

**Robert Murray**  
***Cumbria*, 1966-67/1995**

Robert Murray was born in Vancouver in 1936, lived in Saskatoon, and studied at the Regina College School of Art before moving to New York in 1960. He now lives in Chester County, Pennsylvania while spending summers on Georgian Bay. He is well known throughout North America for his large, abstract, brightly painted metal sculptures. His use of geometric forms, with their folded, curved or twisted planes, saturated colours and smooth finishes are best understood from different viewpoints, their configurations first perceived as simple, become increasingly complex.

Murray has created artworks for both urban and rural settings in the US and Canada. His work has been collected by the Metropolitan Museum of Art, Whitney Museum of American Art, Montreal Museum of Art, National Gallery of Canada among many others, and can be found in places of prominence on numerous university campuses and in sculpture parks such as the Walker Art Center and Storm King Art Center. In 2000 he was awarded the Order of Canada and in 2018, the Barnett and Annalee Newman Foundation Lifetime Achievement Award for his contribution to the arts and contemporary sculpture.

*Cumbria* was first exhibited at Toronto's City Hall for Sculpture '67 and then travelled to Battery Park in Manhattan in 1968. The sculpture returned to Canada in 1969 and was installed in a less-than ideal setting beside a gas station on Grant McConachie Way, the roadway that led to the newly-opened Vancouver International Airport. In 1995, Transport Canada donated the artwork to UBC and funded its refurbishment and siting between the Morris and Helen Belkin Art Gallery and Lasserre building. At this time, *Cumbria* was the first large-scale public sculpture installed at UBC since 1975. Twenty years later, the sculpture was removed for repair and maintenance with the intention of relocating the artwork to a more prominent site that would provide the distant sight lines the artwork was originally intended for.

In a statement (1967) about the making of *Cumbria*, the artist spoke of how he was prompted by a feeling for two pieces of steel, each weighing five tons, that could shift from being understood as a long narrow line, to that of a hanging heavy slab, or to a weightless spread of colour.

In terms of maintenance, Cumbria will be included in the upcoming “Outdoor Art Collection Assessment and Maintenance Plan” that is about to begin with Andrew Todd Conservators. This plan will be completed in February 2019 and will provide a 5 year cycle for maintenance and attendant annual budgets. As per the “[Public Art Strategy](#)”, item *4.5.3 Operations and Maintenance Funding*: “The Belkin Art Gallery and UBC Building Operations collaborate to maintain UBC’s Outdoor Art Collection. The Belkin’s Curator of Outdoor Art advises on maintenance needs and prioritization. With the Curator’s advice, Building Operations develops a conditions assessment and maintenance plan for each Outdoor Art piece and conducts inspections, maintenance and repairs. Funding for inspection and minor repairs is allocated from Building Operations General Purpose Operating funds. Funding for major renewal or maintenance is allocated from UBC’s existing Capital Renewal Deferred Maintenance funds as necessary.”

Barbara Cole  
Curator of Outdoor Art  
Morris and Helen Belkin Art Gallery  
The University of British Columbia  
1825 Main Mall, Vancouver, BC Canada V6T 1Z2  
[belkin.ubc.ca](http://belkin.ubc.ca)  
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# Cumbria Relocation

University of British Columbia

Issued for DP - November 2, 2018

## HAPA

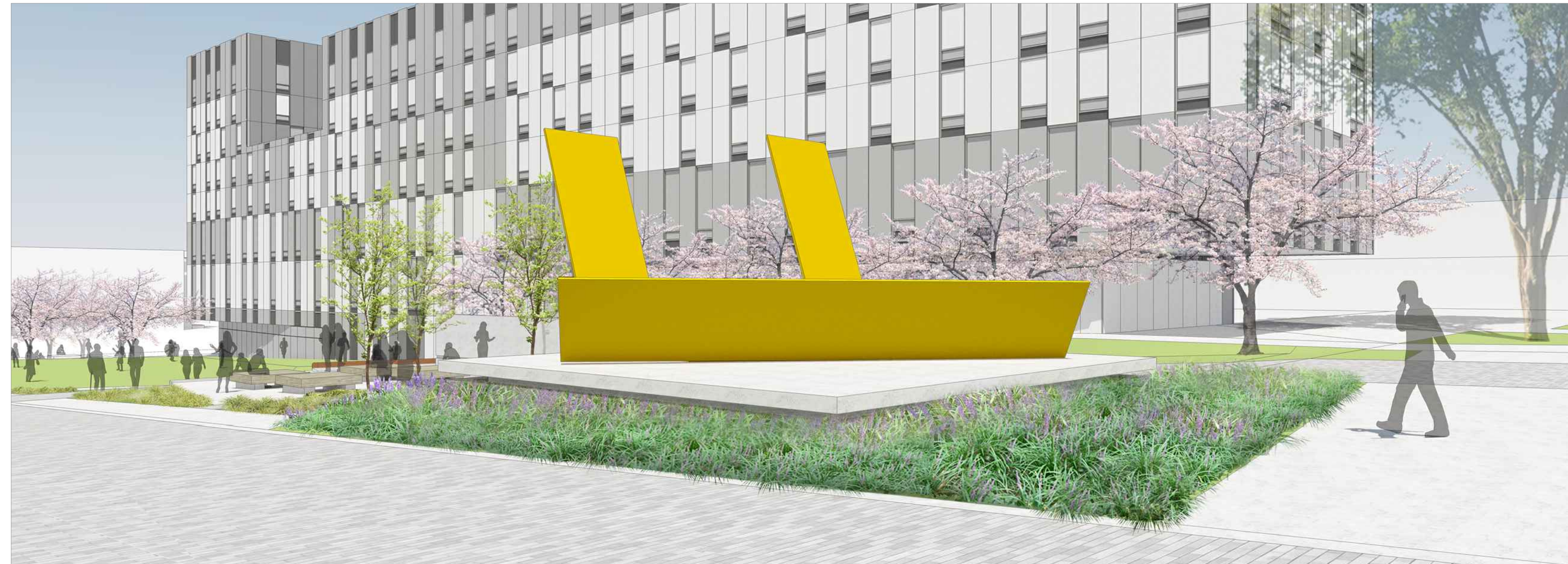
Landscape Architecture  
Urban Design

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### DRAWING LIST

- L1.0 DEMOLITION PLAN
- L1.1 LANDSCAPE PLAN
- L2.1 LANDSCAPE SECTIONS
- L3.1 LANDSCAPE DETAILS



NOT FOR CONSTRUCTION

3	Issued For DP	Oct 31, 2018
2	Issued For Review	Oct 09, 2018
1	Issued For Review	Sept 28, 2018

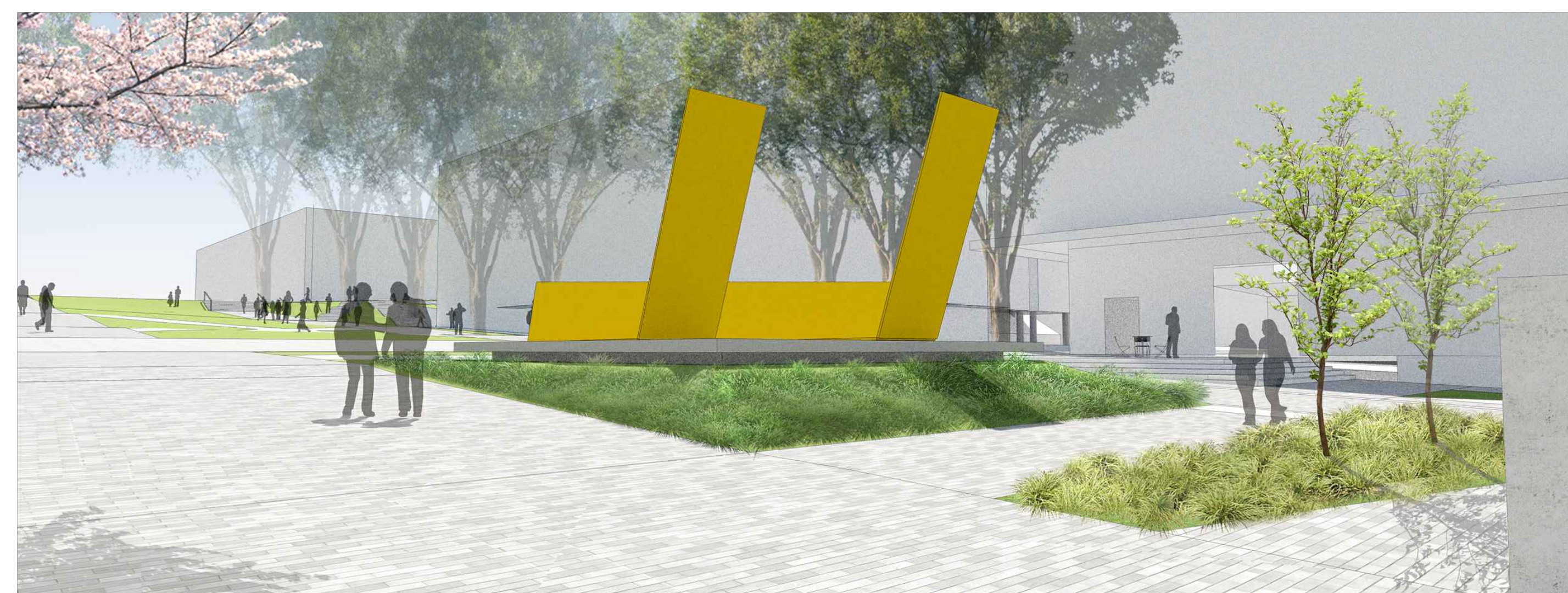
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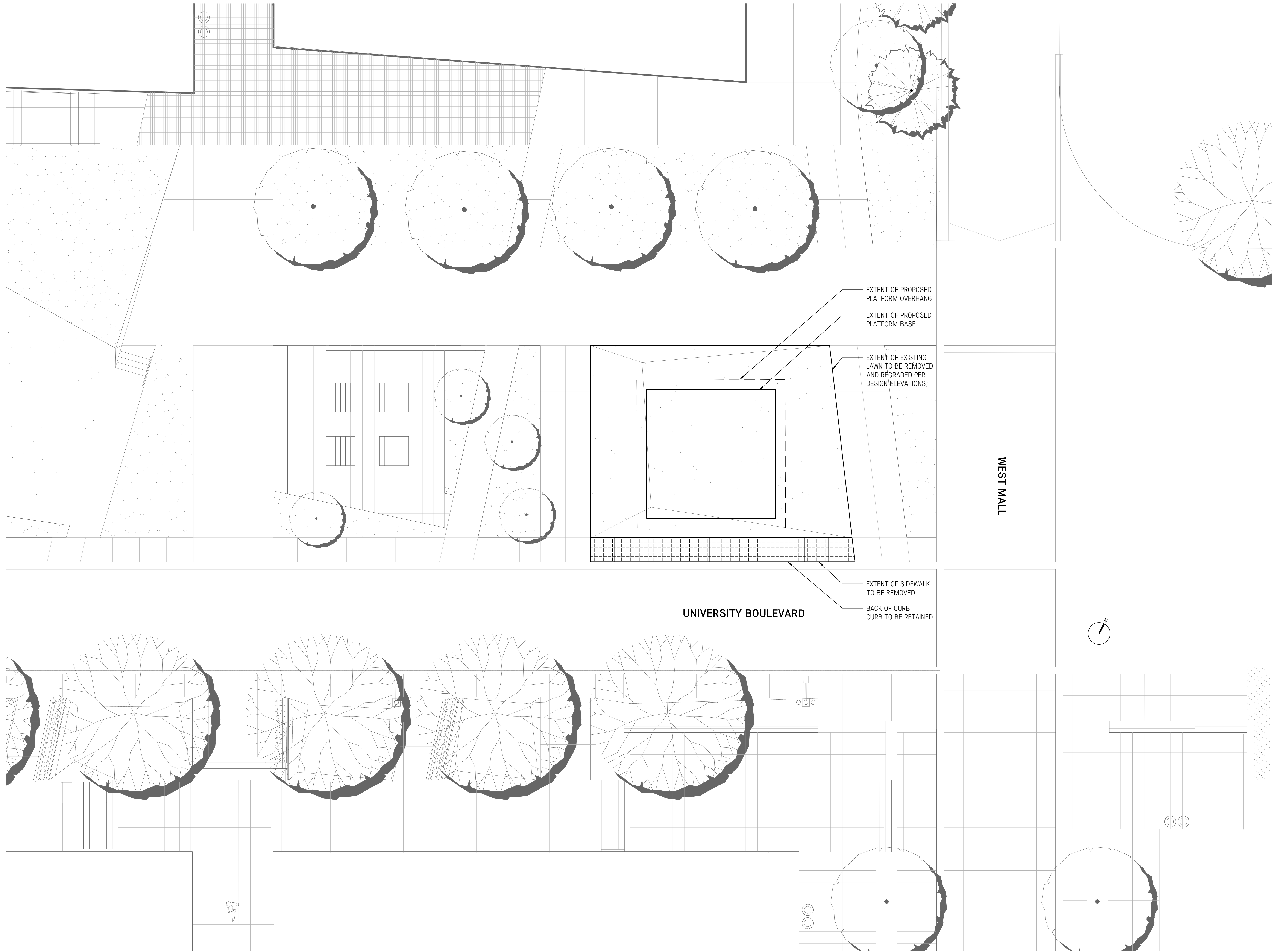
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Cumbria Relocation  
University of British Columbia

Cover Sheet

Date	Sept 25, 2018	Drawing Number
Project No.	1821	<b>L0.0</b>
Scale	1:100	
Drawn/Checked	lh   JF	





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3	Issued For DP	Nov 2, 2018
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1	Issued For Review	Sept 28, 2018

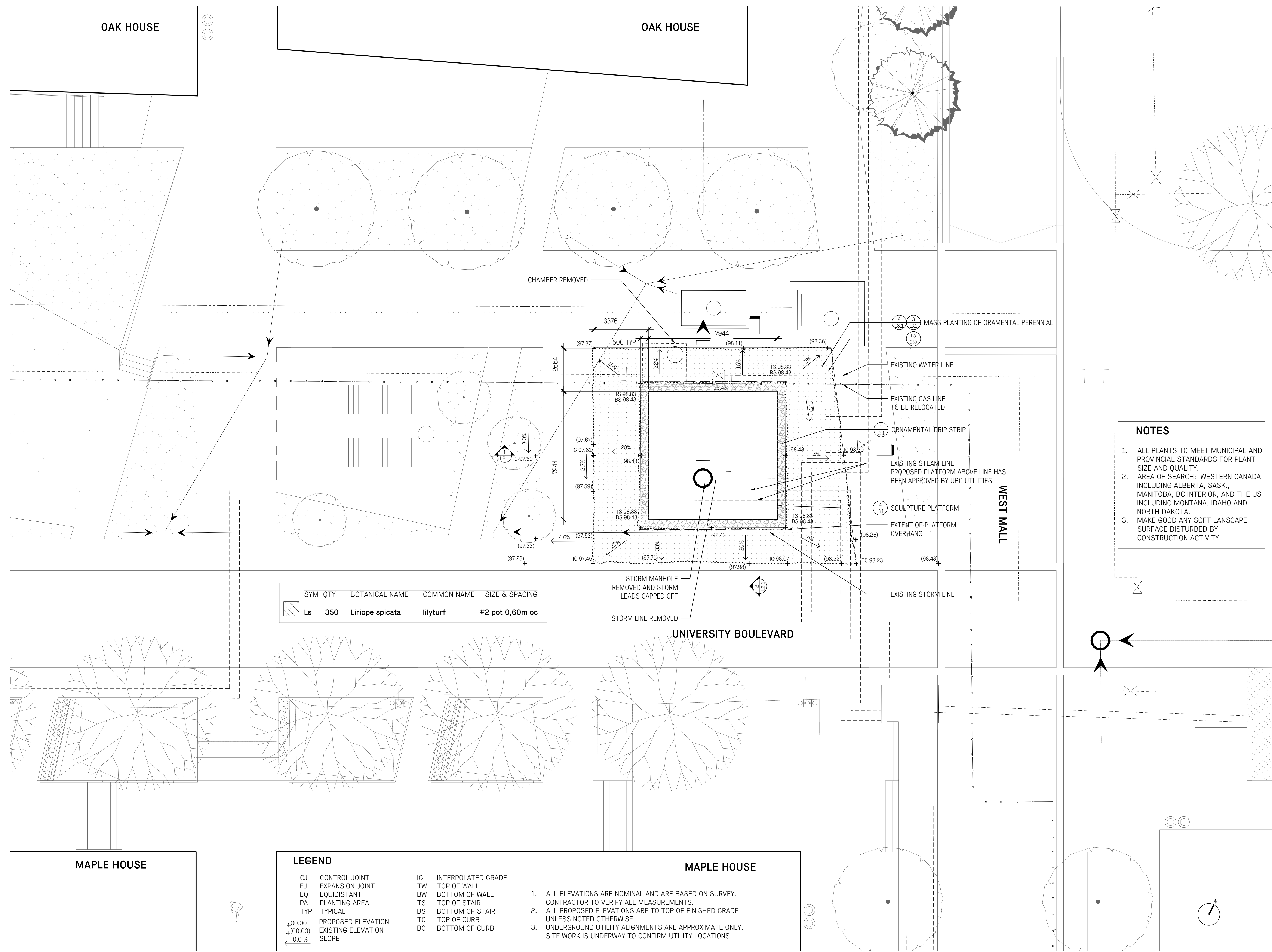
No.	Description	Date

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Cumbria Relocation  
University of British Columbia

## Demolition Plan

Date	Sept 25, 2018	Drawing Number
Project No.	1821	<b>L1.0</b>
Scale	1:100	
Drawn/Checked	Ih   JF	



**NOTES**

1. ALL PLANTS TO MEET MUNICIPAL AND PROVINCIAL STANDARDS FOR PLANT SIZE AND QUALITY.
2. AREA OF SEARCH: WESTERN CANADA INCLUDING ALBERTA, SASK., MANITOBA, BC INTERIOR, AND THE US INCLUDING MONTANA, IDAHO AND NORTH DAKOTA.
3. MAKE GOOD ANY SOFT LANDSCAPE SURFACE DISTURBED BY CONSTRUCTION ACTIVITY

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3 Issued For DP Nov 2, 2018  
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No.	Description	Date

SYM	QTY	BOTANICAL NAME	COMMON NAME	SIZE & SPACING
Ls	350	<i>Liriope spicata</i>	Ilyyturf	#2 pot 0,60m oc

**LEGEND**

CJ	CONTROL JOINT	IG	INTERPOLATED GRADE
EJ	EXPANSION JOINT	TW	TOP OF WALL
EQ	EQUIDISTANT	BW	BOTTOM OF WALL
PA	PLANTING AREA	TS	TOP OF STAIR
TYP	TYPICAL	BS	BOTTOM OF STAIR
+00.00	PROPOSED ELEVATION	TC	TOP OF CURB
+00.00	EXISTING ELEVATION	BC	BOTTOM OF CURB
← 0.0 %	SLOPE		

**MAPLE HOUSE**

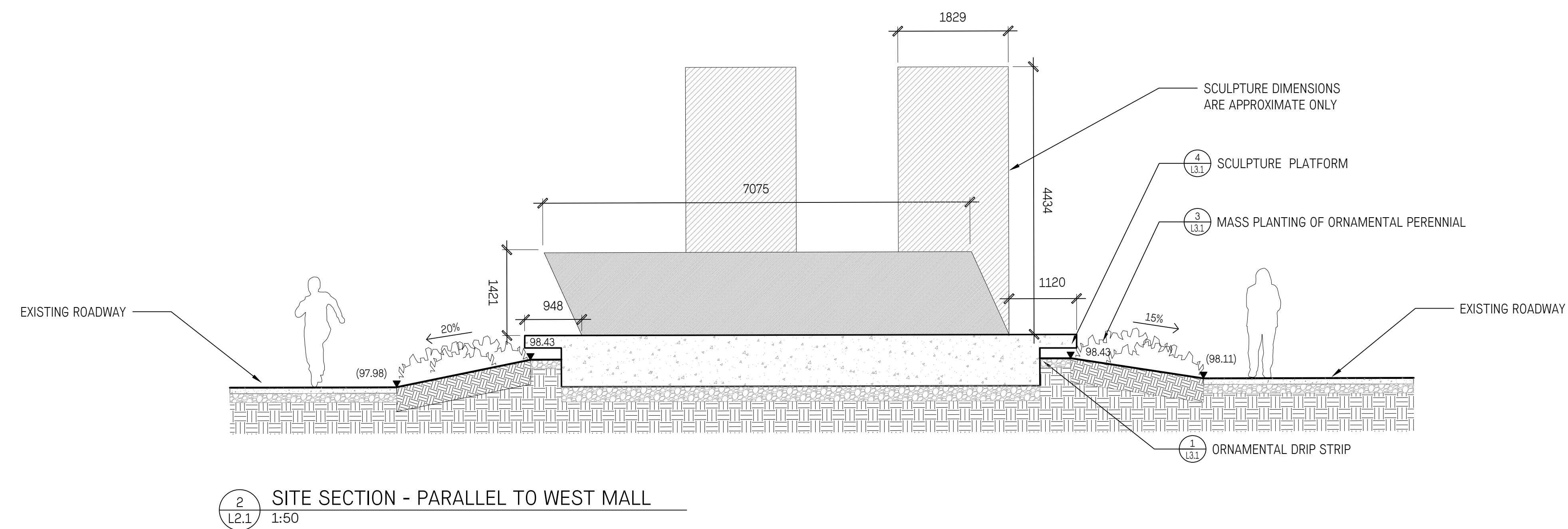
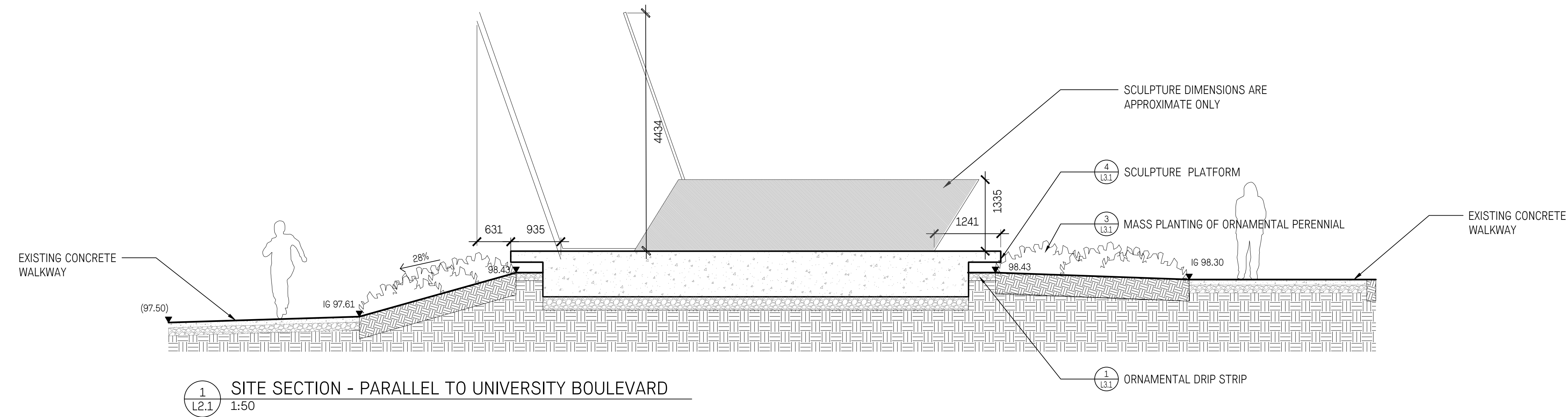
1. ALL ELEVATIONS ARE NOMINAL AND ARE BASED ON SURVEY. CONTRACTOR TO VERIFY ALL MEASUREMENTS.
2. ALL PROPOSED ELEVATIONS ARE TO TOP OF FINISHED GRADE UNLESS NOTED OTHERWISE.
3. UNDERGROUND UTILITY ALIGNMENTS ARE APPROXIMATE ONLY. SITE WORK IS UNDERWAY TO CONFIRM UTILITY LOCATIONS

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Cumbria Relocation  
University of British Columbia

Landscape Plan

Date: Sept 25, 2018 Drawing Number:  
Project No. 1821  
Scale: 1:100 **L1.1**  
Drawn/checked: lh / JF



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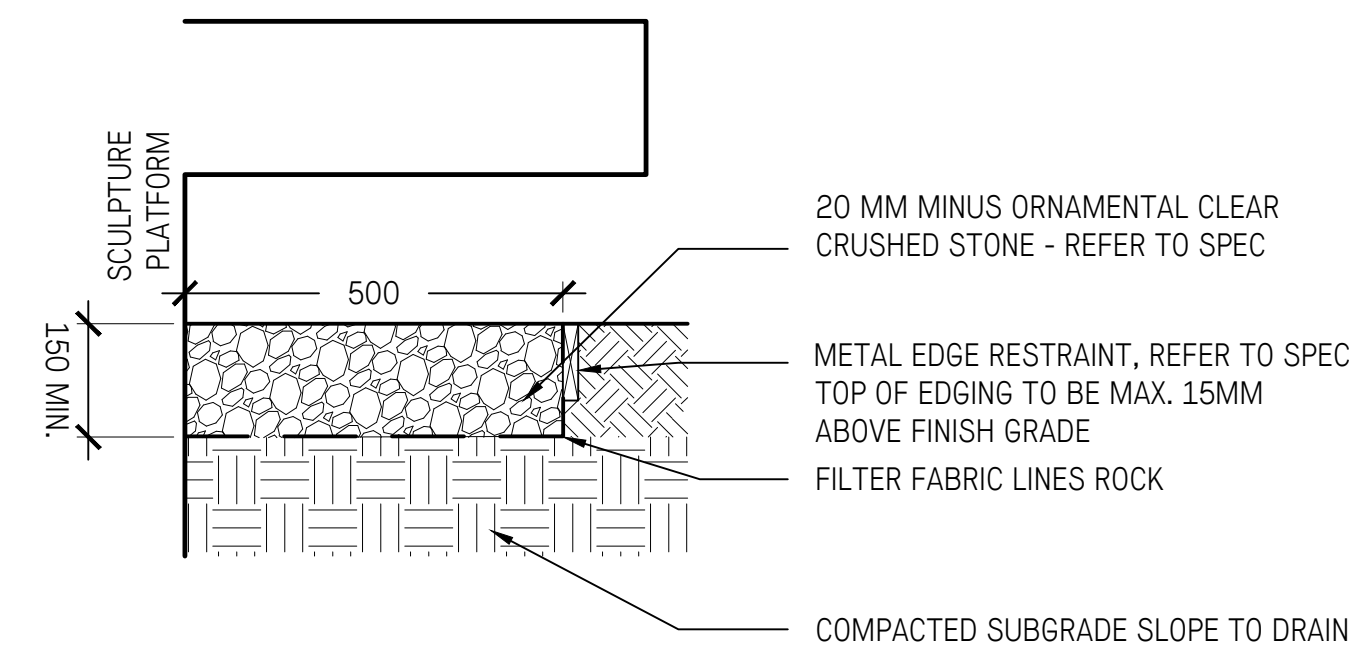
No.	Description	Date
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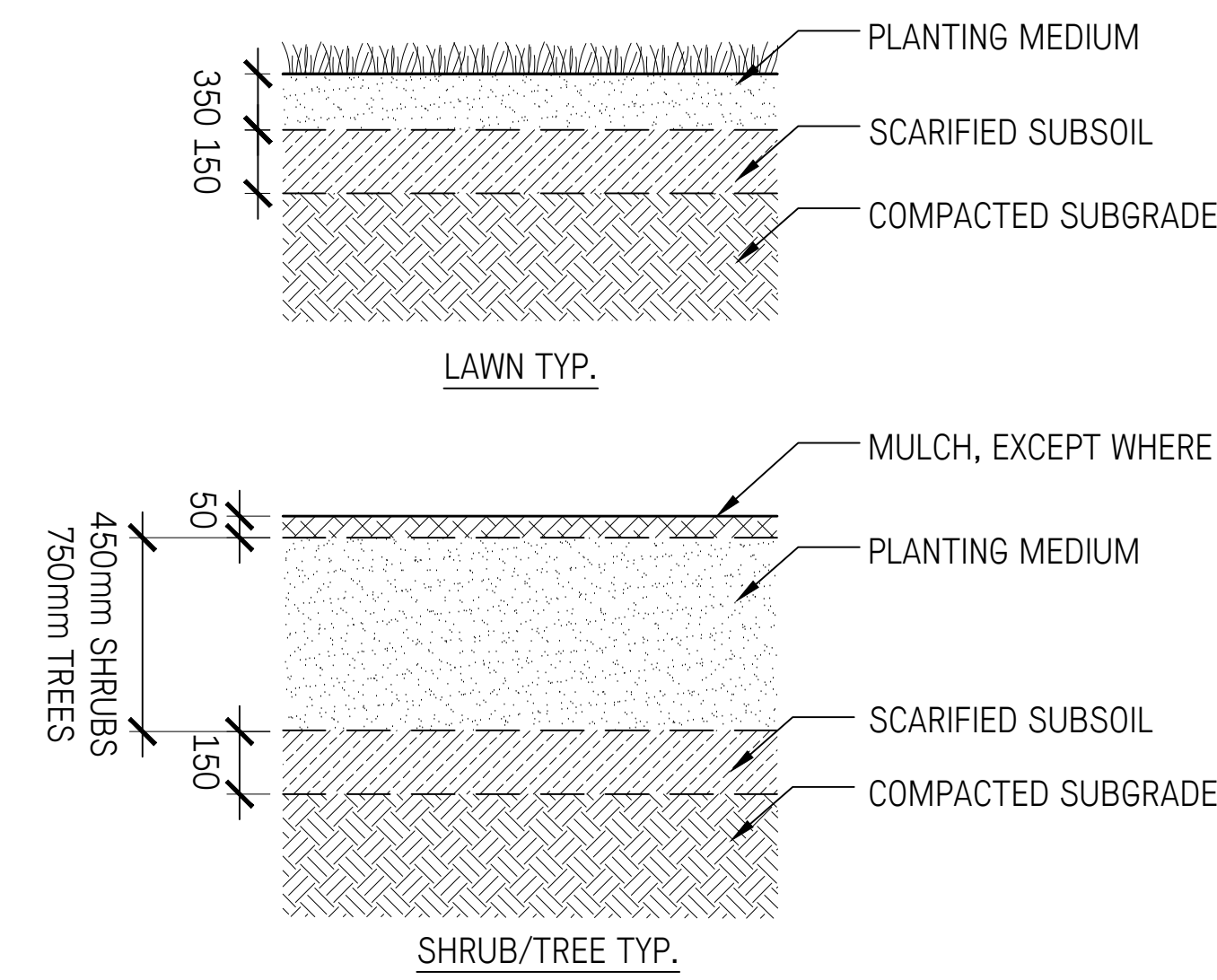
Cumbria Relocation  
University of British Columbia

## Landscape Sections

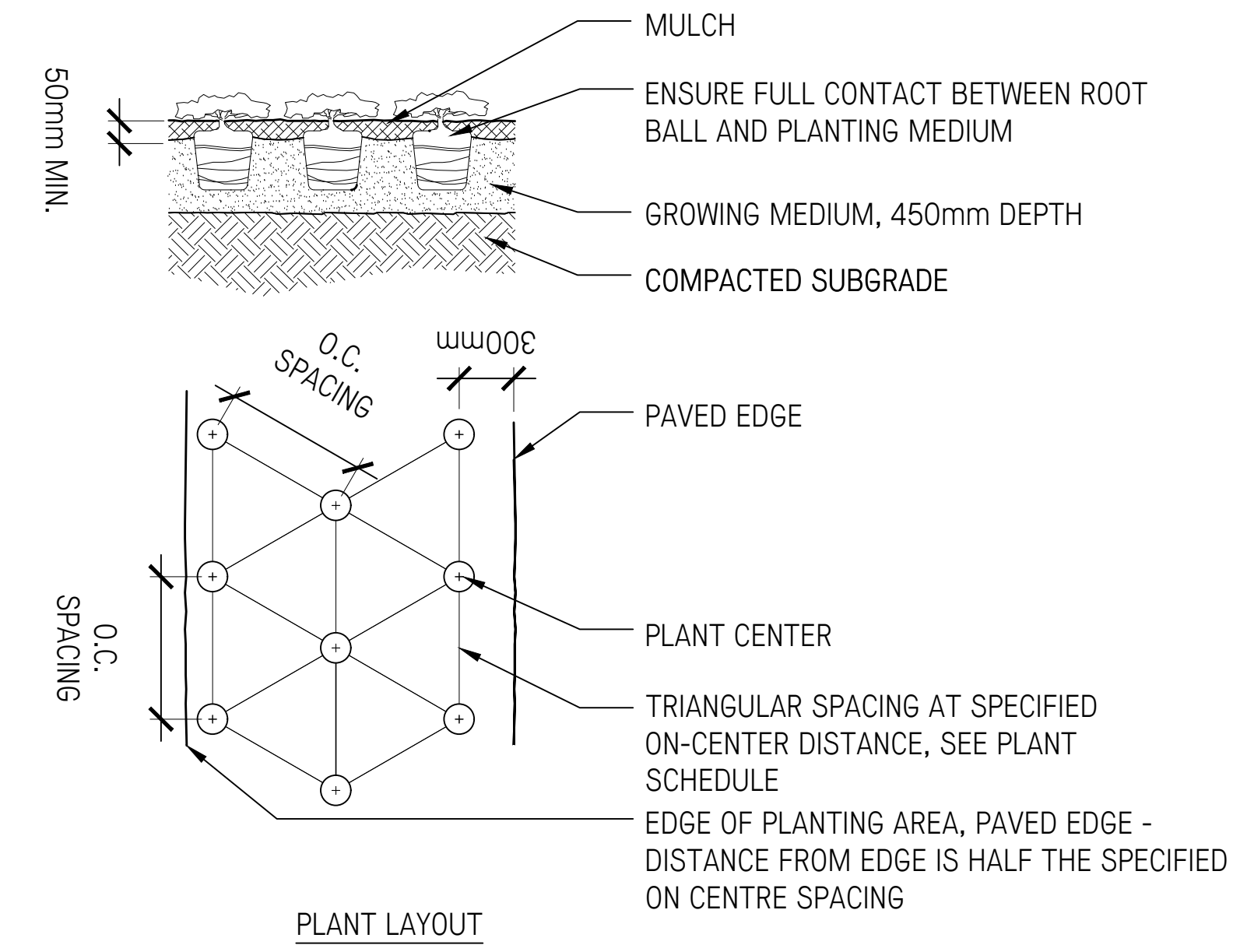
Date	Sept 25, 2018	Drawing Number
Project No.	1821	<b>L2.1</b>
Scale	1:100	
Drawn/Checked	Ih   JF	



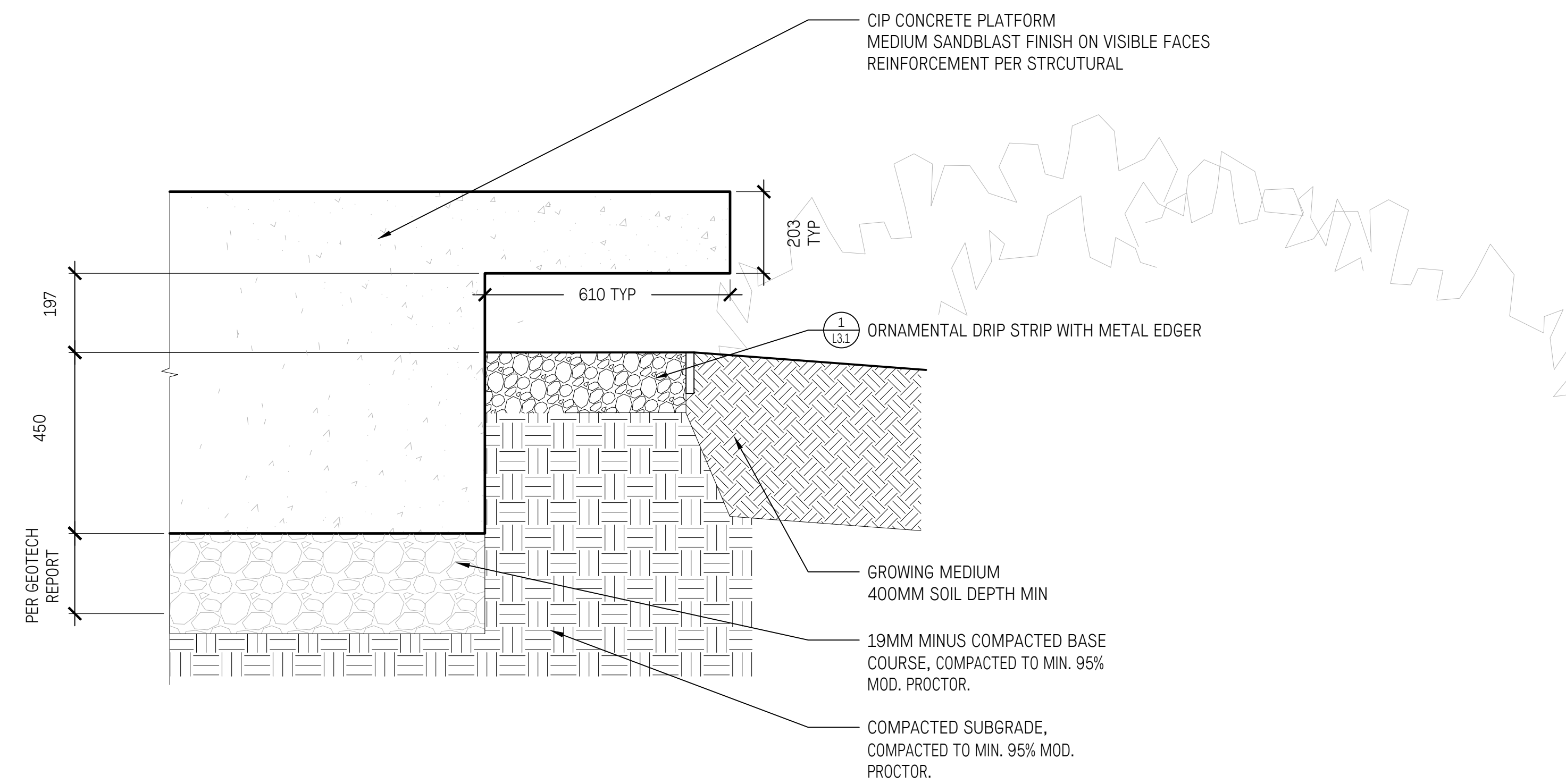
1 ORNAMENTAL DRIP STRIP WITH METAL EDGER  
L3.1 1:10



2 SOIL PROFILE  
L3.1 1:10



3 GROUNDCOVER PLANTING  
L3.1 1:16



4 SCULPTURE PLATFORM EDGE TYP.  
L3.1 1:10

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Cumbria Relocation  
University of British Columbia

## Landscape Details

Date	Sept 25, 2018	Drawing Number
Project No.	1821	
Scale	AS SHOWN	<b>L3.1</b>
Drawn/Checked	Ih   JF	











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UBC Infrastructure Development  
1100 – 2329 West Mall  
Vancouver, BC  
V6T 1Z4

October 22, 2018  
File: 16428

Attention: Mr. Darren Wong

**Re: Geotechnical Report, Cumbria Sculpture – West Mall and University Boulevard, UBC**

## **1.0 INTRODUCTION**

We understand that a steel sculpture is proposed to be installed within the landscape area between Ponderosa East and West in UBC Campus. It is further understood that geotechnical recommendations are required in order to design the sculpture foundations. We have been provided conceptual design showing the location of the proposed sculpture.

This report presents the results of our geotechnical investigation of the site and makes recommendations for the design and construction of the proposed sculpture foundation. This report has been prepared exclusively for UBC Infrastructure Development and for the use of others on their design and construction team, although it remains the property of GeoPacific Consultants Ltd.

## **2.0 SITE DESCRIPTION**

The proposed sculpture is to be located within the existing landscape area along University Boulevard, just south of its intersection with West Mall. The site is bounded by West Mall to the east, University Boulevard to the South, Ponderosa building to the north and landscape area to the west.

The site is presently covered turf and concrete pathways surrounding it. The area has been raised above sidewalks grades at about 2 m. In general, University Boulevard is gradually sloping from east to west with elevation differential of about 1 m.

## **3.0 FIELD INVESTIGATION**

### **3.1 Site Investigation**

GeoPacific conducted a geotechnical investigation for the project on October 11, 2018. The investigation consisted of a review of geological maps, visual inspection, and augered test holes supplemented with dynamic cone penetration test (DCPT) soundings.

Prior to drilling, a permit from UBC Campus & Community Planning department was obtained confirming that the proposed test hole location is acceptable. A utility locate was carried out to help ensure the test hole is clear of existing services and utilities.

Two test holes were completed using the subcontracted drilling services of Uniwide Drilling of Prince

George. The test holes were advanced to a depths of 6.1 m below grade. One of the test holes was supplemented with DCPT soundings to help characterize the in-situ density of the soil. The test holes were backfilled following our investigation in accordance with provincial abandonment requirements.

The approximate test hole location is shown on our Drawing No. 16428-01 included with this report.

#### **4.0 SUBSURFACE CONDITIONS**

##### **4.1 Soil Profile**

The general geology of the region under investigation is described as Vashon glacial drift, overlying Quadra fluvial deposits with reference to the Geological Survey of Canada's map 1484A. The glacial drift is characterized as lodgement and minor flow till with lenses and interbeds of substratified glaciofluvial sand and gravel, including lenses and interbeds of glaciolacustrine stony silt. The Quadra fluvial deposits consist of channel fill and floodplain deposits; crossbedded sand with minor silt and gravel lenses.

A general description of the soils encountered at our test hole locations is given below.

##### **Topsoil**

Topsoil was identified in our test hole and found to be about 200 mm thick.

##### **Sand and Gravel (Fill)**

The topsoil is underlain by loose to compact fill comprised of sand and gravel with trace silt. The fill extended to a depth of 1.5 m below grade.

##### **Sand**

The fill is underlain by a loose layer of sand with trace silt and gravel. This stratum extended to depths of 2.1 and 2.4 m below existing grade at our test hole locations.

##### **Sand (Till)**

The topsoil is underlain by till deposits comprised of sand with trace silt and fine gravel. In-situ testing and drill observations indicate that this stratum is dense to very dense. These till-like deposits were found to extend to the full depth of our investigation.

Detailed soil descriptions are included on the test hole log is included in Appendix A.

##### **4.2 Groundwater Conditions**

The groundwater table was not encountered during our field investigation. Perched groundwater may be encountered overlying the native soils within the fill and topsoil.

## 5.0 DISCUSSION

The proposed sculpture is to be constructed within the landscape area along University Boulevard, just west of its intersection with West Mall. It is understood that the sculpture is about 4.5 m high and will be secured onto a raft foundation with a minimum size of 5 m x 5 m. We envisage that the foundations will likely be partially buried and partially exposed above the surrounding pathways grades. It is further understood that recommendations for pile designs are not required.

## 6.0 RECOMMENDATIONS

### 6.1 Stripping

Site preparation associated with foundations includes removal of any organic soils or topsoil, and any other material considered to compromise the design recommendations stated herein. We anticipate that up to 1.5 m of stripping will be required to achieve the required raft foundations elevations.

The existing fill materials and sand identified on our logs, overlaying the native dense to very dense sand till, are deemed suitable as “engineered fill” under the proposed raft foundations provided that they are adequately compacted in-situ. These materials should be compacted in maximum 300 mm lifts to a minimum of 95% Modified Proctor maximum dry density at a moisture content that is within 2% of optimum for compaction. GeoPacific should review the compaction of these materials.

### 6.2 Sculpture Foundations

Footings which is founded on competent dense to very dense till-like sand, as described in Section 4.1, can be designed on the basis of a serviceability limit state (SLS) bearing pressure of 300 kPa for raft foundations.

Foundations which are placed on engineered fill, as defined in Section 6.1, may be designed on the basis of an SLS bearing pressure of 100 kPa.

Factored ultimate limit state (ULS) bearing pressures, for transient loads such as those induced by wind and earthquakes, may be taken as 1.5 x the SLS bearing pressures provided above.

All footings should also be buried a minimum of 450 mm below the surface for frost protection.

Post construction settlement of foundations designed as recommended should be less than 25 mm total and 20 mm over 10 m differential.

*Stripped subgrades and engineered fill materials and compaction must be reviewed by the geotechnical engineer.*

### 6.3 Seismic Design of Foundations

In accordance with the 2012 BC Building Code the buildings are to be designed for a seismic hazard with 2% probability of exceedance over a 50 year period which equates to an earthquake with a return period of

1 in 2,475 years. The design seismic hazard considers ground motions which would have a peak firm ground horizontal acceleration of 0.46 g at this location.

The soils at this site are not considered susceptible to liquefaction triggering or strain softening in consideration of the seismic hazard defined in the 2012 British Columbia Building Code (BCBC).

The seismic design parameters for this project should be based on “Site Class C” as defined in Table 4.1.8.4.A of the 2012 BC Building Code.

#### **6.4 Excavation and Shoring**

We expect that temporary excavations may be required to achieve desired raft foundation elevation. We expect that the excavation can be sloped. We expect that slopes of 1:1 (H:V) in the existing surficial topsoil and loose fill materials can be accomplished.

It should be appreciated that temporary cut slopes are only suitable when located a safe distance away from existing structures, roads and utilities. Where the proposed excavation encroaches onto existing structures, property lines and utilities, shoring or lock blocks could be utilized to support the excavations.

As required by UBC Planning and Infrastructure on all other sites on campus, erosion and sediment control plan and regular site reviews may be required during construction.

Water seepage into the excavation from within the surficial fill and topsoil should be expected. We expect that groundwater inflows could be controlled with conventional sumps and sump pumps.

Temporary cut slopes in excess of 1.2 m in height must be covered in poly sheeting and require inspection by a professional engineer in accordance with Work Safe B.C. guidelines, prior to man-entry.

#### **7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS**

As required for Municipal “Letters of Assurance”, GeoPacific Consultants Ltd. will carry out sufficient field reviews during construction to ensure that the Geotechnical Design recommendations contained within this report have been adequately communicated to the design team and to the contractors implementing the design. These field reviews are not carried out for the benefit of the contractors and therefore do not in any way effect the contractors obligations to perform under the terms of his/her contract.

It is the contractors’ responsibility to advise GeoPacific Consultants Ltd. (a minimum of 48 hours in advance) that a field review is required. Field reviews are normally required at the time of the following activities:

- |                    |   |
|--------------------|---|
| 1. Stripping       | Review of stripping depth.                              |
| 2. Engineered Fill | Review of materials and compaction degree, if required. |
| 3. Foundation      | Review of foundation subgrade.                          |

It is critical that these reviews are carried out to ensure that our intentions have been adequately communicated. It is also critical that contractors working on the site view this document in advance of any work being carried out so that they become familiarised with the sensitive aspects of the works proposed. It is the responsibility of the developer to notify GeoPacific Consultants Ltd. when conditions or situations not outlined within this document are encountered.

## 8.0 CLOSURE

We are pleased to be of assistance to you on this project and we trust that our comments and recommendations are both helpful and sufficient for your current purposes. If you would like further details or require clarification of the above, please do not hesitate to call.

For:  
**GeoPacific Consultants Ltd.**

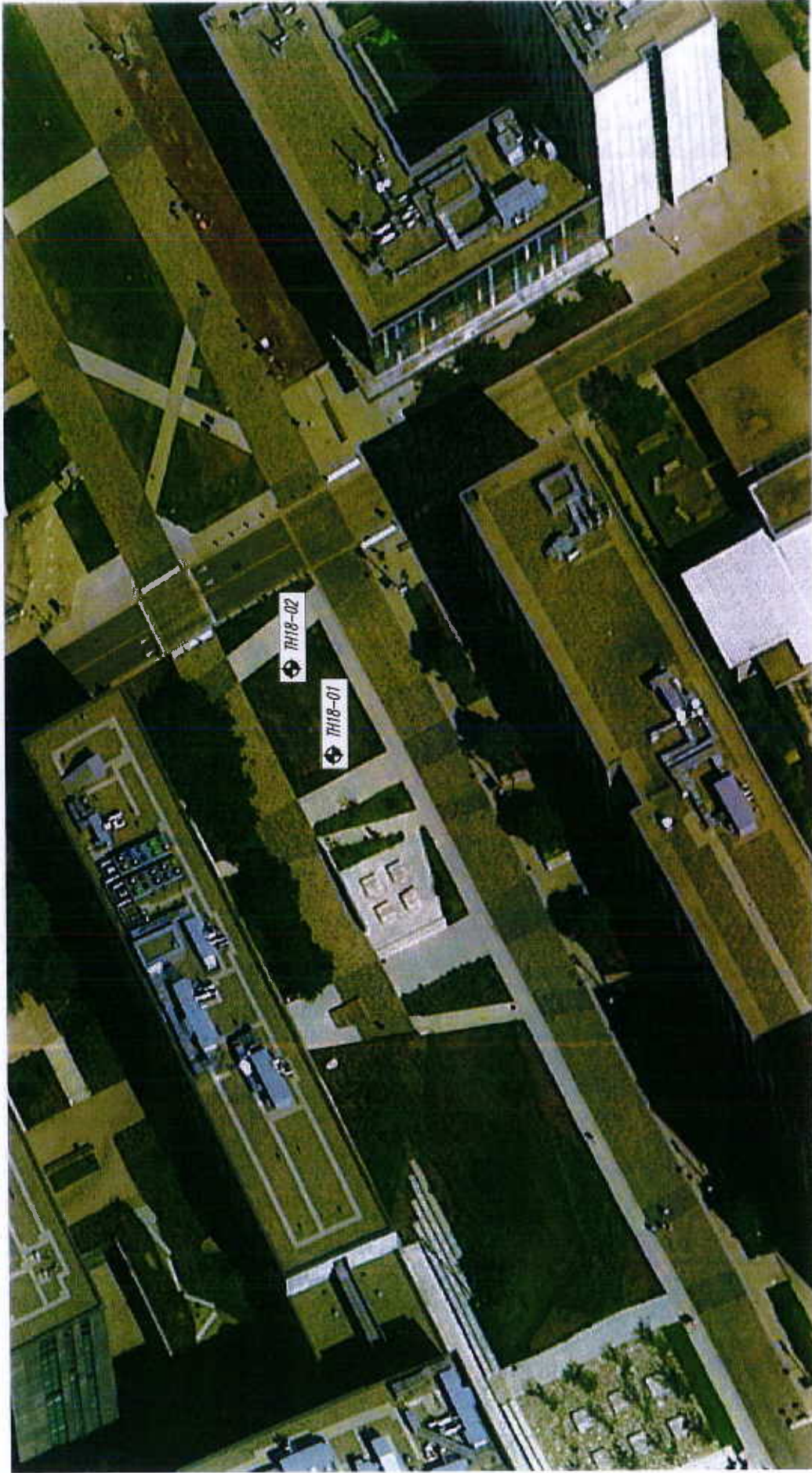
Arye Lipshitz  
Project Manager

Reviewed by:

OCT 23 2018

Marian Letavay, M. Sc., P.Eng  
Senior Project Engineer





**LEGEND:**

⊕ - TEST HOLE (TH) LOCATIONS



**SITE PLAN**

SCALE = NTS

UTM REFERENCE:

UTM REFERENCE:

UTM NO. **16428**

UTM ZONE: **18Q**

UTM EASTING: **01**

1779 W. 75th Avenue  
 Vancouver, BC V6P 4R2  
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**GEO PACIFIC**  
 VANCOUVER • CALGARY • SEASIDE



DATE: **October 11, 2018**

DRAWN BY: **AL**

APPROVED BY: **MXL**

REVIEWED BY: **SEE ABOVE**

**Cumbria Sculpture**  
 West Mall and University Boulevard, UBC  
**TEST HOLE LOCATIONS**



APPENDIX A

TEST HOLE LOGS

# Test Hole Log: TH18-01

File: 16428

Project: Cumbria Statue

Client: UBC Infrastructure Development

Site Location: West Mall and University Boulevard, UBC



**GEOPACIFIC**  
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P  
BP2  
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE										
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)	Moisture Content (%)	DCPT (blows per foot)				Groundwater / Well	Remarks
					10	20	30	40		
0		Ground Surface								
0.2		<b>Topsoil</b> Grass on top, loose sand	0.2							
1.5		<b>Sand and gravel (Fill)</b> Loose to compact, trace silt, medium grained sand, brown, moist	1.5	13.8						
2.4		<b>Sand</b> Loose, trace to some silt, trace gravel, brown, wet	2.4							
6.1		<b>Sand (Till)</b> Dense to very dense, trace silt, trace fine gravel, medium grained sand, grey, moist to wet	6.1	20.6						
6.1		End of Borehole	6.1							

Logged: AL  
Method: Solid stem auger  
Date: October 11, 2018

Datum: Ground surface  
Figure Number: A.1.  
Page: 1 of 1

# Test Hole Log: TH18-02

File: 16428

Project: Cumbria Statue

Client: UBC Infrastructure Development

Site Location: West Mall and University Boulevard, UBC



**GEO PACIFIC**  
CONSULTANTS

1779 West 75th Avenue, Vancouver, BC, V6P 6P2  
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot) 10 20 30 40	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface					
0.2		<b>Topsoll</b> Grass on top, loose sand	0.2				
1.5		<b>Sand and gravel (Fill)</b> Loose to compact, trace silt, medium grained sand, brown, moist	1.5		20		
2.1		<b>Sand</b> Loose, trace to some silt, trace gravel, brown, wet	2.1		39		
2.1		<b>Sand (Till)</b> Dense to very dense, trace silt, trace fine gravel, medium grained sand, grey, moist	2.1		37		
6.1			6.1		5		
6.1			6.1	11.9	6		DCPT refusal at 7'
6.1			6.1		>50		
6.1		End of Borehole	6.1				
7							
7							

Logged: AL  
Method: Solid stem auger  
Date: October 11, 2018

Datum: Ground surface  
Figure Number: A.2.  
Page: 1 of 1