APPENDIX 5 TO THE MINISTER'S ORDER

Amendment to the University Endowment Lands *Works and Services Bylaw 2016*

1. The *Works and Services Bylaw 2016* is amended by adding the following Schedule F to the Bylaw immediately following Schedule E:

TABLE OF CONTENTS

1. GREEN BUILDING REQUIREMENTS

All buildings within Block F shall be designed to be adaptable to allow for future connection to a neighbourhood energy utility. The owner may use the requirements for "District Energy-Ready Buildings" as a guide that are outlined in the UBC Neighbourhood District Energy System's document titled *Design Guide for Compatibility with District Energy.* This document can be found at the following website:
http://planning.ubc.ca/sites/planning.ubc.ca/files/images/planning-services/forms-documents/UBC%20DE%20Compatibility%20Guide%20FINAL%20v1%5B5%5D.pdf

2. ACOUSTIC REQUIREMENTS

All buildings must be designed in accordance with the noise control considerations outlined in the Block F Design Guidelines and an acoustical study shall be completed and submitted with every development permit application.

3. ENVIRONMENTAL CONSIDERATIONS

All parcels must submit the following with any building permit application:

- Nesting survey as per the Wildlife Act (1996) and Migratory Birds Convention Act (1994);
- Construction traffic management plan;
- Erosion and sediment control plan;
- On-site survey of species at risk, including red and blue listed species as per the BC List Status and;
- Tree protection and management plan.

4. WATER DISTRIBUTION AND FIRE PROTECTION

A water distribution system must be designed and constructed by the owner as per attached **Figure CSP-3** and in accordance with the specifications outlined in the University Endowment Lands' Works and Services Bylaw.

Buildings of combustible construction which are 5 or 6 storeys in building height are required by the Fire Department to have:

- Standpipes installed progressively; and
- A construction fire safety plan prepared by a fire protection professional and acceptable to the Fire Chief that addresses protection of adjacent buildings.

5. SANITARY SEWER

A gravity sanitary sewer system must be designed and constructed by the owner as per attached **Figure CSP-1** and in accordance with the specifications outlined in the University Endowment Lands Works and Services Bylaw.

6. STORMWATER REQUIREMENTS

Stormwater is the element of runoff that is generated by human activities. When vegetation and soils are replaced with roads and buildings, less rainfall infiltrates into the ground, less gets taken up by vegetation and more becomes surface runoff. The result is stormwater runoff that

increases the flow volume and peak flow rates and causes erosion in downstream water courses.

Implementing a stormwater best management practices (BMP) strategy that will infiltrate, evapotranspirate, reuse, and detain stormwater runoff will reduce the volume and rate of stormwater entering the drainage system. This tactic will subsequently reduce erosion in downstream water courses.

Stormwater runoff rates, volume and quality requirements must fully meet the following standards:

- Reduce post-development flow (volume, shape and peak instantaneous rates) to pre-development levels for the 6-month, 24 hour and the 5-year, 24 hour precipitation events.
- Retain the 6-month, 24 hour post-development volume from impervious areas on-site and infiltrate into ground. If infiltration is not possible, the rate of discharge from the “volume reduction BMPs” will be equal to the calculated release rate of an infiltration system.
- Collect and treat the volume of the 24-hour precipitation event equaling 90% of the total rainfall from impervious areas with suitable BMPs.

A gravity stormwater system must be designed and constructed by the owner as per attached **Figures CSP-2** and **SWMP 1** and in accordance with the specifications outlined in the University Endowment Lands Works and Services Bylaw.

Upon completion of the Development of Block F the owner must commence monitoring stormwater out of those lands on Block F identified on the Figures annexed to this Schedule “F” as "Wetlands" for flow rates and water quality pursuant to a monitoring plan approved by the Manager of the UEL, and for that purpose the owner must install flow and water quality measuring devices in and around the Wetlands of a type and manufacture approved by the Manager; and

ii) for a period of at least two consecutive years following the installation of the water flow and quality devices monitor the flow and quality of the water entering and leaving the Wetlands to ensure that flows and quality meet the design criteria and standards set out in the "University Endowment Lands Works and Services Bylaw 2016" and any applicable standards and requirements stipulated by Fisheries and Oceans Canada. Monitoring must be continued annually until the design criteria and standards for both flow and quality have been met for two consecutive years.

iii) in each year that the required monitoring of water continues, provide to the Manager records of water flows and quality certified as accurate by a Registered Professional Engineer or Biologist, and also certified by the same professional that the recording of flows and water quality were undertaken pursuant to the proper methodology required by the manufacturer of the recording devices. Monitoring shall continue until in two consecutive years the certifying professional certifies that the stormwater system on the Wetlands meets the design criteria and standards for both flow and water quality.

The Manager of the UEL may require and hold any Security provided for the construction of the Wetlands until the performance of the Wetlands is confirmed through the monitoring outlined above in Section 6 of this Schedule F.

7. ROADS

A road network must be designed and constructed by the owner as per attached **Figures CGP1** and **CSP-XS** and in accordance with the specifications outlined in the University Endowment Lands Works and Services Bylaw.

With the application of any building permit, the owner must identify loading areas and parking areas, and provide signed agreements for any areas that are to have shared use between properties.

7.1 Parking

Public parking along Acadia Road, Road A and Road B must be constructed by the owner. Supporting infrastructure for parking meters such as concrete bases shall be installed at the time of road construction.

7.2 Trails

A trail network must be designed and constructed by the owner as per the attached figures (**3.7.5** and **3.7.6**); and in accordance with the UEL Block F Design Guidelines, being Appendix 5 to Land Use, Building, and Community Administration Bylaw, and the detailed landscape drawings and the specifications outlined in the University Endowment Lands Works and Services Bylaw ensuring no damage to trees identified for retention.

Trails are to be graded with a minimum cross fall of 2% and max cross fall of 5% to allow runoff into swales or stormwater management systems as required.

8. STREET LIGHTING AND UTILITIES

The owner must cause the design and construction of a utility network and street lighting system as per the attached. **Figure CSP-4** and in accordance with the Block F Design Guidelines and specifications outlined in the University Endowment Lands Works and Services Bylaw.

New street lights along University Boulevard shall be consistent with the existing light standard along University Boulevard.

9. INFRASTRUCTURE PHASING

The sequence and timing of infrastructure requirements are outlined in the Master Development Covenant for Block F being a Section 219 Land Title Act restrictive covenant in favour of the Crown charging the Block F lands. A summary of the requirements are shown in the attached **Figure CPP-1.** If there are any discrepancies between **Figure CPP-1** and the Master Development Covenant then the requirements in the Master Development Covenant govern.

10. PLANTING AND LANDSCAPING

Planting proposals will be considered for new developments and redevelopments of land in the University Endowment Lands (UEL) when any abutting street has been built to its ultimate width, finished curbs (sidewalks if planned), and utilities located underground, if any. All buildings must be completed prior to planting in order to avoid damage to trees.

Permission is to be obtained from the UEL Manager before trees are planted on a street boulevard. Prior to the tree planting, the actual tree locations and spacing are to be approved by the UEL. This is to ensure that the proposed tree locations do not conflict with existing or planned underground utilities.

Top soil placed in boulevards for planting shall be of a minimum thickness of 450mm. Depths of growing medium for trees, planting and turf grass shall also meet the minimum requirements as outlined in the current British Columbia Landscape Standard (BCLS) as published by the British Columbia Society of Landscape Architects (BCSLA). Tree pits to meet the minimum area (volume) as identified in the BCLS.

10.1 Native Riparian Restoration

Restoration to riparian areas of the constructed wetland must be based on natural successional strategies and involve a two-phased approach. The first phase of planting will include a simple, high-density planning strategy dominated by fast-growing native primary woody plants species, including:

- Red alder (Alnus rubra)
- Black cottonwood (Populus balsamifera)
- Red-osler dogwood (Cormus stolonifera)
- Willow (Salix sp.); and
- Bracken fern (Pteridium aquilinum)

The second phase of planting must occur after the primary woody plant community has successfully established (i.e. roughly three growing seasons). This phase will supplement the pioneering woody species with pioneering coniferous trees to assist the successional process, and begin to establish long-term conditions less favorable for some unwanted invasive species. Tree species to be included in the second phase of planting will include:

- Douglas-fir (Pseudotsuga menziesii)
- Western red cedar (Thuja plicata)
- Western hemlock (Tsuga heterophylla); and
- Sitka spruce (Picea sitchensis)

10.2 Preparation for planting

Trees and plants shall be grown by plant nurseries in accordance with the current edition of the BC Landscape Standard (BCLS), as published by the British Columbia Society of Landscape Architects, and Canadian Standards for Nursery Stock (CSNS), as published by the Canadian Nursery Landscape Association. Plants are to be delivered in appropriate sized pots and with root balls as specified in the BCLS and CSNS, while following the correct procedures for plant type and period of dormancy/non-dormancy.

Excavation of the subgrade below shall be only as necessary to permit the bottom of the root ball to sit on the undisturbed material or compacted fill such that the top of the root ball remains at grade equal to its growing condition at the nursery while at the same time meeting the minimum depth requirements as per the BC Landscape Standard. Ensure there is positive drainage in the tree pit, provide deep scarification if required to ensure drainage.

10.3 Tree Planting

Finished grade – the tree must be installed such that the top of the root ball is even with the surrounding soil – after settlement. If there is a chance of some settling after planting, install such that the top of the root ball is 2 to 4 cm above the surrounding grade. Trees with the trunk flare buried beneath the soil line will not be accepted.

Wherever possible, the hole must be dug with sloping sides. The preferred angle is 45 degrees. Trees must be as vertical as possible. If planting in a surround, the stem must be close enough to centre that at least some part of the tree is in dead centre.

Position the tree so that lower branches will not conflict with traveled portions of the sidewalk of the street. Notwithstanding conflicts, the tree must be positioned for most attractive viewing. Pruning may be necessary in order to provide pedestrian clearance.

Backfill material in the tree pits shall be either an amended native soil mixture from the site or manufactured growing medium. The composition of the backfill material shall conform to the BC Landscape Standards with the provision of a growing medium analysis for documentation.

Where permitted by the supplier plant nursery's warranty, basket ties must be cut and the top 1/3 of the burlap and basket folded back downwards, when the backfill has been placed up to about 2/3's of the root ball height. No burlap or wire must be showing above the finished grade. Ties must be pushed back into the lower portion of the hole. Where prohibited by the nursery's warranty, the contractor is responsible to ensure the ties and basket are folded over at the first anniversary of the one (1) year warranty period.

A 10 cm raised saucer, of inside diameter equal to the outside diameter of the root ball, must be constructed around the perimeter of the root ball to enhance water infiltration. A mulch of organic material meeting the BC Landscape Standard requirements shall be placed inside the berms of the saucer, to a depth of 5 cm after settlement.

Trees must be immediately and adequately watered after planting, following the requirements of the BC Landscape Standard. When planting where UEL has determined that drainage correction is impossible or impractical, the root collar must be planted higher in relationship to the surrounding soil by 7.5 to 10 cm.

10.4 Root Barrier

Root barriers must be installed at the time of planting whenever a tree is installed within 2 metres of a sidewalk or other hardscape feature – excluding roads; or where specified on approved drawings.
Barriers must be made commercially, produced for the purpose of deflecting roots downward. Placement must be as per manufacturer's instruction. The root barrier is to extend a full 2.0 m on either side of the trunk that faces a sidewalk or hard landscape feature.

10.5 Protection

A protection barrier must have the following attributes:

- is at least 1.2 metres high measured from the ground, mounted on steel or sturdy wooden posts. Fence posts must be installed no farther than 2.4m apart.
- distance of barrier from near edge of tree trunk, measured parallel to curb and 1.4 m above grade of the ground is as follows:

MINIMUM PROTECTION REQUIRED – parallel to curb

Trunk Diameter	Distance from Trunk
20 cm	1.2 metres
25	1.5
30	1.8
35	2.1
40	2.4
45	2.7
50	3.0
55	3.3
60	3.6
75	4.5
90	5.0
100	6.0

Distance of barrier from near edge of the tree to near edge of the curb, measured at right angles to the curb is ***0.6 metres*.**

Distance of barrier from near edge of the tree to near edge of sidewalk, measured at right angles to the curb is ***0.3 metres*.**

In situations where the curb or sidewalks are absent the roadside edge of the grass boulevard will substitute as the curb edge.

10.6 Tree Placement

10.6.1 Spacing

The optimum spacing of trees in the public realm is achieved by balancing aesthetic and environmental values with the physical form of the tree being used, and the carrying capacity of the site. The UEL aims for the maximum amount of tree coverage that is attainable while respecting site lines, utilities, and other important landscape elements.

On Block F, where the intent is to foster a new forest/naturalized area, the sizing and spacing of trees will need to consider the stages of a process landscape and natural succession. Tree spacing, sizing and quantities are to be determined and recommended in writing by a biologist to ensure the desired natural conditions will be provided.

Except in areas where a forest character planting is the intent, plant street trees so that the species/cultivar being planted will grow to close canopy at about the age of twenty where the trees are able to grow to a larger size, and the landscape is softened already by existing greenspace. List of acceptable species is provided in sec 10.8.1. Street trees are those trees found within the street right-of-way, not those within the public open spaces and parks.

Minimum Street Tree Spacing

Tree size category	Average Spacing
Large	9-11 meters
Medium	8-10 meters
Small	8-10 meter
Columnar	6-10 meters

Distance from Utilities for all Trees

Steel or Wooden Poles	2.5 meters (species dependent)
Driveways	2 meters – small trees 3 meters – medium trees 5 meters – large trees
Catch Basins/Valve Boxes/Manholes	3 meters
Stop Signs	6 meters
Sewer and Storm Services	2 meters
Hydrants	2 meters
Corners (from extended P/L)	3 meters
Sidewalks	1 meter
Back of curb – Local Roads	1 meter

The curb side edge of a tree surround must be at least 0.15 meters from the back of the curb.

10.7 Tree and Plant Stock

All trees are to meet the standards described in the “British Columbia Landscape Standards” (BCLS) latest edition.

Street Trees must also be:

- nursery field grown
- be on a single leader, with the lowest branch being at least 2 metre high on the stem
- 6 cm caliper or greater if deciduous
- 2.5 metres height or greater if coniferous
- free of pest and disease
- free of pernicious weeds in the root ball
- free of injury, or other defects
- free of girdling roots

Minimum root ball diameters for coniferous trees or as updated by the BCLS:

Height	Tall and columnar	Tall and broad
200 cm	50 cm	60 cm
250cm	55 cm	70 cm
300 cm	70 cm	85 cm

Minimum root ball diameters for deciduous trees or as updated by the BCLS:

Caliper	Root ball diameter
6 cm	60 cm
7 cm	70 cm
8 cm	80 cm
9 cm	90 cm
10 cm	100 cm
12.5 cm	110 cm
15 cm	120 cm

10.8 Species List

10.8.1 Tree Species List

The following list is the specified street tree species for each street within the Block F Lands. After the two years of watering following construction, the trees must be able to survive without irrigation.

Location	Botanical Name	Common Name
Acadia Road	Acer cappadocicum ‘Rubrum’	Coliseum Maple
	Tilia tomentosa ‘Green Mountain’	Green Mountain Linden
	Quercus coccinea	Scarlet Oak
Road A - Residential	Quercus palustris	Pin Oak
	Tilia tomentosa ‘Sterling’	Sterling Silver Linden
Road A – Community Centre	Acer rubrum ‘Armstrong’	Armstrong Red Maple
	Quercus palustris ‘Green Pillar’	Green Pillar Pin Oak
Road B	Acer x freemanii ‘Jeffsred’	Autumn Blaze Maple
	Zelkova serrata ‘Green Vase’	Green Vase Zelkova
	Fraxinus latifolia	Oregon Ash
Village Retail Frontage (Toronto, Acadia, Road A, University Blvd)	Acer rubrum ‘Armstrong’	Armstrong Red Maple
	Quercus palustris ‘Green Pillar’	Green Pillar Pin Oak
	Carpinus betulus ‘ Fastigiata’	European Hornbeam
University Boulevard		University Boulevard trees are to be selected from the Parks and Open Space recommended species list

The following list includes recommended tree species for Parks and Open Space areas. The species in the Parks and Open Space areas adjacent to the forest retention, new forest

naturalized areas and rain water management zones are to be specified by the project landscape architect in conjunction with the project biologist to ensure the habitat and ecological requirements are met. Native species or cultivars of native species shall be used. The trees must be selected to survive without irrigation (i.e. drought resistant), following the two years of watering after planting.

Botanical Name	Common Name
Acer circinatum	Vine Maple
Acer douglasi	Douglas Maple
Acer macrophyllum	Big Leaf Maple
Acer rubrum varieties	Red Maple varieties
Acer x freemanii varieties	Freeman Maple varieties
Amelanchier canadensis	Serviceberry
Betula nigra varieties	Black Birch varieties
Cornus controversa	Giant Dogwood
Cornus kousa	Kousa Dogwood varieties
Picea varieties	Native Spruce varieties.
Pinus contorta ‘Contorta’	Shore Pine
Pseudotsuga menziesii	Douglas Fir
Thuja plicata	Western Red Cedar
Quercus varieties	Oak varieties

10.8.2 Shrub and Ground Cover Species

The shrub and ground cover species shall be picked in consultation between a landscape architect and registered professional biologist to ensure the habitat and ecological requirements are met. A minimum 90% of plant species and quantities are to be native selections and no invasive species are to be used. The mix of species shall include both evergreen and deciduous plants. Areas of high public use may include ornamental species for colour and interest providing they do not pose an invasive mix to the adjacent naturalized areas.

The shrubs and ground cover must be selected to survive without irrigation (i.e. drought resistant), following the two years of watering after planting.

Within two metres of a walking route or open play area, shrubs and ground cover must be less than 1 metre tall for visibility and safety concerns.

The location and selection of species near intersections must consider sightlines for safety reasons. Within 6 metres of an intersection, shrubs and ground cover must be less than 60 cm tall.

10.8.3 Rain Garden Plant Species

The trees, shrubs and ground cover species shall be picked in consultation between the project landscape architect and the project biologist to ensure the habitat and ecological requirements are met and can thrive in the specific conditions of a riparian ecology. 100% of plant species and quantities are to be native selections and no invasive species are to be used. The mix of species shall include both evergreen and deciduous plants.

10.9 GROWING MEDIUM

For use in all areas of tree, shrub and ground cover planting including on and off slab conditions and structural growing medium.

10.9.1 General specifications

Growing medium may consist of on site or imported soil, soil substitute, or mixture whose chemical and physical properties fall within the ranges of the current BC Landscape Standard. It must be prepared to be virtually free of subsoil, non-composted manure, building materials, non-composted wood, insect or fungal pest organisms, sawdust, invasive plants seeds or viable plant parts, or other extraneous materials.

The properties of the growing medium must conform to the current BC Landscape Standard following the growing medium type designations based on level of care (level 1 to 6) and intended application (low traffic lawns, high traffic lawns, planting areas, natural areas etc.). These properties include the physical properties and make up, the chemical properties and drainage capacity.

10.9.2 Testing

Growing medium testing is to be conducted by an accredited commercial laboratory. The testing requirements are to conform to the current BC Landscape Standard. Testing is to be based on a sample taken within three (3) weeks of delivery to the site and be representative of the entire quantity of material being used. Results must be approved prior to delivery of the material. Material delivered to site that is not in conformance with the BC Landscape Standard must be rejected and required to be removed from site.

10.10 Maintenance

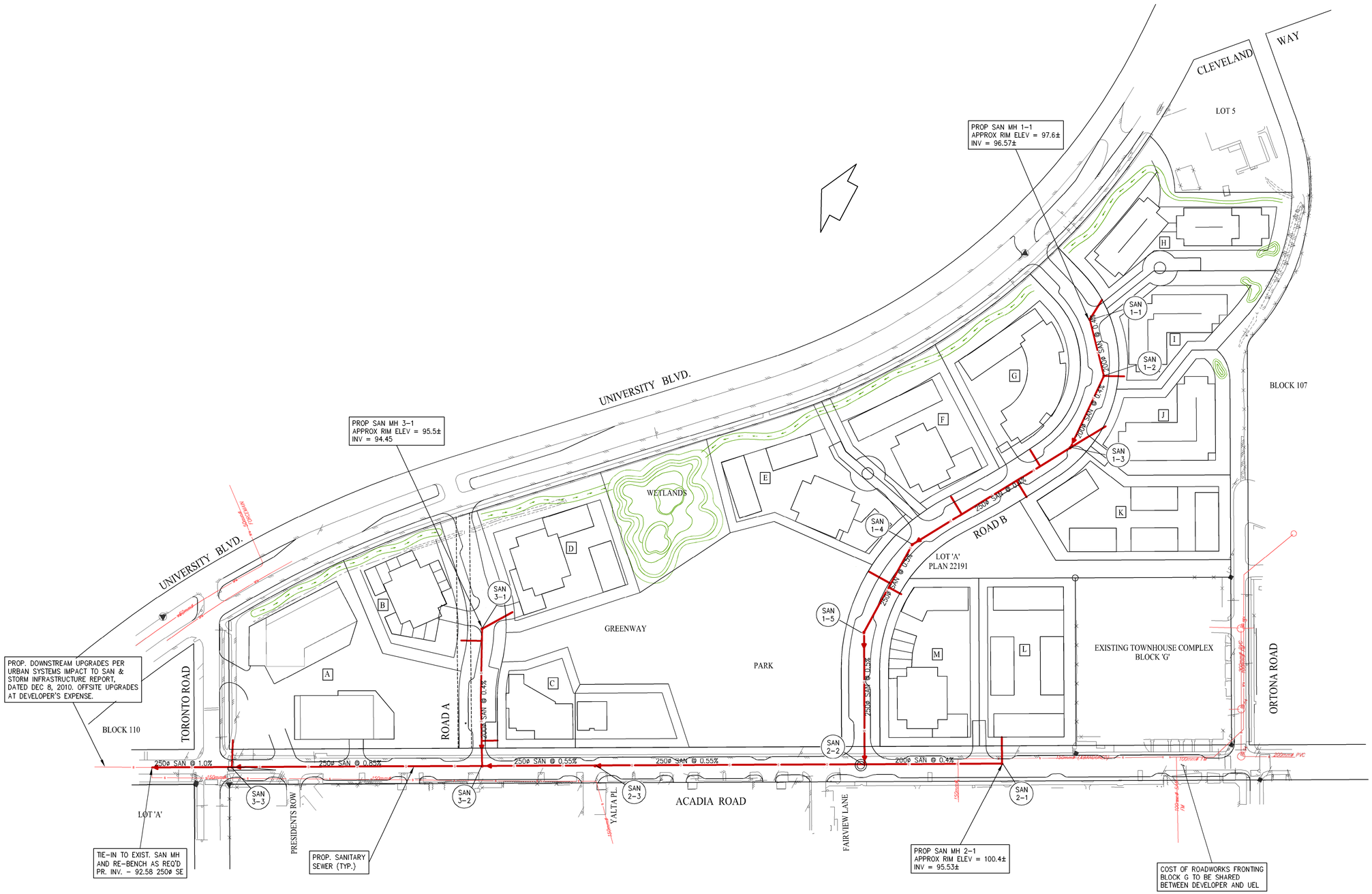
The developer is responsible for maintaining the trees for one year after substantial completion of the planting and for watering the trees from planting up to two years following substantial completion. Maintenance will include the cutting back of vegetation that encroaches on sidewalks, driveways, trails and roadways and prevents sightlines at intersections.

11. LANDSCAPING FURNITURE

Selection and location of furniture within the public realm is to be completed as per the Block F Design Guidelines and detailed landscape drawings.

12. FIGURES

Figures: CSP 1,2,3,and 4; CGP-1;CSP-XS and SWMP-1; and CPP-1; and 3.7.5 and 3.7.6 annexed hereto all form part of this Schedule “F”.



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EL. 91.709M

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SURVEYED BY:
R.F. BINNIE & ASSOCIATES

CIVIC ADDRESS:

LEGAL DESCRIPTION:
LOT 'A'
PLAN 22191
DL140
NEW WESTMINSTER DISTRICT

SCALE:
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ISSUED: M/D/Y	REVISION	DESCRIPTION
08/27/15	3	REVISED PER AECOM RESUBMSSION REVIEW
04/30/15	2	REZONING SUBMISSION
02/28/14	1	RE–ISSUED FOR REZONING SUBMISSION

PROJECT:
BLOCK F
MUSQUEAM
DEVELOPMENT

CLIENT:
COLLIERS INTERNATIONAL

CONSULTANT:
BINNIE
Your Challenges. Our Solutions. Build with Binnie.

R.F. BINNIE & ASSOCIATES LTD.
205 - 4946 Canada Way,
Burnaby, BC V5G 4H7
TEL 604 420 1721
BINNIE.com

DATE: 3/27/13
DRAWN:
DESIGN:
CHECKED: CHECKED
SCALE: 1:1000m
SEAL:

SHEET TITLE:
CONCEPTUAL SERVICING PLAN

SANITARY

DRAWING NO.: CSP-1
REV. 3
RFB JOB No. 12–125
SHEET 2 OF 9

BENCHMARK:
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CVD28GVRD DATUM
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DESIGN:
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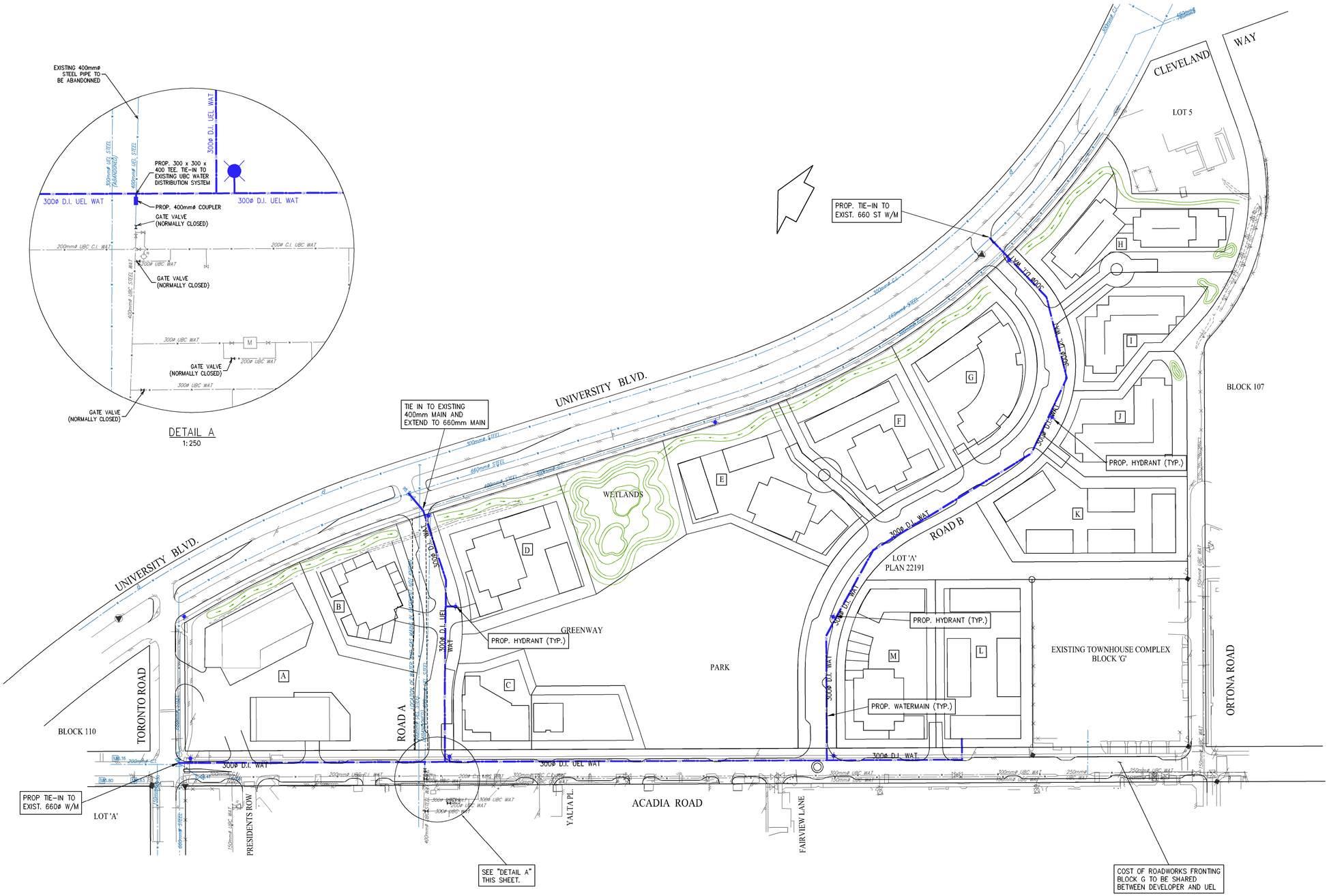
SEAL:

SHEET TITLE:
CONCEPTUAL
SERVICING PLAN

STORM

DRAWING NO.: CSP-2
REV. 3
RFB JOB No. 12-125
SHEET 3 OF 9



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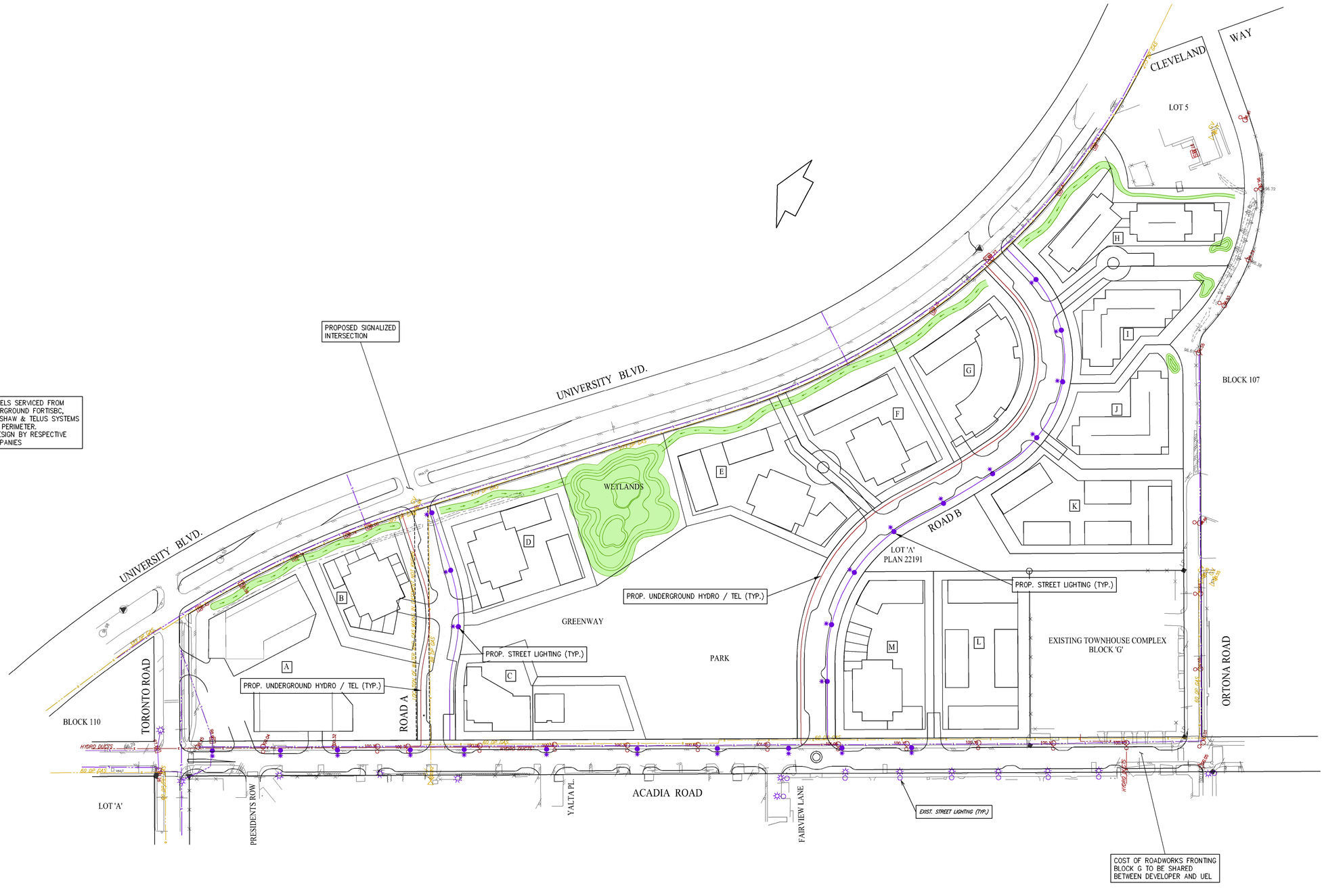
SHEET TITLE:
CONCEPTUAL
SERVICING PLAN

WATER

DRAWING NO.: CSP-3
REV. 3
RFB JOB No. 12-125
SHEET 4 OF 9



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SHEET TITLE:
CONCEPTUAL SERVICING PLAN

UTILITIES

DRAWING NO.: CSP-4
REV. 3
RFB JOB No. 12-125
SHEET 5 OF 9

LEGEND

EXISTING	DESCRIPTION
IP	IRON PROPERTY PIN
	PAVEMENT EDGE
	CURB
PS	SANITARY PUMP STATION
SFM	SANITARY FORCEMAIN
S	SANITARY SEWER
D	STORM SEWER
	CATCH BASIN
LD	LAWN DRAIN
W	WATERMAIN
	WATER VALVE
H	HYDRANT
W	CAPPED END
WM	WATER METER
W	BLOW-OFF
T	UNDERGROUND TELEPHONE
E	UNDERGROUND ELECTRICAL
G	GASMAIN
GV	GASMAIN VALVE
L	STREET LIGHT U/G DUCTS
	STREET LIGHT
	UTILITY POLE WITH LIGHT
PP	UTILITY POLE
	ANCHOR
J	JUNCTION BOX
E	ELECTRICAL BOX
	SIGN

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05/03/14	4	REISSUED FOR REZONING SUBMISSION
10/02/13	3	RE-ISSUED FOR REZONING SUBMISSION
08/26/13	2	ISSUED FOR REZONING SUBMISSION
06/20/13	1	ISSUED FOR COORDINATION

PROJECT:
BLOCK F
MUSQUEAM
DEVELOPMENT

CLIENT:
COLLIERS INTERNATIONAL

CONSULTANT:
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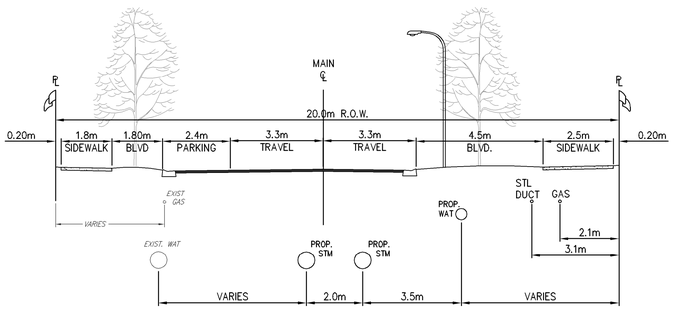
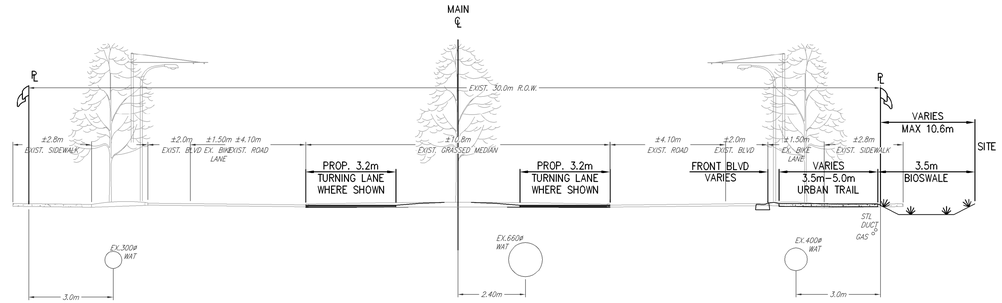
DATE: 6/7/13	SEAL:
DRAWN: CW	
DESIGN: RW	
CHECKED: 1	
SCALE: 1:1000m	

SHEET TITLE:
CONCEPTUAL
GRADING PLAN

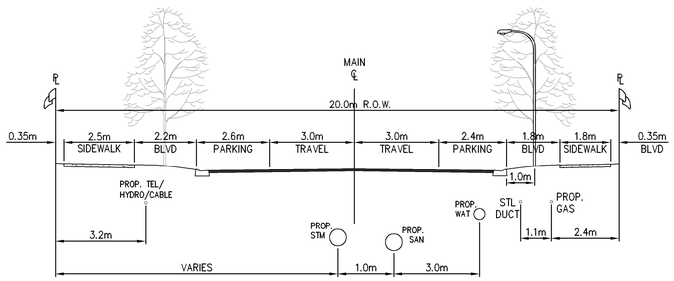
DRAWING NO.:	REV.
CGP1	6
RFB JOB No. 12-125	SHEET 6 OF 9



ROAD 'A'
COMMERCIAL STREET
N.T.S.



UNIVERSITY BOULEVARD
N.T.S.



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RESIDENTIAL STREET
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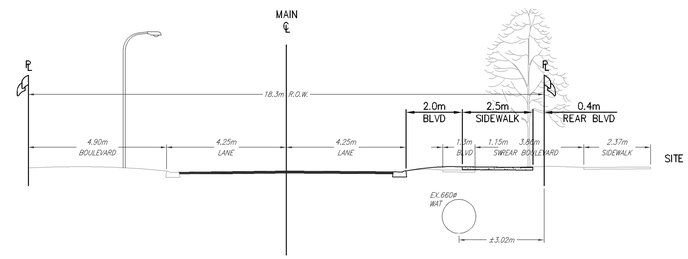

TORONTO ROAD
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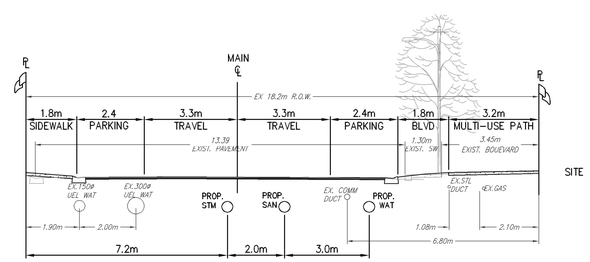

ACADIA ROAD
N.T.S.

BENCHMARK:
MONUMENT UEL #28
CVD28GVRD DATUM
EL. 91.709M

SITE SCALE FACTOR: 0.9996

SURVEYED BY:
R.F. BINNIE & ASSOCIATES

CIVIC ADDRESS:

LEGAL DESCRIPTION:
LOT 'A'
PLAN 22191
DL140
NEW WESTMINSTER DISTRICT

SCALE:
AS SHOWN

ISSUED: M/D/Y	REVISION	DESCRIPTION
08/27/2015	4	REVISED PER AECOM RESUBMISSION REVIEW
04/30/15	3	REZONING SUBMISSION
04/29/15	2	REVISED PER LANDSCAPE COORDINATION
02/28/14	1	RE-ISSUED FOR REZONING SUBMISSION

PROJECT:
BLOCK F
MUSQUEAM
DEVELOPMENT

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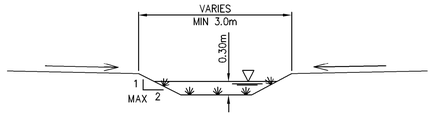
SCALE: AS SHOWN
SEAL:

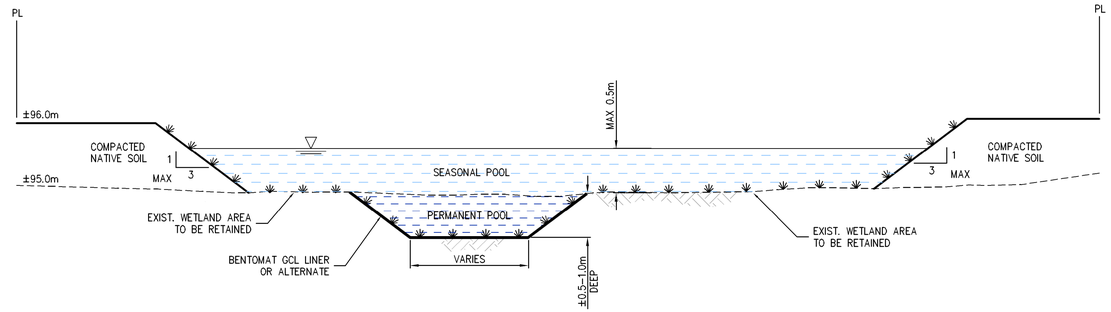
SHEET TITLE:
CONCEPTUAL
TYPICAL SECTIONS

DRAWING NO.: CSP-XS
REV. 4
RFB JOB No. 12–125
SHEET 7 OF 9



BIOSWALE TYPICAL SECTION

N.T.S.



CONSTRUCTED WETLAND TYPICAL SECTION

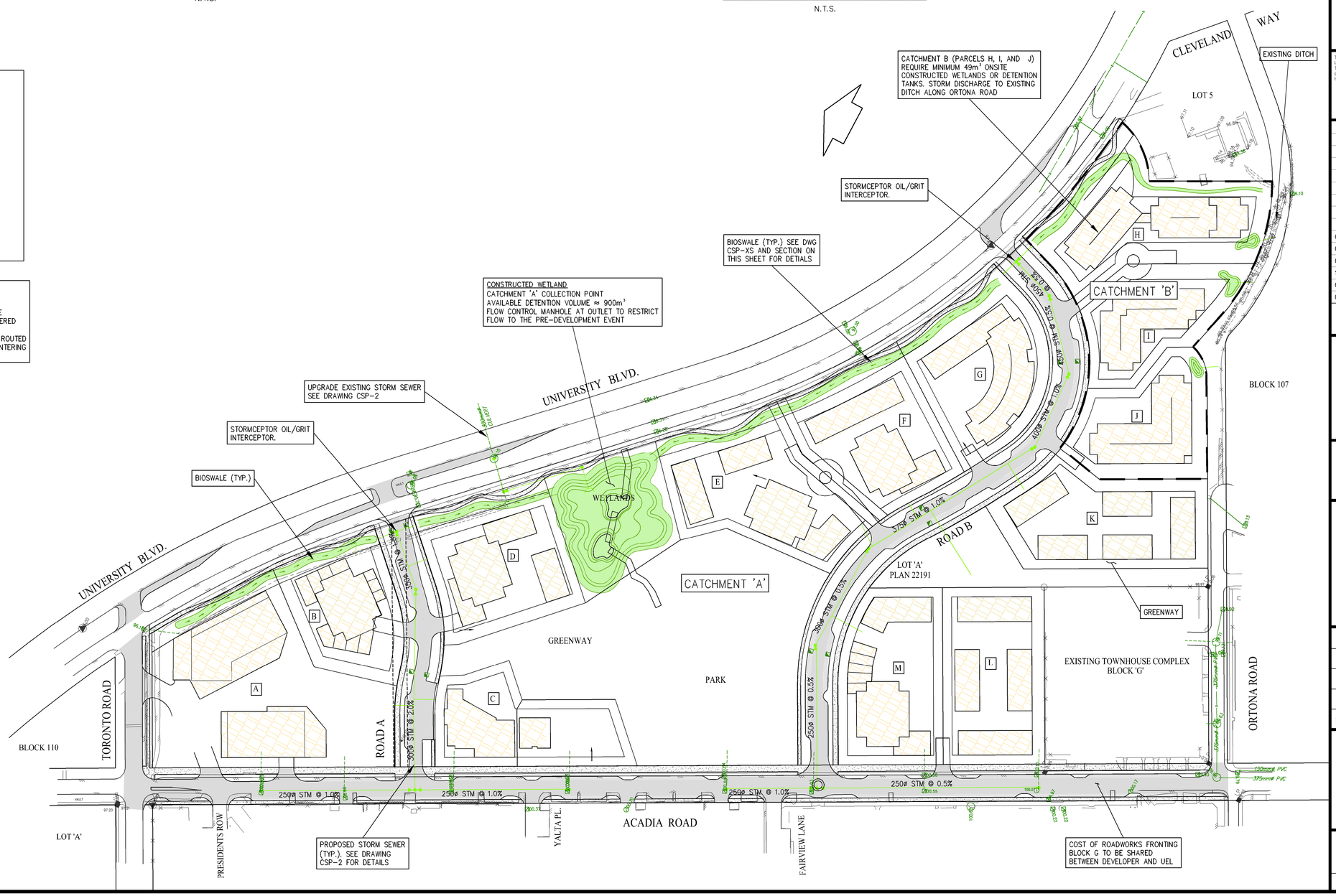
N.T.S.

LEGEND

- BUILDING ROOF
- PERMEABLE SURFACES (EXTENSIVE / LIMITED TREE CANOPY)
- IMPERMEABLE SURFACES
- CONSTRUCTED WETLAND (SEASONAL / PERMANENT POOL)

STORMWATER MANAGEMENT NOTES:

- THE LARGE DETENTION POND HAS SUFFICIENT STORAGE TO MEET THE REQUIREMENTS OF THE PROPOSED DEVELOPMENT. ADDITIONAL STORAGE AVAILABLE FROM BIO-SWALES WILL BE CONSIDERED AS CONTINGENCY.
- HARD SURFACE RUNOFF (EG. ROADS) WILL BE ROUTED THROUGH A TREATMENT MANHOLE PRIOR TO ENTERING THE DETENTION POND.



BENCHMARK:
MONUMENT UEL #28
CVD28GVRD DATUM
EL. 91.709M

SITE SCALE FACTOR: 0.9996

SURVEYED BY:
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CIVIC ADDRESS:

LEGAL DESCRIPTION:
LOT 'A'
PLAN 22191
DL140
NEW WESTMINSTER DISTRICT

SCALE: 0 1:1000 50m

ISSUED: M/D/Y	REVISION	DESCRIPTION
08/27/15	6	REVISED PER AECOM RESUBMISSION REVIEW
04/30/15	5	REZONING SUBMISSION
02/28/14	4	RE-ISSUED FOR REZONING SUBMISSION
10/02/13	3	RE-ISSUED FOR REZONING SUBMISSION
08/26/13	2	ISSUED FOR REZONING SUBMISSION
06/25/13	1	ISSUED FOR INFORMATION ONLY

PROJECT:
BLOCK F
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DEVELOPMENT

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SCALE: 1:1000m
SEAL:

SHEET TITLE:
CONCEPTUAL
STORMWATER
MANAGEMENT PLAN

DRAWING NO.: SWMP-1
REV. 6
RFB JOB No. 12-125
SHEET 8 OF 9

LEGEND

EXISTING	DESCRIPTION
	IRON PROPERTY PIN
	PAVEMENT EDGE
	CURB
PS	SANITARY PUMP STATION
STM	SANITARY FORCEMAIN
S	SANITARY SEWER
D	STORM SEWER
	CATCH BASIN
LD	LAWN DRAIN
W	WATERMAIN
	WATER VALVE
H	HYDRANT
W	CAPPED END
WM	WATER METER
W	BLOW-OFF
T	UNDERGROUND TELEPHONE
E	UNDERGROUND ELECTRICAL
G	GASMAIN
GV	GASMAIN VALVE
L	STREET LIGHT U/G DUCTS
	STREET LIGHT
	UTILITY POLE WITH LIGHT
PP	UTILITY POLE
	ANCHOR
J	JUNCTION BOX
E	ELECTRICAL BOX
	SIGN

PHASE 1

PARCELS A, B, C, D, PARK & WETLANDS

ACADIA ROAD
- FULL CONSTRUCTION FROM TORONTO ROAD TO ORTONA AVENUE
- SANITARY SEWER FROM TORONTO ROAD TO SOUTH OF ROAD B
- WATER MAIN FROM TORONTO ROAD TO SOUTH OF ROAD B

TORONTO ROAD
- CURB, SIDEWALK AND BOULEVARD UPGRADES
- ROAD RECONSTRUCTION TO NORTH CURB

UNIVERSITY BOULEVARD
- CURB AND SIDEWALK UPGRADE FROM TORONTO ROAD TO ROAD A
- BIOSWALE FROM FROM TORONTO ROAD TO PROPOSED WETLANDS
- SIGNALIZED INTERSECTION AT ROAD A
- LEFT TURN LANES FOR SIGNALIZED INTERSECTION
- STORM CULVERT UPGRADE

ROAD A
- FULL ROAD CONSTRUCTION
- SANITARY SEWER
- STORM SEWER
- WATER MAIN

PHASE 2

PARCELS L & M

ROAD B
- FULL ROAD CONSTRUCTION FRONTING PARCEL M
- SANITARY SEWER FRONTING PARCEL M
- STORM SEWER FRONTING PARCEL M
- WATER MAIN FRONTING PARCEL M

PHASE 3

PARCELS G, H, I, J & K

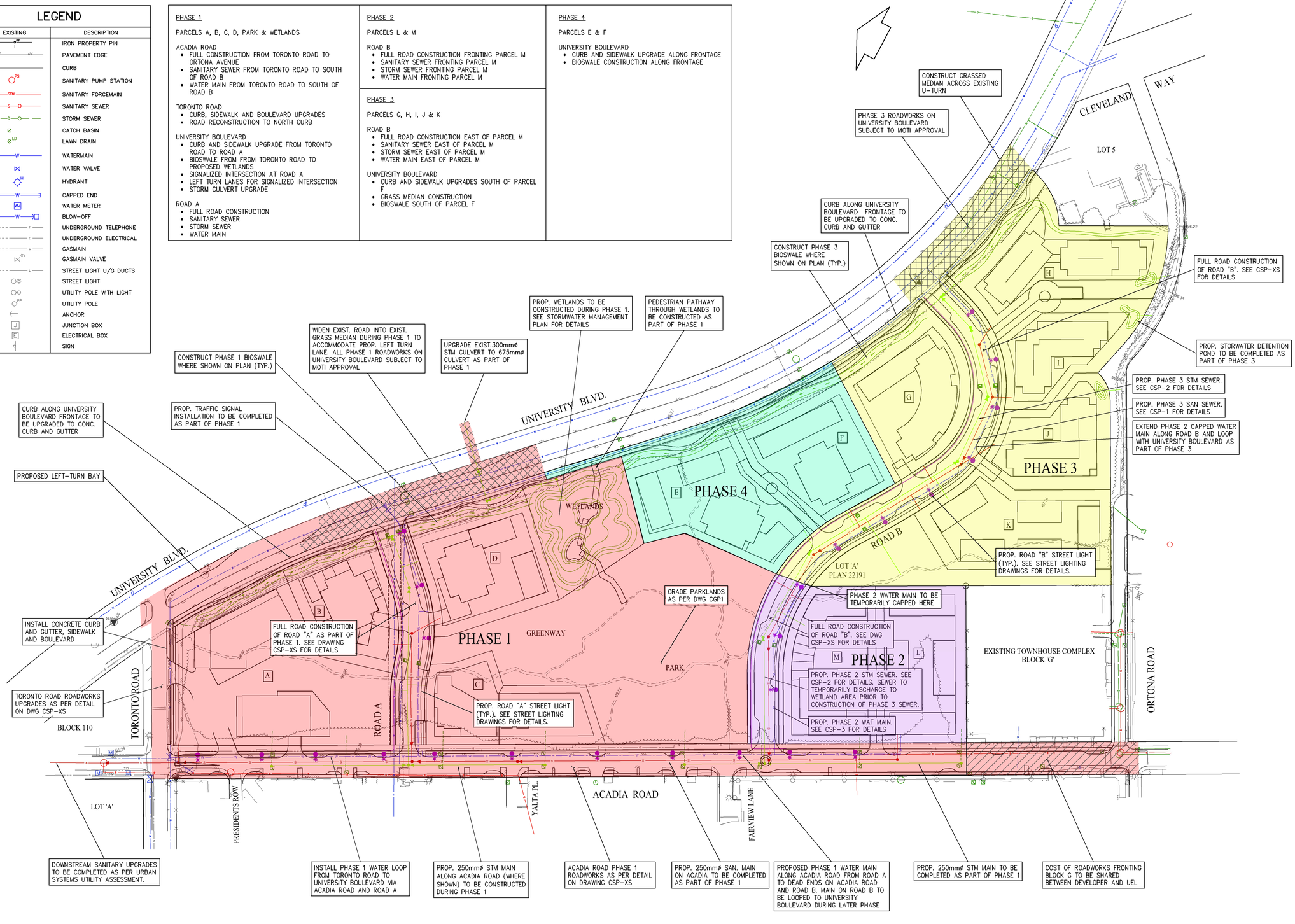
ROAD B
- FULL ROAD CONSTRUCTION EAST OF PARCEL M
- SANITARY SEWER EAST OF PARCEL M
- STORM SEWER EAST OF PARCEL M
- WATER MAIN EAST OF PARCEL M

UNIVERSITY BOULEVARD
- CURB AND SIDEWALK UPGRADES SOUTH OF PARCEL F
- GRASS MEDIAN CONSTRUCTION
- BIOSWALE SOUTH OF PARCEL F

PHASE 4

PARCELS E & F

UNIVERSITY BOULEVARD
- CURB AND SIDEWALK UPGRADE ALONG FRONTAGE
- BIOSWALE CONSTRUCTION ALONG FRONTAGE



BENCHMARK:
MONUMENT UEL #28
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SITE SCALE FACTOR: 0.9996

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05/03/14	4	RE-ISSUED FOR REZONING SUBMISSION
10/02/13	3	RE-ISSUED FOR REZONING SUBMISSION
08/26/13	2	ISSUED FOR REZONING SUBMISSION
06/20/13	1	ISSUED FOR COORDINATION

PROJECT:
BLOCK F
MUSQUEAM
DEVELOPMENT

CLIENT:
COLLIERS INTERNATIONAL

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DRAWN: CW	
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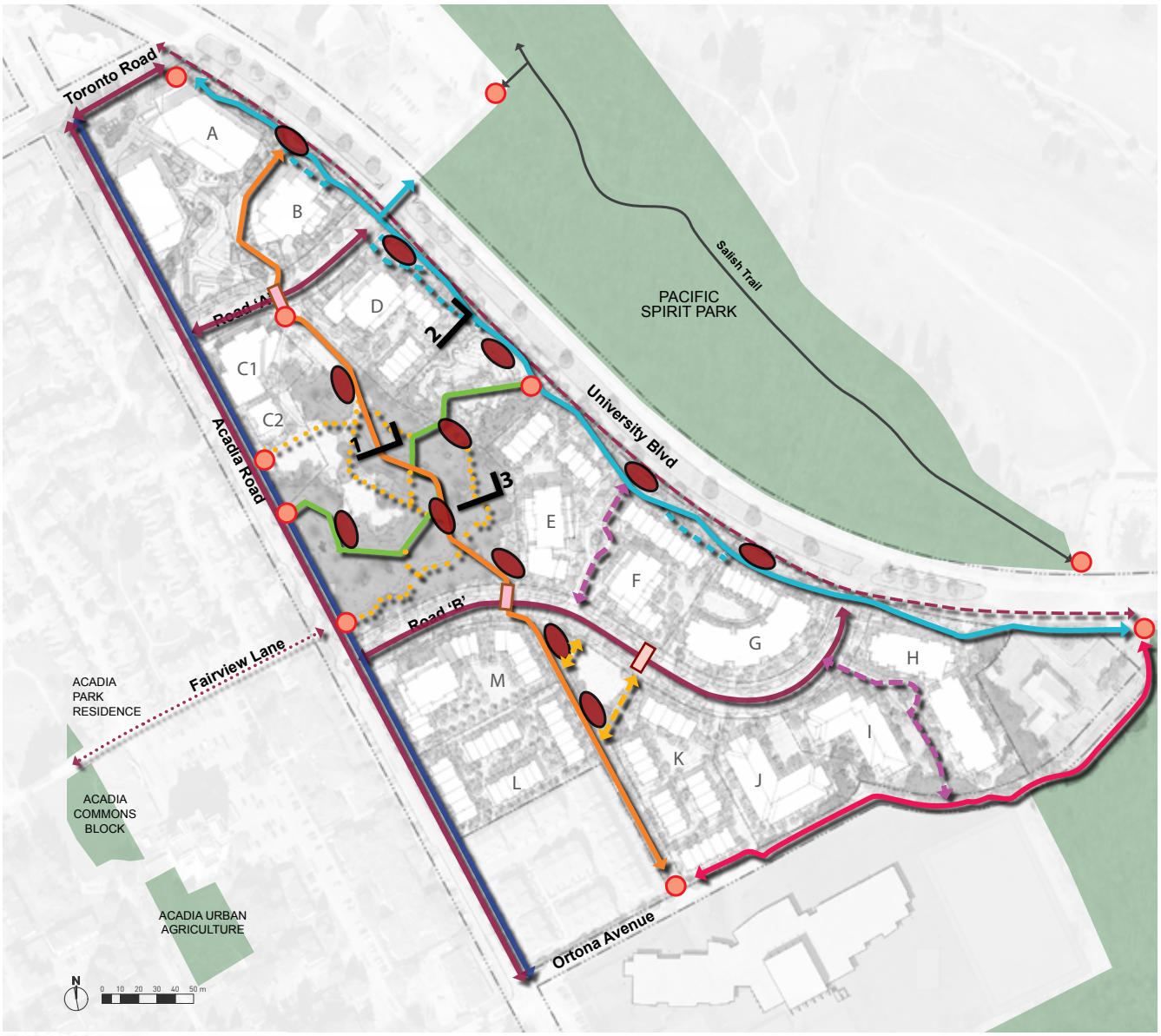
CHECKED: CHECKED	
SCALE: 1:1000m	

SHEET TITLE:
CONCEPTUAL
PHASING PLAN

DRAWING NO.:	REV.
CPP-1	6
RFB JOB No. 12-125	SHEET 9 OF 9

3.7.5 Trail Hierarchy

TRAIL HIERARCHY



LEGEND

Primary Trails

- Sword Fern Trail
- Fairview Trail
- University Boulevard Trail
- Ortona Trail
- Acadia Multiuse Trail

Secondary Trails

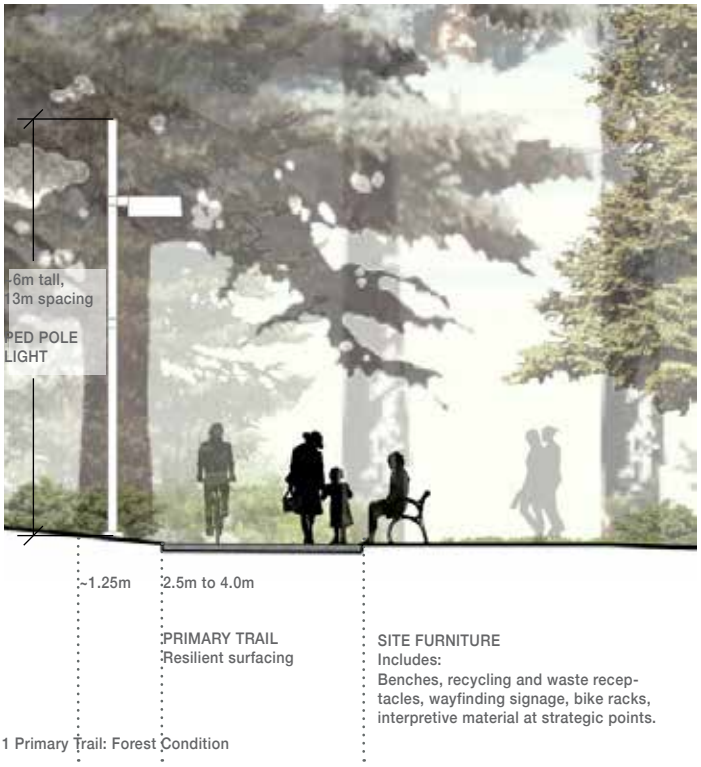
- University Boulevard Trail (Secondary)
- Public right of way over development parcel
- On site trail

Tertiary Trails

- Tertiary nature trail

- On street shared bicycle route (Toronto Rd, Acadia Rd, Road A & B)
- On street designated bicycle route (University Blvd)
- Informal bicycle route
- Raised crosswalk
- Trail heads
- Site furniture node

3.7.6 Trail Sections by Type



1 Primary Trail: Forest Condition

2 Secondary Trail

3 Tertiary Trail

For detailed additional sections, refer to Chapter 4.3