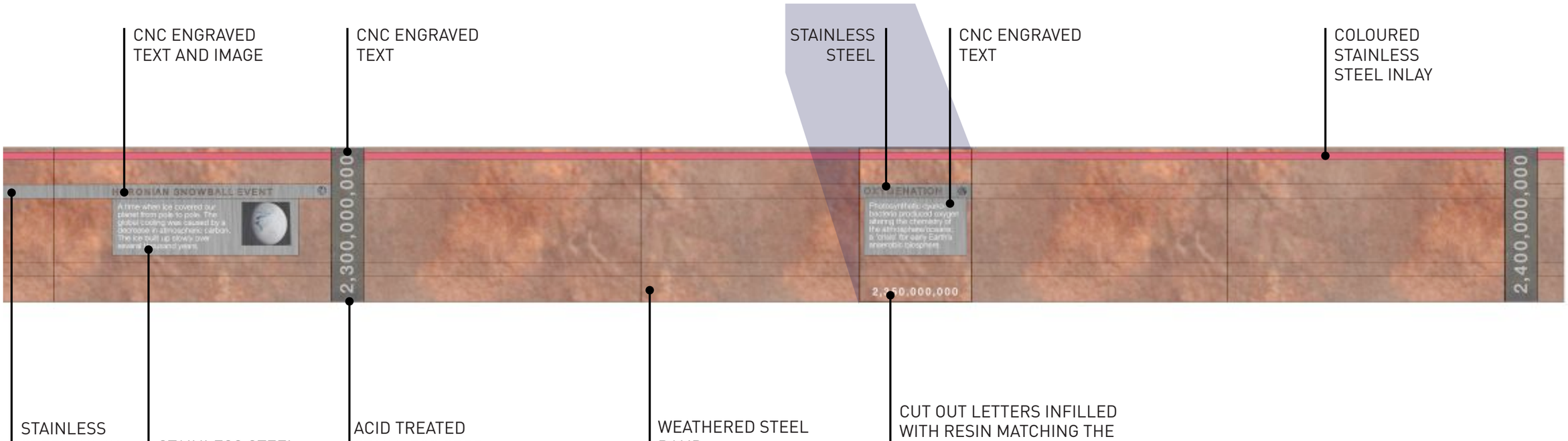


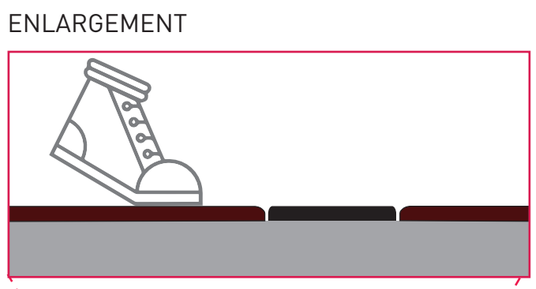


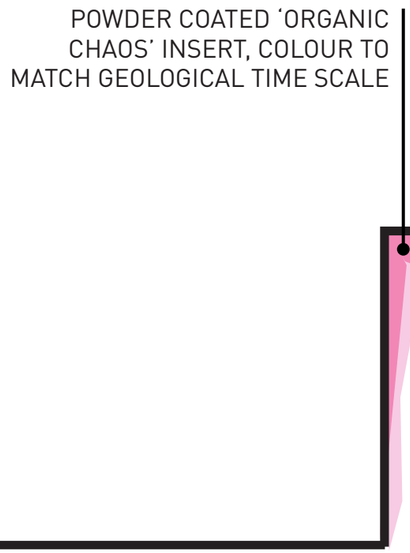
THE RIBBON **DETAILS**

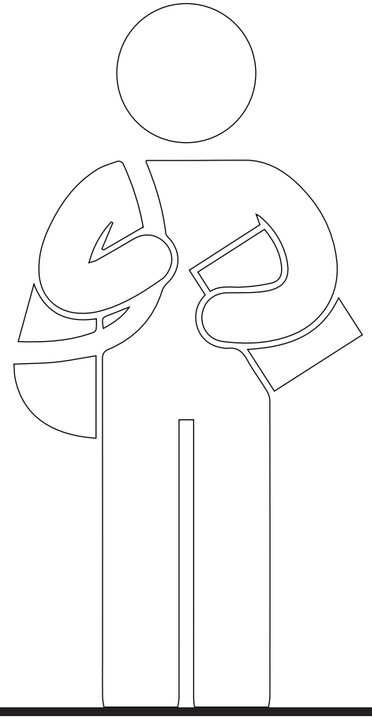


THE RIBBON **MATERIALS**

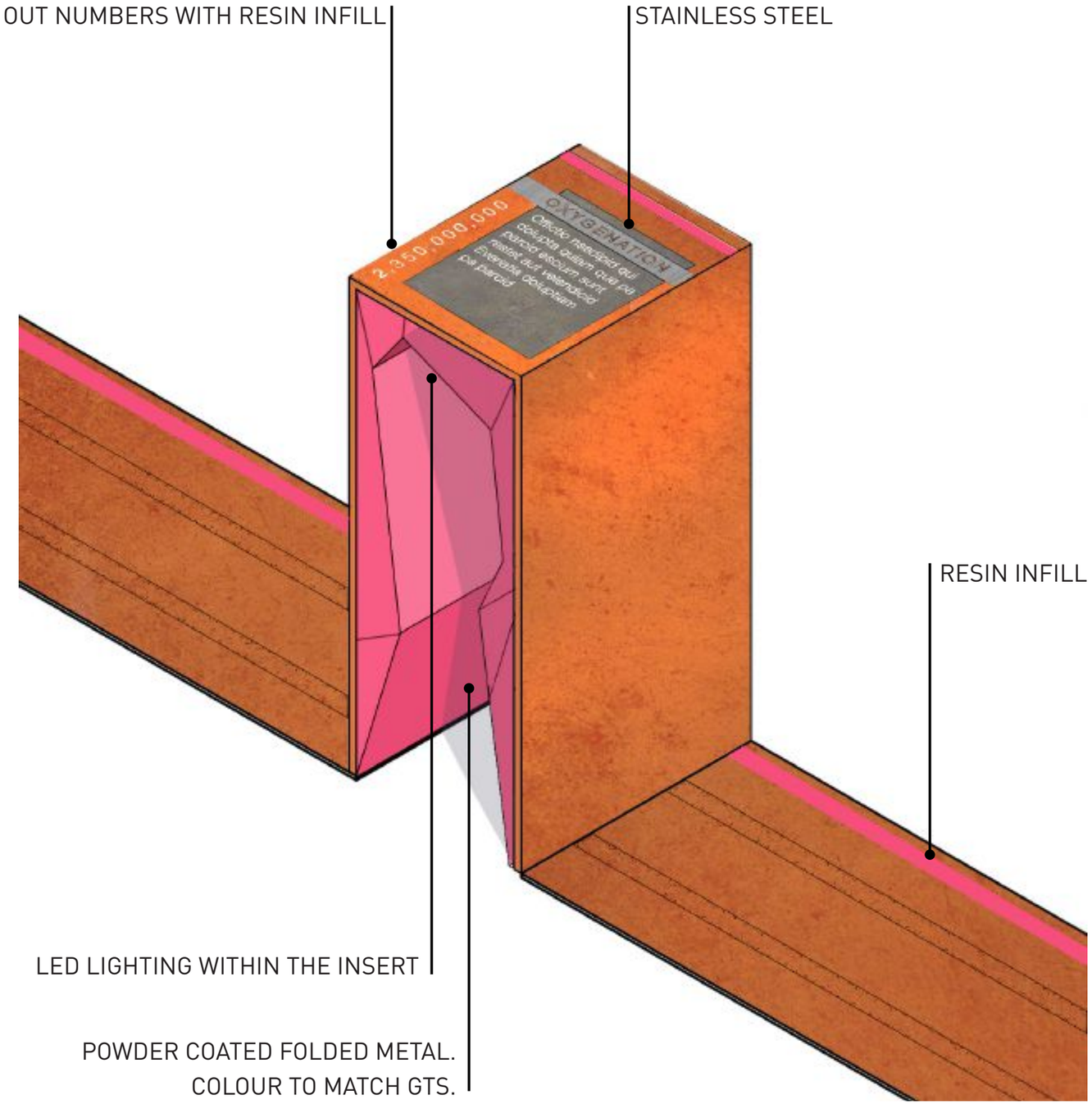




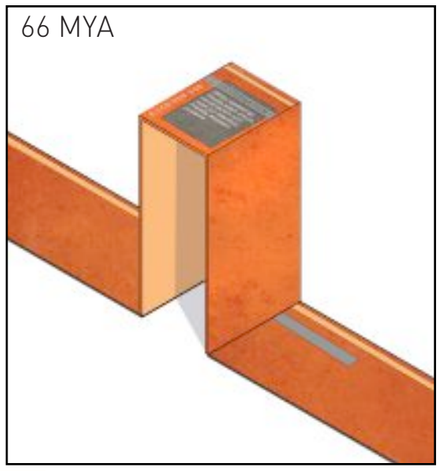




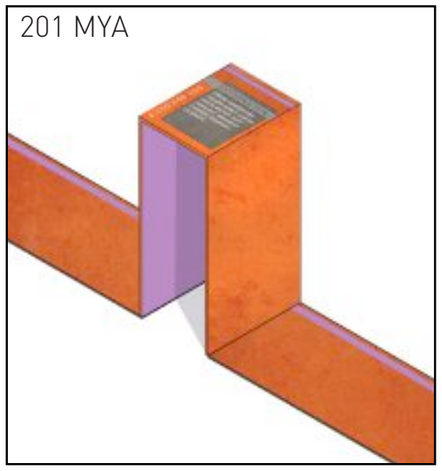
THE RIBBON DETAILS: **BIOLOGICAL EVENT EXTRUSIONS**



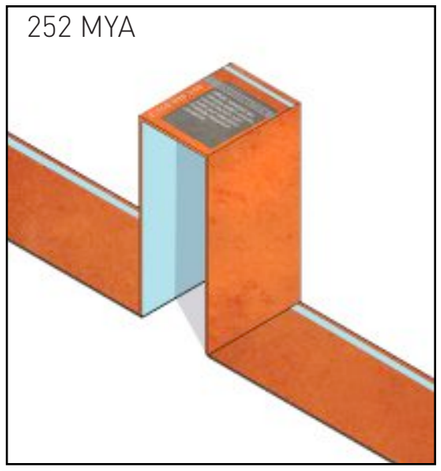
THE RIBBON DETAILS: **BIOLOGICAL EVENT EXTRUSIONS**



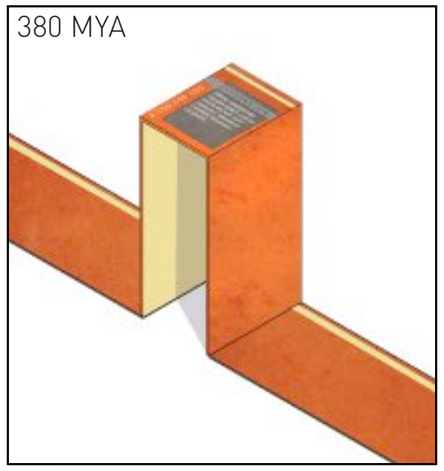
01 CRETACEOUS-PALEOGENE EXTINCTION



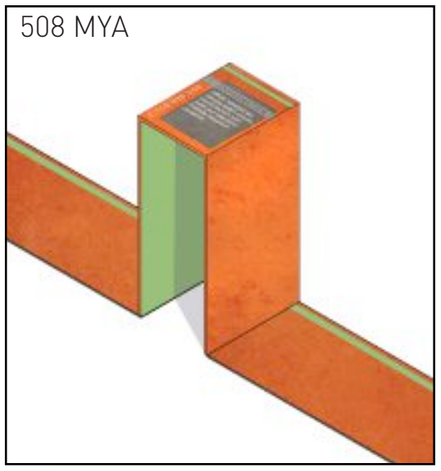
02 TRIASSIC-JURASSIC EXTINCTION



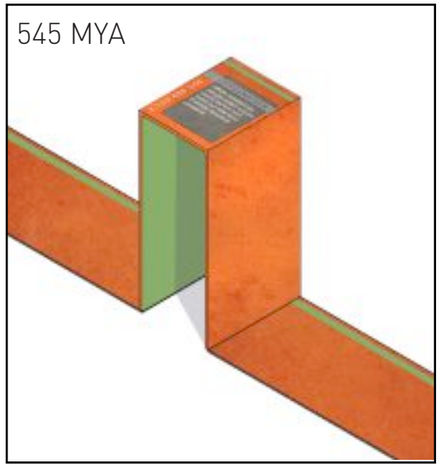
03 PERMO-TRIASSIC EXTINCTION



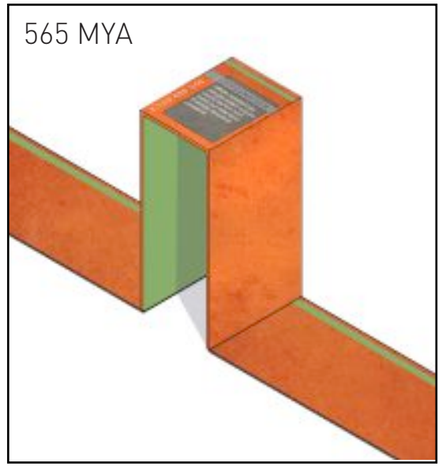
04 FIRST FORESTS



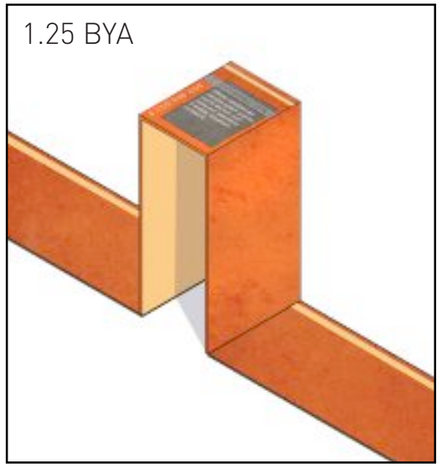
05 BURGESS SHALE FOSSILS



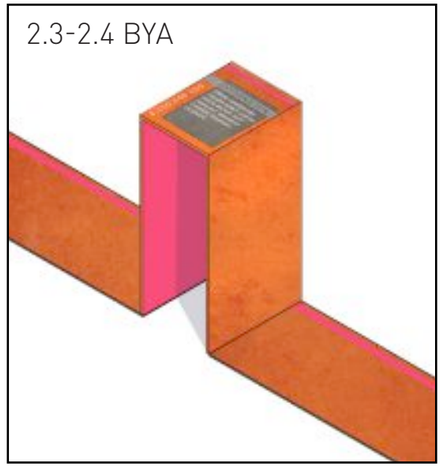
06 CAMBRIAN EXPLOSION



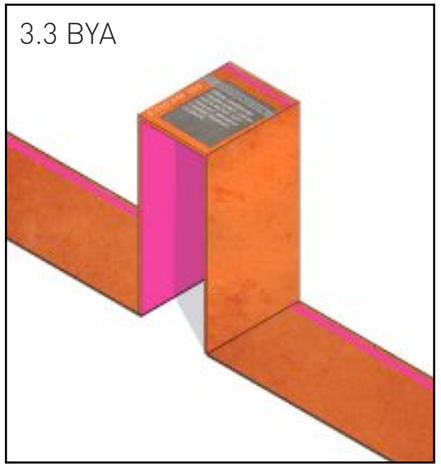
07 MISTAKEN POINT FOSSILS



08 CHLOROPLASTS



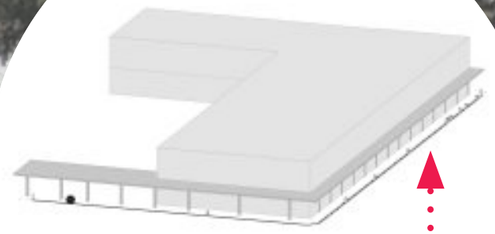
09 OXYGENATION



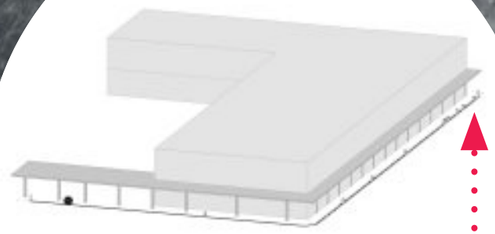
10 FIRST MICROFOSSILS


YOU ARE HERE
4.5 BYA


YOU ARE HERE
3.0 BYA

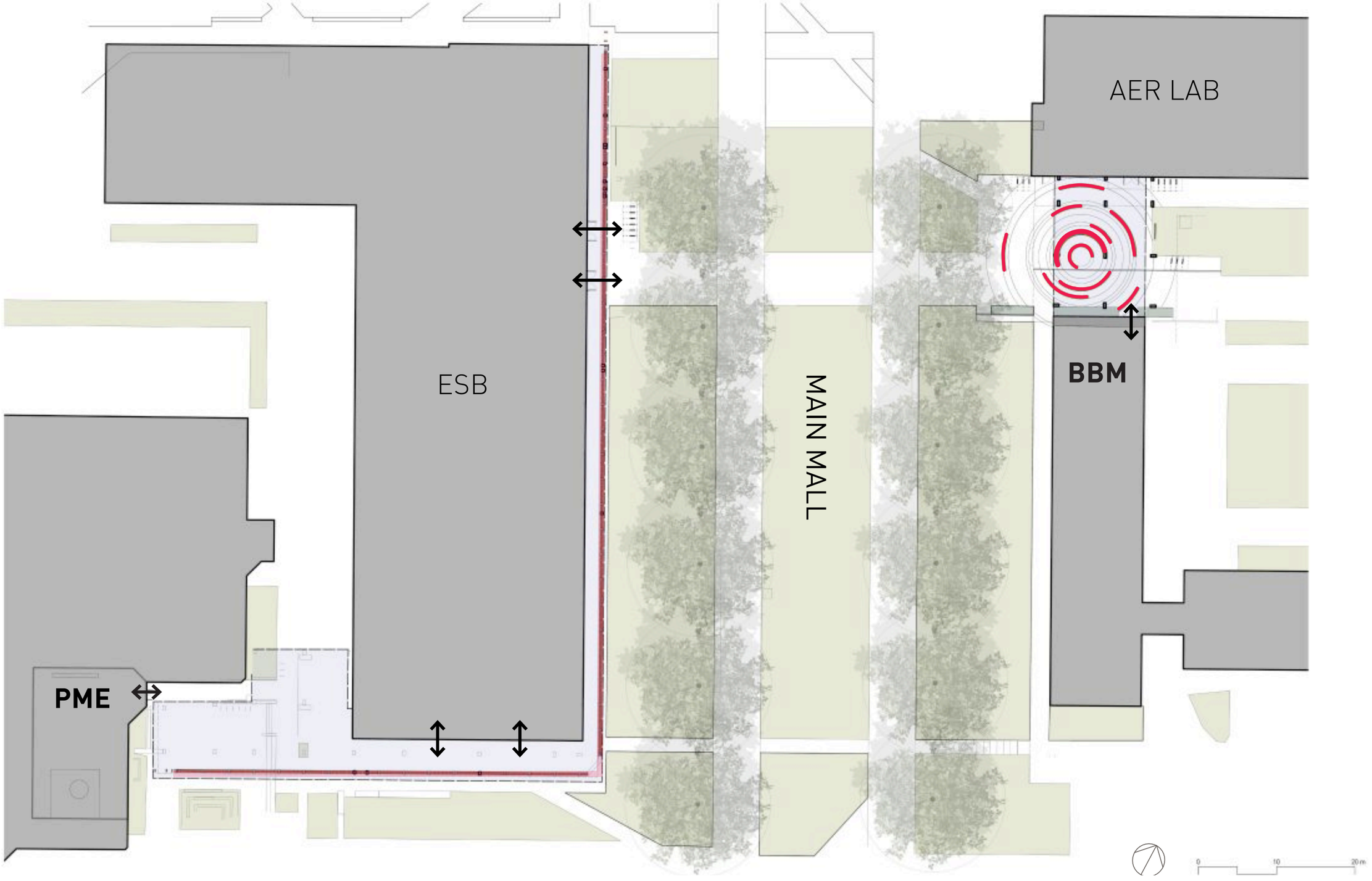


YOU ARE HERE
500 MYA



YOU ARE HERE
PRESENT DAY

THE RIBBON AND **THE RIPPLE**



THE RIPPLE

“BURST OF BIODIVERSITY”
COLOUR CHART AT BBM

Primary Brand

Tetrapods

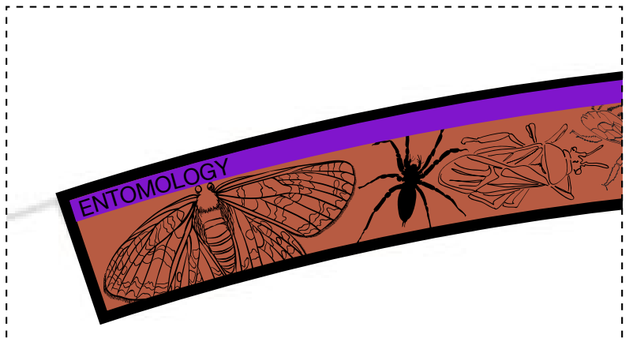
Fossils

Herbarium

Fish

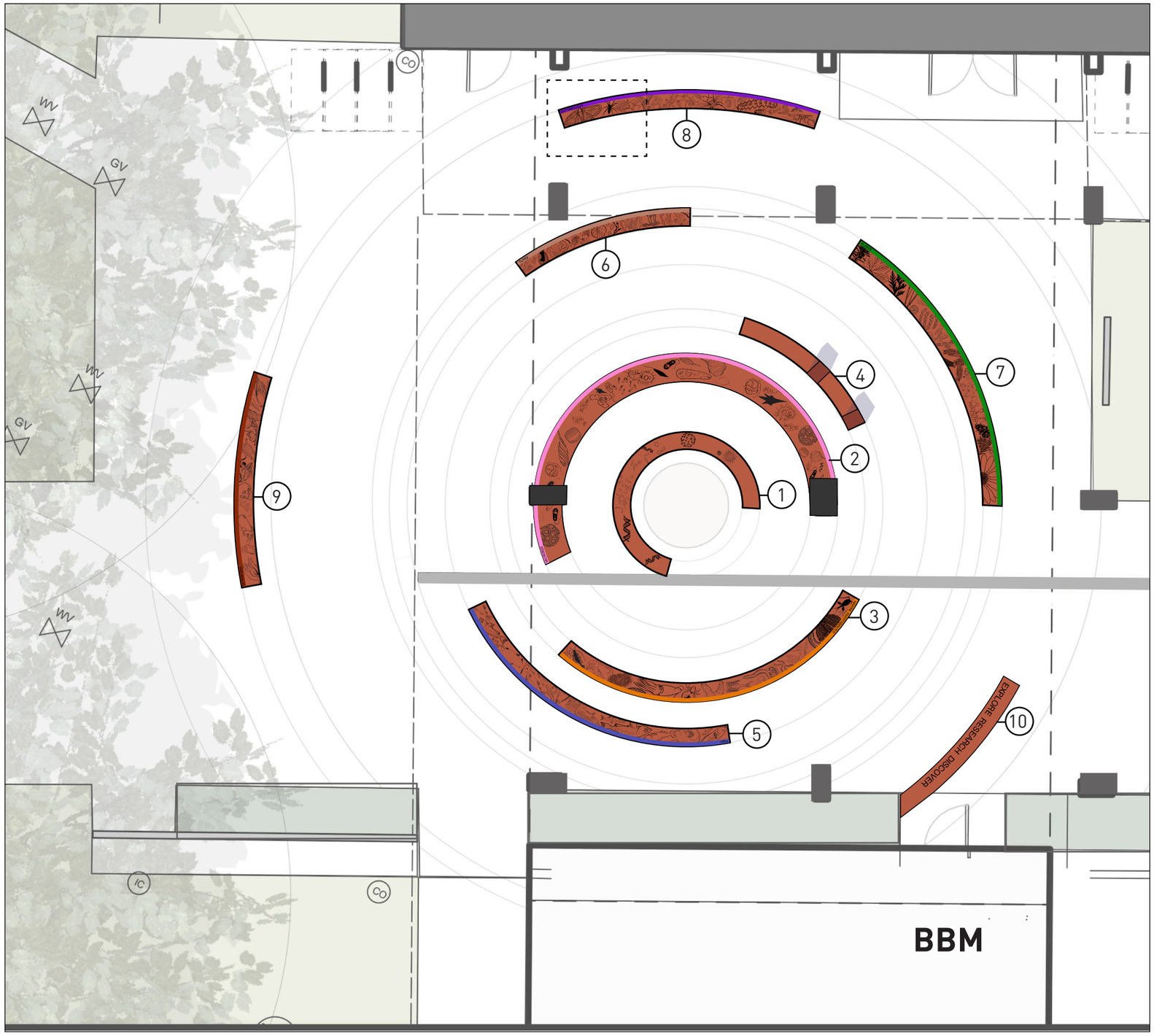
Entomology

Marine Invertebrates

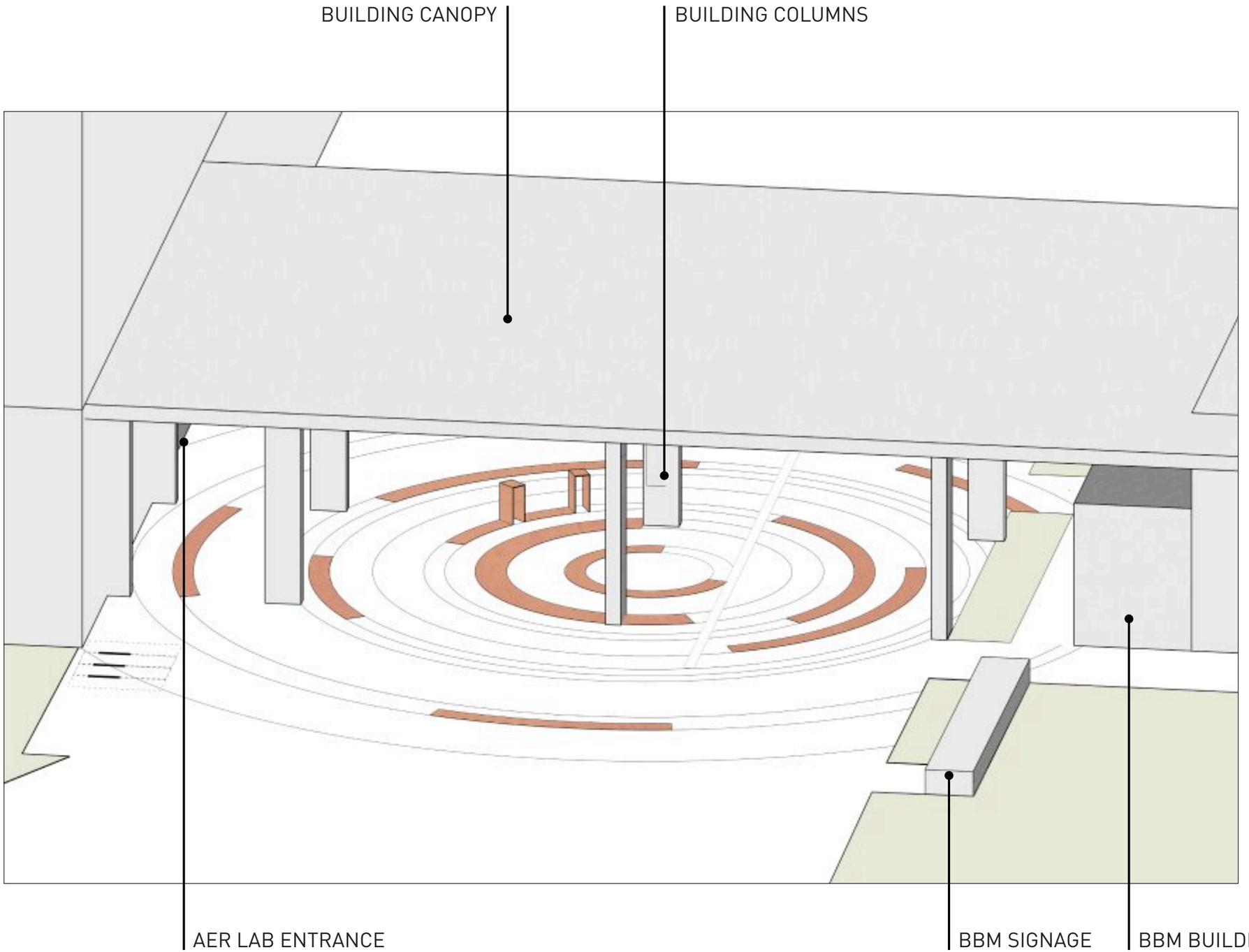


Enlargement

1. DNA, prokaryotes and viruses
2. Microbes
3. Marine Invertebrates
4. Cambrian explosion
5. Fish
6. Fungi
7. Plants
8. Entomology
9. Tetrapods
10. BBM Entrance



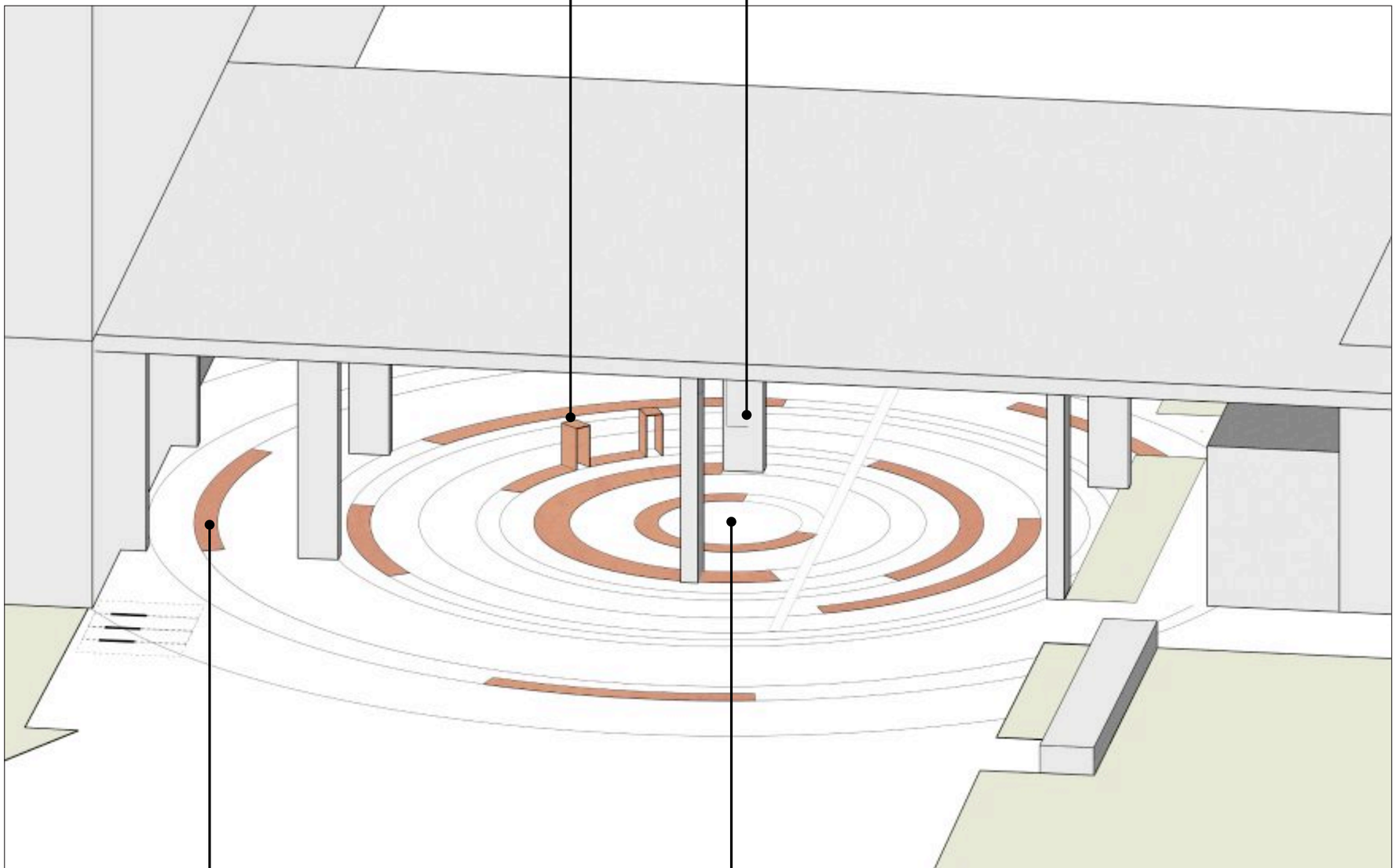
THE RIPPLE


BUILDING CANOPY
BUILDING COLUMNS
AER LAB ENTRANCE
BBM SIGNAGE
BBM BUILDING

THE RIPPLE

VERTICAL ELEMENTS FOR CAMBRIAN EXPLOSION AND MISTAKEN POINT FOSSILS CARRIED OVER FROM RIBBON

LOCATION FOR WHEATON DONOR APPRECIATION PLAQUE ON COLUMNS



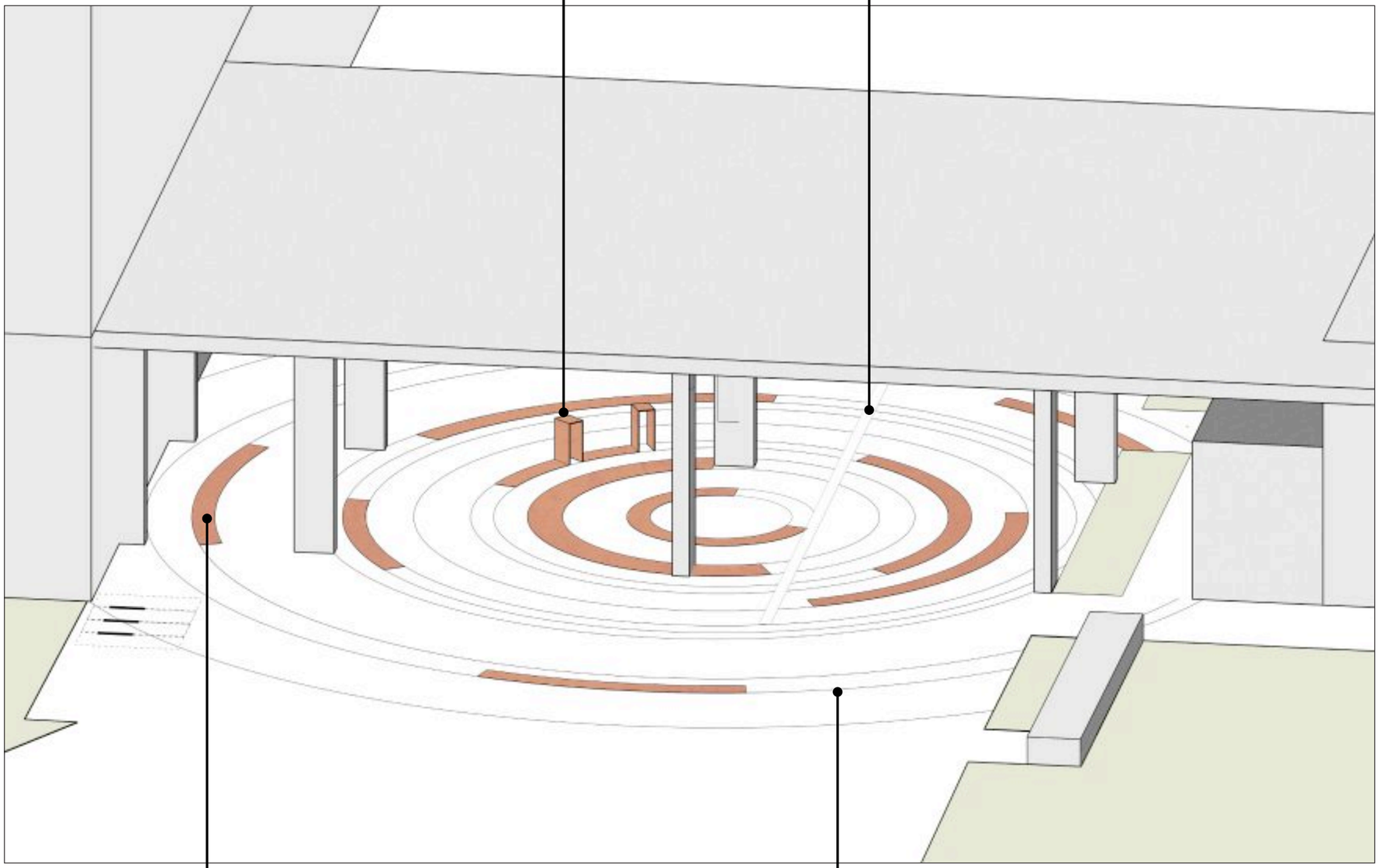
TIME RIPPLE BANDS

COVERED GATHERING SPACE FOR GROUPS AT CENTER OF RIPPLE

THE RIPPLE

BIOLOGICAL EVENT EXTRUSIONS WITH INFORMATION PLAQUES AND 'CHAOS OF LIFE' INSERTS

EXISTING TRENCH DRAIN



WEATHERED STEEL RIBBON SET IN CONCRETE

RIPPLES EXPRESSED IN THE CONCRETE

BEATY BIODIVERSITY CENTRE

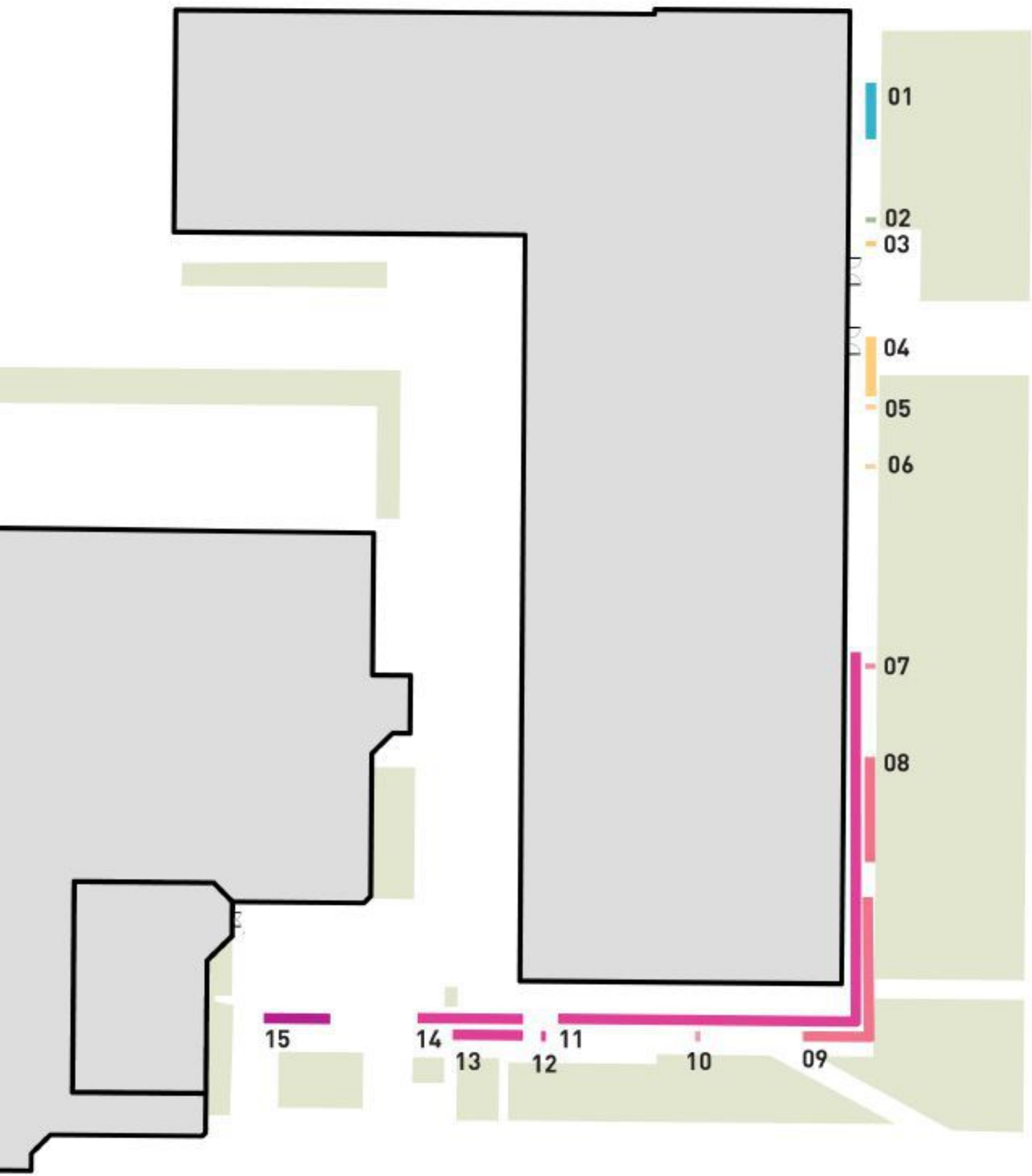
WALK

THROUGH TIME

DIVERSITY MUSEUM

WALK THROUGH TIME

THE RIBBON **GROUND-PLANE EVENTS (GEOLOGICAL)**



01 SUPERCONTINENT PANGEA
Most recent supercontinent. Extensive volcanism in the Central Atlantic Magmatic Province is the birth of the Atlantic Ocean.

02 BURGESS SHALE
An important window into Earth's biosphere just after the Cambrian Explosion. Sites in Yoho and Kootenay National Parks, BC. Fossils have extraordinarily well-preserved soft tissues.

03 SNOWBALL EARTH
Earth covered in global glaciations. Life survives in the oceans.

04 SUPERCONTIENT RODINIA
First well-known supercontinent

05 MID CONTINENT RIFT (NA)
Nearly splits North America apart - produces 6 km stack of basalt + 6 km of gabbros/anorthosite. Hydrothermal activity afterwards produces native copper in basalt used extensively by indigenous peoples.

06 MACKENZIE MAGAMA INTRUSIONS
Muskox intrusion, Coppermine River flood basalts, and Mackenzie dikes that extend for 1000s of km across Canada (reaching Ontario)

07 SUDBURY IMPACT
3rd largest impact crater on Earth located in Sudbury, Ontario. Enormous (130 km diameter) basin formed from a large (10-15 km) meteorite impact

08 HURONIAN SNOWBALL EARTH
A time when ice covered our planet from pole to pole

09 CANADA'S SLAVE &SUPERIOR PROVINCES
Formation of North America's main continental core (or craton), including many important mineral resources.

10 EMERGENCE OF PLATE TECTONICS
Plate tectonics is crucial for life and evolution. Volcanoes, mountain building, subduction, hot mid-ocean ridges, earthquakes, cycling of minerals and chemicals all cause changing environments which drive evolution of life.

11 BANDED IRON FORMATIONS
An important iron ore, these indicate an anoxic ocean environment.

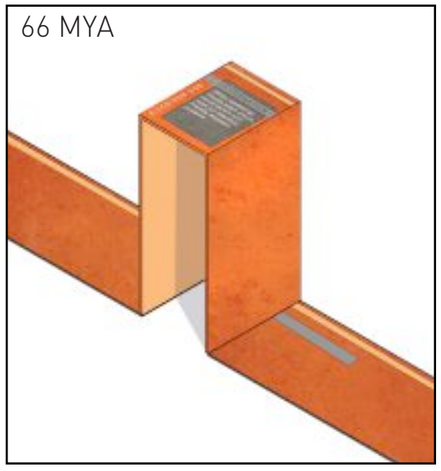
12 ISSUA GREENSTONE BELT
Oldest rocks that were formed ON (rather than within) Earth's surface.

13 ACASTA GNEISS
Oldest known intact crustal fragment on Earth - located in the Canadian Shield - Slave Craton, NWT (touch a specimen in PME).

14 LATE HEAVY BOMBARDMENT
Mercury, Venus, Earth, and Mars were bombarded with an unusually large number of impactors (e.g. asteroids). These impacts have been preserved as craters, many of them very large, on the Moon, Mars & Mercury

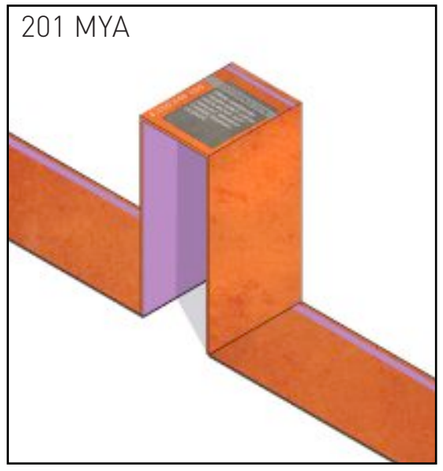
15 FORMATION OF EARTH AND MOON
Shortly after its formation and prior to the stabilization of the lithosphere and crust, Earth's surface was partially molten. Atmosphere was silica-steam.
Moon formed 100-200 Ma in, possibly by a giant impact.

THE RIBBON DETAILS: **BIOLOGICAL EVENT EXTRUSIONS**



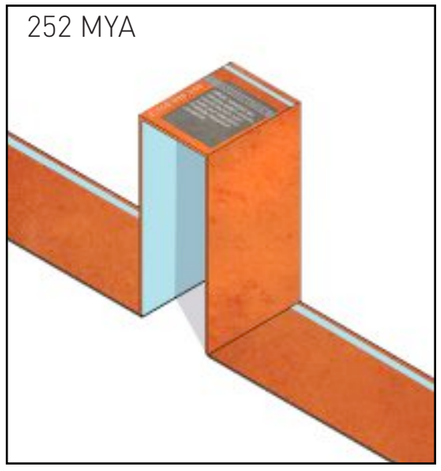
01 CRETACEOUS-PALEOGENE EXTINCTION

75% of species die off, including all creatures larger than 25 kgs.



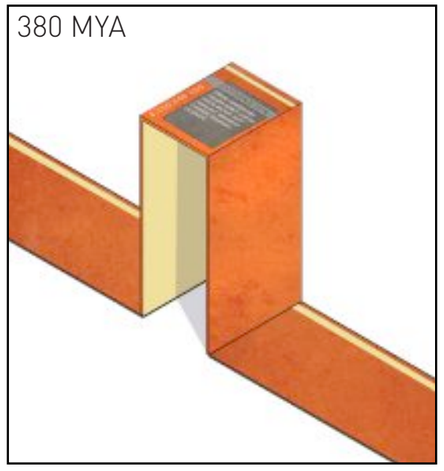
02 TRIASSIC-JURASSIC EXTINCTION

Perhaps more spread out in time compared to P-T event. 70-75% of all species



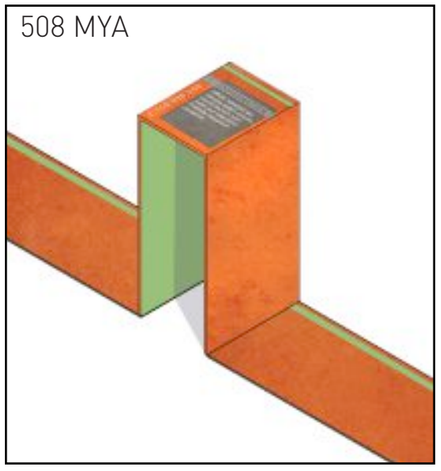
03 PERMO-TRIASSIC EXTINCTION

The worst of 5 mass extinctions. 96% of marine species and 70% of terrestrial species were estimated to have died



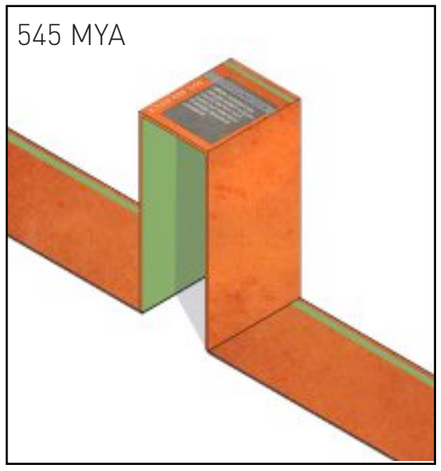
04 FIRST FORESTS

First forested landscapes, including coal.



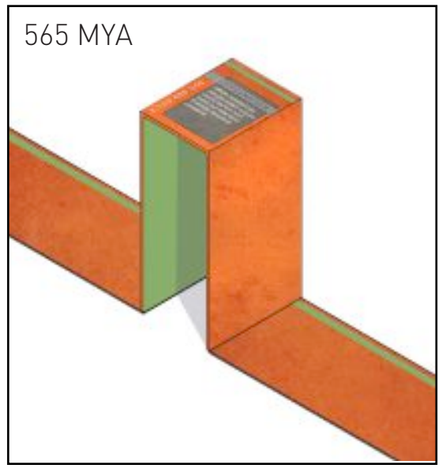
05 BURGESS SHALE FOSSILS

An important window into Earth's biosphere just after the Cambrian Explosion



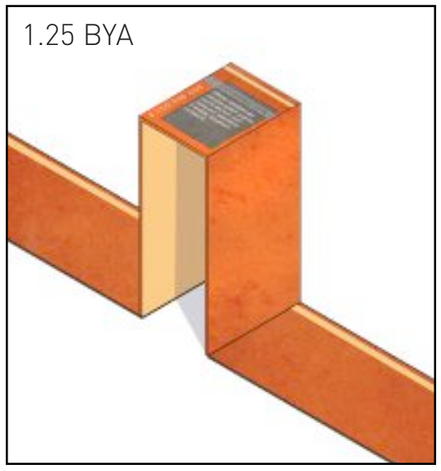
06 CAMBRIAN EXPLOSION

The most significant evolutionary event in Earth's history. Emergence of the majority of all modern phyla of life on Earth and the proliferation of creatures with a hard part



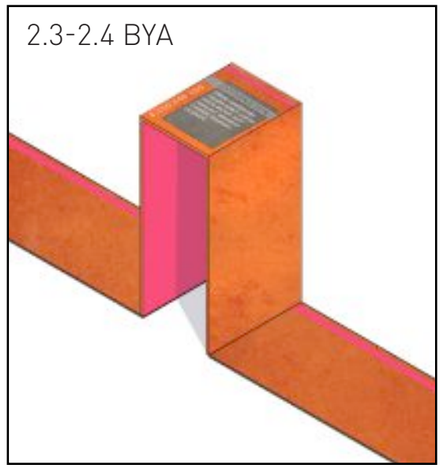
07 MISTAKEN POINT FOSSILS

Oldest multicellular organisms on Earth found in mudstones and volcanic ashes on the Avalon Peninsula, Newfoundland



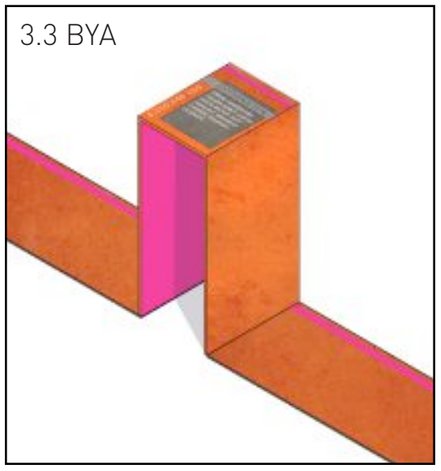
08 CHLOROPLASTS

Oldest known direct ancestor to modern day planets & animals, called Bangiomorpha pubescens (a fossilized red algae) found on Baffin Island (Canadian arctic)



09 OXYGENATION

Photosynthetic cyanobacteria produced oxygen altering the chemistry of the atmosphere and oceans; a 'crisis' for early Earth's anaerobic biosphere.



10 FIRST MICROFOSSILS

Fossil microbes living between sand grains on a beach (Strelley Pool, Western Australia) and stromatolites (Isua, Western Greenland and Quebec, Canada). Stromatolites can still be found today.

SITE PHOTOS

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