

University of Waterloo
Board of Governors
BUILDING & PROPERTIES COMMITTEE
Notice of Meeting

Date: Wednesday 5 October 2022

Time: 1:00-3:00 p.m.

Place: via MS Teams

*material attached

**material to be distributed

Action

OPEN SESSION

- | | |
|---|-------------------------|
| 1. Declaration of Conflicts of Interest | Declaration |
| 2. Minutes of the 18 May 2022 Meeting* [Murray] | Decision |
| 3. Business Arising from the Minutes | Information |
| 4. Space Inventory and Facility Status [Elias.Huber] | Information |
| 5. District Energy Study* [Thijssen] | Information |
| 6. Capital Financing Commitments and Construction Status [Huber] | Information |
| (a) Building & Properties Finance Summary – September 2022* | |
| (b) Construction Status Report – September 2022* | |
| (c) Capital Financing Commitments – April 30, 2022* | |
| 7. Waterloo North Hydro Easement* [Elias, Huber] | Decision/Recommendation |
| 8. Innovation Arena – Tender Award* [Huber, Hunsperger, Rush] | Decision/Recommendation |
| 9. Math 4 – Revised Budget* [Giesbrecht, Huber] | Decision/Recommendation |
| 10. Update to Work Plan and Annual Review of Terms of Reference* [Murray] | Discussion |
| 11. Execution Against the Work Plan* [Murray] | Information |
| 12. Other Business | Information |
| 13. Proceed into Confidential Session | Information |

Next Meeting: Wednesday 18 January 2023, 1:00-3:00 p.m., via MS Teams

28 September 2022

Alice Raynard
Associate University Secretary

University of Waterloo
Board of Governors
BUILDING & PROPERTIES COMMITTEE
Minutes of the 18 May 2022 Meeting
[in agenda order]

Attendees: Peter Barr, Anne Bordeleau, Carol Cressman, Michael Eubanks, Murray Gamble (chair), Alice Raynard (secretary), Matthew Schwarze

Administration: Stepanka Elias, Dennis Huber, Rob Hunsperger, James W. E. Rush

Guests: None

Regrets: Tony Giovinazzo, Naima Samuel

Organization of Meeting: Murray Gamble took the chair and Alice Raynard acted as secretary. The chair welcomed members to the meeting. The agenda was approved by consensus as circulated. The secretary advised that quorum was present. The chair welcomed new members onto the committee.

OPEN SESSION

1. DECLARATION OF CONFLICTS OF INTEREST

No conflicts of interest were declared.

2. MINUTES OF THE 12 JANUARY 2022 MEETING

A motion was heard to approve the minutes of the meeting as distributed. Bordeleau and Schwarze. Carried.

3. BUSINESS ARISING FROM THE MINUTES

There was no business arising.

4. CAPITAL FINANCING COMMITMENTS AND CONSTRUCTION STATUS

- a. Building & Properties Finance Summary – May 2022.** The report was received for information.
- b. Construction Status Report – May 2022.** Hunsperger provided an overview of the projects listed, noting: ESC and Math 4 are underway; Health Innovation Area update at the October meeting; challenges with WEI and B1 and B2 projects.
Members discussed: ongoing market conditions and foreseeable stability.
- c. Capital Financing Commitments – 30 April 2021.** Huber spoke to the document, noting the University was well within its capital debt guideline.

5. MAINTENANCE PROGRAM AND ENERGY CONSERVATION EFFORTS

Huber spoke to the report, noting collaboration with consultants, exposure to gas and electricity price changes, University performing well relative to other universities, energy-conservation programs delivering good payback. Members discussed: energy-intensive buildings and potential maintenance and energy conservation projects; challenging targets; Elias to return to committee on sustainability goals and projects; relationship between Plant Operations and Office of Sustainability (Thijssen); add to work plan comprehensive sustainability program once per year; future reporting to the Board.

6. STATUTORY COMPLIANCE REPORT

Raynard indicated no exceptions were flagged; some elements are being monitored as there is no central oversight over what is discharged by laboratories and there is a shared responsibility over fire safety in residences.

7. ORIENTATION/TOUR OF CAMPUS

Members are encouraged to attend the June tour and to share specific sites they would like to know more about.

8. EXECUTION AGAINST THE WORK PLAN

The report was provided for information. Members discussed bundling reporting on sustainability with that on energy saving at a meeting. Committee would like more information, e.g., on student viewpoint, PACES group

and Climate Energy group. Huber, Raynard and Rush to report to Murray and present updated workplan to October meeting. Topic to brought by Barr to Governance Committee.

9. OTHER BUSINESS

There was no other business.

10. PROCEED INTO CONFIDENTIAL SESSION

The Committee convened in confidential session.

The Committee is scheduled to meet on Wednesday 5 October 2022, 1:00-3:00 p.m. via Teams.

1 September 2022

Alice Raynard
Associate University Secretary

DES DECARBONIZATION STUDY

BRIEFING NOTE

PURPOSE: This backgrounder is meant to introduce the Board Building & Properties Committee to the district energy decarbonisation project, which will generate important recommendations for investments in major infrastructure.

SUMMARY

- Waterloo is undertaking an engineering study over the Spring/Fall terms to establish planning directions and preliminary plans to decarbonize Waterloo's district energy system (DES)
- The work is being undertaken by Doherty Engineering Inc., led by Plant Ops and the Sustainability Office, and will have major connections to other University strategies and directions, such as infrastructure renewal and master planning
- Support from leadership and governance bodies at Waterloo will be critical during the project and after to make the implementation on large scale energy projects possible.

BACKGROUND

Waterloo approved the *Shift*:Neutral climate action plan in early 2020, which has targets to reduce emissions by 17.5% by 2025, 35% by 2030, and reach carbon neutrality by 2050. The plan presents a roadmap of the types of actions that are likely to need to occur, but did not have sufficient engineering assessments or analyses to articulate technical and economic pathways to reach those targets. Four actions within the plan, therefore, called for a sequence of additional studies to scaffold detail onto the roadmap – studies of Waterloo's 1) buildings, 2) district heating and cooling system, 3) renewables and energy generation potential, and 4) synthesizing into a utility master plan. The building-level energy audit was the first major assessment, completed over 2020-21 and identifying over 700 energy conservation projects that can support early-medium term action. Findings from the audit were shared with faculties, ASUs, and PVP in early 2022.

The majority of Waterloo's buildings, and over 75% of its energy and Scope 1 & 2 emissions, are connected to heating and cooling that is supplied by the University's central plant and district energy system, which moves thermal energy across the campus. The plant and DES are not themselves the source of energy consumption or emissions—they supply the demand that is required from connected buildings. While individual buildings can and must reduce building energy use based on their unique ages, uses, and designs, Waterloo also has opportunities to integrate low carbon supply for the remaining demand, as well as optimize how energy is efficiently distributed between buildings.

This study is thus the second major technical assessment, which will complement the building-level audit by looking at how Waterloo's DES can transition from its current state of large-scale gas-fired boilers generating centrally distributed steam to a state where it supplies low or no-carbon energy for optimized and well-insulated buildings.

What mix of technologies will Waterloo need to integrate within the DES over time to reach these carbon reduction goals? Will the University continue to operate a hybrid centralized and nodal system, or move more fully nodal? How will various systems connect with each building, and what changes in building energy performance would be required? What are the lifecycle cost, emissions, resiliency, and other KPIs for various approaches? How can UW campus

decarbonization be coordinated to address growing deferred maintenance and aging infrastructure?

PROJECT OVERVIEW

Waterloo led a competitive bidding process for an external engineering consulting team to complete this work, which was awarded in June to Doherty Engineering Inc. (DEI). DEI has a focus on district energy systems and has done considerable work with the higher education sector, including comparable projects at Queens, Western, Fanshawe, and McMaster Innovation Park. Waterloo is largely following their recommended approach, which strongly aligned with the scope of work outlined in the RFP documentation. Between now and the end of 2022, DEI and the core project team will be undertaking the following activities:

PHASE	Timing	KEY ACTIVITIES
1–3, Kickoff, Site reviews, Modelling and Base case Development	June – September	<ul style="list-style-type: none"> • Review of drawings, utility data, and piping network • Site walk-through for all of campus • Interview with key stakeholders + operators • Energy modelling and base case development • Consultation Session #1
4 – Evaluation of technologies and distribution strategies	September - October	<ul style="list-style-type: none"> • Review of technology mix and associated strengths/challenges • Review of major distribution strategies (nodal vs central) and thermal strategies • Consultation Session #2
5 – Design concepts and final report	November - December	<ul style="list-style-type: none"> • Creation of 3 distinct design scenarios combining technologies + distribution • Analysis of KPIs for each (lifecycle cost, CO2, reliability, efficiency, etc.) • Consultation session #3 • Selection of preferred scenario and parametric sensitivity analysis • Initial concept drawings – siting, major equipment, line diagrams, spatial layout • Phasing and implementation strategies

At the end of the project, Waterloo will receive the final report that outlines all previous phases, as well as the relevant KPIs and initial concept drawings and phasing/implementation strategies that outline investment needs and associated impacts over time.

KEY CONNECTIONS

The building audits were relatively modular—each building was largely treated as somewhat isolated, with a priority toward finding “low hanging fruit” opportunities. There is certainly connection to building renewal, energy costs, and emissions reductions, but implementation of these projects were of lesser technical consequence beyond the building itself.

The DES project, however, is of much greater planning significance for the University. How Waterloo chooses to develop the DES system will be a key decision point for development of the physical campus, setting out directions that will connect with many other planning and infrastructure decisions. These are outlined briefly below to show the connectivity and impacts.

PLAN/STUDY/PROCESS	TIMELINE	CONNECTION
Building Energy Audits	2021-22 (complete)	Complement to DES study. Findings will need to be implemented to effectively connect to the DES system
Net Neutral New Building Guideline	2021 (complete)	Critical to meet EUI/TEDI benchmarks to ensure compatibility with future DES systems
Chilled Water + Steam existing condition report	2022 (complete)	Created an accurate description and information on DES current state
<i>DES STUDY</i>	<i>2022 (this project)</i>	<i>Answers core project questions and sets directions for future projects</i>
Metering study and implementation	2021-2024 (in progress)	Gathering minimum building-level performance data to enable accurate management and benchmarking
Energy generation assessment	2023+	This project will outline renewable options; a follow-up study will help inform design, siting, costs, etc.
DES Stage 1 design	2023+	A follow-up study will take conceptual drawings through the engineering design process for Stage 1
Infrastructure Renewal Master Plan	TBC	A follow-up study will take the directions established in this project and align them with renewal needs
Campus Master Plan	TBC	Future updates to the campus master plan would integrate key findings and directions

It is very important to undertake this work within the context of the significant renewal and replacement needs that will arise over the coming decades. As Waterloo’s infrastructure continues to age, ongoing repairs, replacement, and renewal will take place in a business-as-usual scenario, though typically on a like-for-like basis with, at best, marginal efficiency/carbon reductions. A critical success factor for equivalent peer campus projects is to develop them in conjunction with their deferred maintenance and long-term infrastructure plans, to maximize and future-proof investments. Capital planning must integrate all of these needs.

As a result, it is important to have a collaborative process to socialize the project, integrate feedback from various members of the campus community, and ultimately build buy-in for recommended strategies. The consultation sessions listed above have begun to engage senior administration, the faculties, key ASUs, several ancillary services, students, and key operations staff. In conjunction, the project team will also have a presentation to various governance bodies, including DCPlus and the Building and Properties Committee of the Board of Governors.

PRELIMINARY WORK

Since initiating the project in late June, DEI has done document audits, data analysis, and 5 days of site reviews to familiarize themselves with the campus, key infrastructure layouts, major equipment pieces (boilers, chillers, distribution piping), and building connections.

DEI has used this information to develop a “business-as-usual” Scenario that will be the basis for Life Cycle Cost analysis for all alternative design scenarios. Key inputs include:

- The service life of existing equipment (for example the boilers are from the 1960s/70s and chillers from the 1990s-2010s) and condition of the systems, and identifying necessary investments to maintain like-for-like or current state.
- Current energy load profiles, as the movement and distribution of energy across the campus is important to understand for system design. With limited to no submetering across the campus, DEI is relying on engineering assessments and the energy audit findings.

- Campus growth forecasts, including the type, scale, and general location of where growth will occur. DEI is using the intensities committed to in the New Building Guideline to model the impact of the new buildings, and roughly aligning with the growth parcels identified in the 2009 Campus Master Plan, however we are projecting a significant deceleration of growth from what the Master Plan originally projected.
- Local weather data and localized projections for climate impacts, including a general increase in cooling requirements over time, and general decrease in heating needs.
- Utility cost escalations, electricity grid emission intensities, inflation/discount rates, and other global variables.

Because many of these have risk of high variability, a portion of the project will be sensitivity testing for uncertainty areas such as higher or lower than expected campus growth, higher or lower energy prices, etc. Initial results of the assessment and modelling shows:

- An increasing portfolio of infrastructure and equipment is in need of renewal. Many parts of the DES are well-maintained but past their service life, so there will be increasing replacement pressure as service life of systems and equipment increases.
- Even with the New Building Guideline and scaled back growth, the BAU scenario provisionally shows a slight increase of about 5% in natural gas for space heating usage, on average, and a 15% increase in electricity for space cooling over the coming decades. This will move us in the opposite direction from all stated targets without further action.

On August 31, the Sustainability Office, Plant Ops, and DEI hosted the kickoff consultation session with key stakeholders. Approximately 20 participants provided input through facilitated breakout discussions to ensure we've understood the planning context, and to brainstorm the vision/considerations we should keep in mind. Some broad outputs from this included:

- General support for and acknowledgement of the need for the project
- Appreciation of both technical and planning complexity
- Connections with unit-level master plans that are important to integrate
- Funding and central support would be an important enabling factor
- Space utilization and growth uncertainty could lead to different outcomes
- Desire to align with academic mission and use as a teaching/learning/research tool
- Desire to have a clear roadmap for implementation so as to minimize and plan for disruption
- Reinforced the need to integrate with building-level investments and renewal, both to ensure compatibility and to create predictable requirements for end-users during renovations

Report to the Building & Properties Committee

Capital Financing Commitments

October 5, 2022

The Building & Properties Committee reviews the summary of Capital Financing Commitments at each meeting.

Activity to date in 2022/23:

- The University has collected \$0.85M in student fees, allocated as follows:
 - Health Services Addition \$0.29M
 - PAC/SLC Addition \$0.56M
- Quarterly and annual repayments by ancillary enterprises (Housing, Food Services and Parking) with total payments of \$2.20M allocated as follows:
 - Housing
 - CMH Residence Building (annually) \$1.62M
 - UWP (quarterly) \$0.14M
 - MKV (quarterly) \$0.20M
 - Food Services
 - CMH Residence Building (annually) \$0.14M
 - Parking
 - EC5 (annually) \$0.10M
- Quarterly payment from City of Kitchener for the Health Innovation Arena of \$0.05M

The total contributions made fiscal year-to-date (4 months) to approved capital projects has been \$3.1m

Summary:

- The University remains well within its approved policy limits and below the 4.0% of annual gross revenue maximum for principal and interest payments
- The financing position for each project as of April 30, 2022 is attached

Dennis Huber

Construction Status Report
September 2022
 \$000s

Projects	Original Budget	Current Approved Budget	Procurement Method	Contractor	percent complete	Original Schedule	Estimated Completion	Risks/Status
<u>In-Progress</u>								
Earth Science Chemistry (ESC) Third Floor Renovations	17,500	22,140	TBA	TBA	75% Design 0% Construction	2022	2024	Design Development phase complete Pre-requisite project required to relocate researchers off the 3rd floor. Pre-requisite project scheduled for construction completion Jan 2023 Third floor renovations dependent upon completion of pre-requisite project Mechanical system design ongoing to meet intent of Shift-Neutral mandate Construction Document Phase approximately 40% Complete Updated estimate expected November 8, 2022 Schedule anticipates bidding project in order to have bids ready for recommendation at March 2023 B&P meeting. Estimated Construction (Updated): April 2023 - September 2024
	<u>17,500</u>	<u>22,140</u>						

Projects	Original Budget	Current Approved Budget	Procurement Method	Contractor	percent complete	Original Schedule	Actual Completion	Risks/Status
<u>In-Progress</u>								
Health Innovation Arena 280 Joseph Street Kitchener	30,000	34,400	Design-Bid-Build CCDC2- Stip Sum	TBA	100% Design 0% Construction	2023		Site Plan Approval application submitted to the City of Kitchener Substantial Value Engineering effort completed. Clerestory glazing is an optional price, removed windows to future ground floor suite, removed stair access to roof. Air source heat pump system deleted. Gas fired boilers added to project. Net Neutral Carbon strategy relies on future City of Kitchener District Energy Loop. Contractor prequalification process completed for General Contractors, Mechanical and Electrical Subtrades Bid period August 24th - September 27th. Separate and alternate prices being evaluated Market conditions continue to place budgetary challenges on all projects. Refer to recommendation on contract price. Substantial Completion anticipated for November 2023 (remains an aggressive schedule)
	<u>30,000</u>	<u>34,400</u>						

Projects	Original Budget	Current Approved Budget	Procurement Method	Contractor	percent complete	Original Schedule	Actual Completion	Risks/Status
<u>In-Progress</u>								
Math 4	90,000	90,000	TBA	TBA	20% Design	2024		35% design development (DD) report complete Interim cost estimate complete based on 35% DD milestone progress set Cost estimate over established budget and options are being explored Design review ongoing with goal of presenting at October 2022 Building & Properties meeting Recommendation for budget increase from \$90M to \$110M described in this B&P package Presidents Advisory Committee on Design (PACOD) to be convened at end of Design Development once budget is confirmed.
	<u>90,000</u>	<u>90,000</u>						

Projects	Original Budget	Current Approved Budget	Procurement Method	Contractor	percent complete	Original Schedule	Actual Completion	Risks/Status
<u>In-Progress</u>								
Optometry - Waterloo Eye Institute	45,250	45,250	TBA	TBA	30% Design	2023		100% Design Development milestone achieved Design Development estimate completed, and being evaluated Class C Construction Estimate = \$42.5M up \$7.23M from Class D Estimate of \$35.2M \$2.5M attributable to market conditions with remainder due to design development Scope and Budget still under review. With deletion of surgical suites from program, the project requires substantial redesign
	<u>45,250</u>	<u>45,250</u>						

Projects	Original Budget	Current Approved Budget	Procurement Method	Contractor	percent complete	Original Schedule	Actual Completion	Risks/Status
<u>In-Progress</u>								
Biology 1/Biology 2 Lab Renovation	6,800	6,800	Stipulated Sum (CCDC2-2008)	Harbridge & Cross (\$5.196M)	100% Design 99.9% Construction	Jun-22	Sept-22	Final deficiencies being completed, with declaration of Substantial Performance pending Occupancy targeted for end of September with take-over following Thanksgiving weekend Change Orders are less than \$300K (<6% of cost of construction) Total project cost anticipated to be under budget, less than \$6.6M
	<u>6,800</u>	<u>6,800</u>						

University of Waterloo
Capital Financing Commitments
April 30, 2022
(\$000s)

Capital Project	Currently Internally Financed	Estimated Repayment Period	Comments
Construction Completed			
Residence - UWP and MKV	12,687	8 years*	Residence fees. Payments resuming Fiscal 2023.
Engineering 7	18,556	9 years	Pledges of ~\$32.6M for Engineering buildings. Faculty payments.
Other Engineering (including E5, E6, and DWE)	8,315	1-3 years	
Health Services Addition/Renovations	1,679	3 years	Compulsory undergrad & grad student fees; donations. (Student fees for interest will continue beyond 3 years)
Blackberry Buildings (EC1-5)	399	4 years*	\$0.4M from Parking (\$0.1M/year)
Faculty of Health Addition	6,241	6 years	Faculty, University commitment, donations
Student Residence - Claudette Millar Hall	26,243	15 years*	Residence fees and Food Services revenues
North Campus Field House	15,894	9 years	University commitment and potential donations
Student Life Centre and PAC Addition	40,624	< 30 years	\$24M (+interest) undergrad & grad student fees, payments commenced Fall 2021; balance is University commitment
Completed Total	130,638		

	Expenses to Date	Total Budget	Funding On-hand	Committed Future Funding	Currently Unfunded	Currently Internally Financed	Project Completion Date	Comments
In-Progress and Recently Approved								
Health Innovation Arena	1,092	34,400	858	16,807	16,735	234		\$8.5M City of Kitchener grant, \$7.5M University commitment, >\$1.5M donations
Math4	1,305	90,000	57,500	17,500	15,000	-		\$57.5M contributed from Math and \$17.5M University commitment
Earth Sciences & Chemistry	360	22,140	1	22,139	-	359		50% to be funded from Science and 50% University commitment
Optometry Eye Institute	692	45,250	1,691	15,000	28,559	-		>\$10M in donations, \$2.2M to \$6.2M University commitment depending on receipt of matching donation
In-Progress and Recently Approved Total						593		
Total Internal Financing						131,231		

Debt Policy: Annual Principal & Interest Payments must be < 4% of annual gross revenue (currently approximately \$48M)

Conclusion: Required annual P&I payments to service this debt are < 4% of annual gross revenue

Notes:

There is a \$22M lease-back financing commitment until 2053 for Columbia Lake Village Townhouses, with minimum \$7M lease commitments being recovered through student residence fees.

* Repayments have been suspended for 2 years due to the impact of covid on operations in the ancillary units. Payments commencing Fiscal 2023.

HV CABLE REPLACEMENT

Report to the Building and Properties Committee
Proposed easement to Waterloo North Hydro (WNH)
September 9th, 2022

Recommendation:

The Building and Properties Committee recommends to the Board of Governors the granting of an easement to WNH of approximately 139.77m² (0.034 acres) required for the replacement of primary electrical feeders 1 & 2.

Background:

The University has been working with WNH to replace the existing primary feeders 1 and 2 as they are at the end of life. The new installation will improve the resilience and capacity of the University's electrical infrastructure.

The primary feeders currently enter campus on the North side of parking lot N. The new feeders would enter campus from the northeast corner next to the Laurel trail. (See attached Sketch). The services would be installed below grade to minimize any visual impacts. The University would connect the new service via a new duct bank to Central Plant.

WNH will commence their work in the spring of 2023. The University has begun a detailed engineering review to determine the final routing of the duct bank and the extent of the landscape remediation required.

The draft terms of the easement are attached. A final survey of the easement will be completed post-construction.

Jonathan D. Hyde,
Stepanka Elias
Dennis Huber

Location of Easement:





HYDRO EASEMENT AGREEMENT

Date: August 18, 2022

Owner Name: University of Waterloo

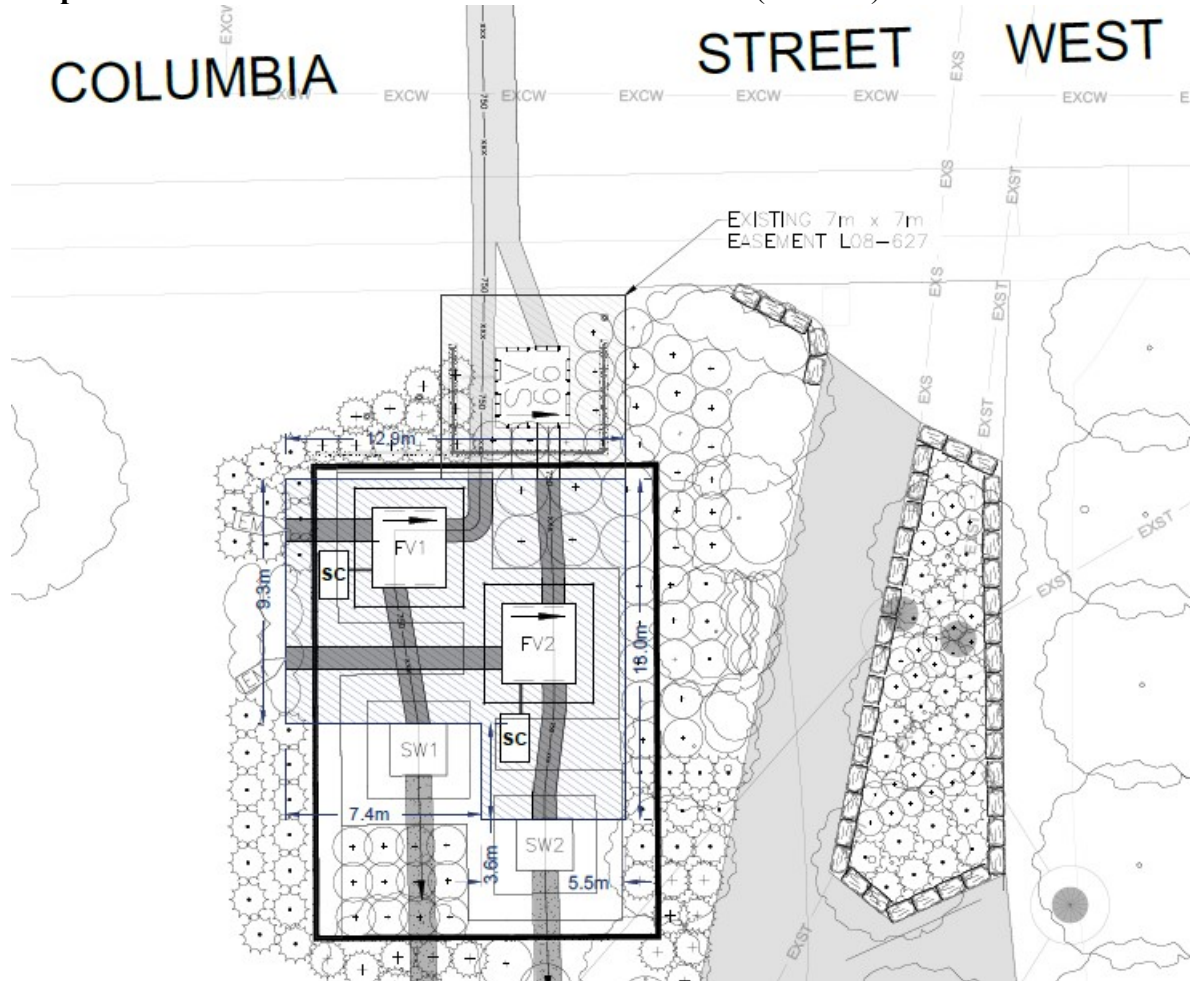
Owner Address: _____

Phone Number: _____

Solicitor Information: _____

E-mail Address: _____

Proposed easement: with modified terms and conditions (attached).



Attached Dwg# : _____ Owner(s) Signature(s): _____

W.R. #: 14071 Print Name(s): _____

Eng. File #: CO-C179 Date: _____

The Owner agrees that the work of Waterloo North Hydro Inc. will commence forthwith and this is your irrevocable authorization for us to register the easement against your property in the Land Registry Office; as consideration, Waterloo North Hydro Inc. will pay for the survey costs, the preparation and registration of the reference plan and the reasonable legal costs of your solicitor in assisting you to provide the easement to us.

In the event that you default on your agreement to grant the easement to us, we reserve the right to commence legal action against you to enforce the agreement.

If you have any questions or concerns, please call the Engineering Department at 519-888-5552.

Sincerely,

Maya Simmons

WATERLOO NORTH HYDRO INC.

Maya Simmons

PRINT NAME

File Copy:
Owner Copy:

TERMS AND CONDITIONS OF THE EASEMENT

1. The Transferor doth grant, convey and confirm unto the Transferee, its successors and assigns, and anyone authorized by the Transferee, in perpetuity, the right and easement at any time to enter upon the lands herein described for the purposes of constructing, laying down and installing hydro and communication wires, cables, anchors, fixtures and equipment together with all appurtenances thereto in, over, under, upon and along the said lands ~~but excluding hydro poles and/or overhead wires/cable~~ with the further and continuing right to the said Transferee, its successors and assigns and its servants, agents and workmen and anyone authorized by the Transferee, to enter upon the said lands at any time to inspect, repair, alter, correct, operate, replace and keep and maintain at all times in good condition and repair the said hydro and communication wires, cables, anchors, fixtures and equipment and all appurtenances thereto, and for every such purpose the Transferee shall have access to the said lands and/or lands adjacent to the said lands, at all times by its agents, servants, employees, workmen and anyone authorized by the Transferee.
2. The Transferee covenants and agrees that, upon completion of any such work referred to aforesaid and undertaken hereunder, the Transferee will repair any damage done to the lands herein described and restore the surface of the lands and/or the Transferor's adjoining lands, to the same conditions as prior to the commencement of such work.
3. ~~The transferee acknowledges that there is no commitment from the transferor to grant an additional easement for future connections to this easement.~~
4. The Transferee hereby indemnifies and saves the Transferor harmless from any and all direct costs, losses, damages and claims arising from the negligence or willful misconduct of the Transferee in the use of the easement lands.
5. The Transferor covenants with the Transferee to keep the lands herein described free and clear of any trees, buildings, including building projections such as window sills, chimney breasts, cornices, eaves and other architectural features, swimming pools, structures or obstructions as may be necessary for the use, operation, repair, replacement or maintenance of the easement and to use the lands herein described only in a manner and for purposes not inconsistent with the exercise of the rights created by this indenture and, without limiting the generality of the foregoing, only as a yard, lawn, garden, flowerbed, pedestrian sidewalk, roadway, driveway or parking area and the Transferor agrees to not do or suffer to be done anything which might injure any of the works of the Transferee thereon. Notwithstanding the foregoing, the Transferor shall have the right to use the said lands to install and/or construct dwellings and garages provided that the location and design of any future installations and/or construction of facilities will be approved in writing by the Transferee (at no cost to the Transferor) prior to construction of such facilities, which approval shall not be unreasonably withheld or delayed.
6. The Transferee, by the acceptance and registration of the within Easement, agrees to be bound by the terms and provisions contained herein.
7. The burden and benefit of this Agreement shall run with the lands herein described and shall extend to and be binding upon and enure to the benefit of the parties hereto and their respective heirs, executors, administrators, successors and assigns.
8. This is an easement in gross.

Terms & Conditions revised July 26, 2019

**Report to the Building & Properties Committee
Innovation Arena – Health Sciences Campus**

October 5, 2022

Recommendation:

That the Building & Properties Committee recommend to the Board of Governors, (i) a \$1.79m (5%) increase to the project budget, and (ii) the award of a stipulated-price contract (CCDC2) to Melloul Blamey Construction for \$29,270,000 (excluding HST).

Background:

At its April 2021 meeting, the Building & Properties Committee approved the recommendation to the Board, that Diamond Schmitt Architects be appointed as prime consultants for this project.

The initial project budget was approved at \$30 million in October 2020 based on a preliminary list of requirements and subsequently revised in October 2021 to \$34.4m following the completion of the schematic design and a Class D estimate which reflected forecasted cost escalation within the construction industry.

This 90,000 square foot reconstruction/renovation project includes an entirely new building envelope, additional exits, new mechanical/electrical services, the interior fit-out of the upper floor including ~18,000 square feet of lab space, and the partial fit-out of the lower floor as well as the removal of some surficial fill materials which do not meet residential or community land use standards.

There were 6 prequalified general contractors invited to bid the project with a closing date of September 27. A total of 4 compliant bids were received (1 GC did not bid, 1 GC submitted after the deadline). The second lowest bid was relatively close (+5%) but the other bids were significantly higher (+10% and +20%).

The revised project budget reflects the recommended tender award including net HST:

	\$000s	
	<u>October 2021</u>	<u>Tender Award</u>
Construction	\$27,270	\$30,270 (includes \$600k for Bldg. Automation)
Contingency	2,045	2,235
Professional Fees	2,950	2,950
Building Automation	500	0 (included in tender price)
Network/AV/Security	350	350
Permits	285	285
Cost Escalation	1,000	0
Joseph Street Improvements	<u>0</u>	<u>100</u>
Total	\$34,400	\$36,190

The funding arrangement for this project includes \$7.5m of operating funds which are redirected savings from the expiring rental arrangement for Velocity, an \$8.5m contribution from the City of Kitchener, and \$2m in donations raised to date. The funding arrangement with the City of Kitchener includes a University commitment to provide 5,000 square feet of space and a pro rata repayment of the City's funding in the event the University terminates the intended use of the space within 15 years of the completion date.

Rob Hunsperger
Dennis Huber
James Rush

Report to the Building & Properties Committee

Proposed Math 4 Project

October 5, 2022

Recommendation:

That the Building & Properties Committee recommend to the Board of Governors a revised budget of \$110 million for the design and construction of the proposed Math 4 building project.

Background:

At its January 2021 meeting, the B&P Committee approved the recommendation to the Board to construct the proposed Math 4 building at total project budget of \$90 million.

At its subsequent meeting in May, the B&P Committee approved the recommendation to the Board to appoint Moriyama & Teshima Architects as prime consultants for the project.

During the initial phases of the design, both the design team and the independent cost consultant identified the rapid and volatile price increases being experienced within the construction industry. In order to address this situation, multiple cost estimates have been undertaken following an extensive value engineering exercise. The total building floor area remains unchanged at approximately 140,000 gross square feet. The recommended \$110 million budget is based on 35% design development completion and assumes a Q3 2023 tender award which includes a 10% escalation contingency between August 2022 and Q3 2023.

The project currently has financial commitments totaling \$75 million: (a) the Faculty of Mathematics has transferred \$57.5 million to the project's capital account, and (b) the Provost has committed \$17.5 million of institutional funding toward the project. The Faculty of Mathematics has made this project a priority in its ongoing fundraising activities. Any funding shortfalls related to the remaining \$35 million will be funded by the Faculty over a 7-8 year period following building completion.

Building Specifics:

At approximately 140,000 gross square feet, the proposed building is planned to be 5 storeys including a mechanical penthouse at level 5 and is designed to seamlessly connect the Math & Computer Building with the Davis Centre while maintaining the integrity of the existing outdoor quad.

This new, state-of-the-art building will host research institutes in vital fields such as fintech, data science, and cryptography. It will accelerate leading edge math and computer science research as well as foster a culture of innovation and collaboration. Specifically, the building will accommodate growth in Computer Science, Statistics and Actuarial Science and Mathematics and Business programs. The building is designed to support enriched student experience by creating new social and collaboration spaces, as well as student support services. The building will feature a number of classrooms, including flexible learning spaces that provide furnishings and equipment to support group and hybrid learning. The building will also feature a multi-purpose auditorium/event space, and a number of student study and collaboration spaces to encourage the development of communities. By creating a vibrant and

singular environment, the building will support the Faculty in attracting even more of the world’s top mathematics and computer science talent.

Budget Specifics:

The revised budget estimate has increased \$20 million or 22% (including net HST):

	Jan 2021	\$000s	August 2022
	<u>Estimate</u>		<u>Estimate</u>
Construction	\$70,000		\$87,500 (includes escalation)
Post-contract Contingency	7,000		7,000
Professional Fees	6,000		7,850
Disbursements	250		300
Other Fees & Commissioning			650 (Geotech, fire flow, survey, asbestos, etc.)
Furniture & Furnishings	2,500		2,150
AV/Network/Security	1,250		1,550
Permits & Development Charges	<u>3,000</u>		<u>3,000</u>
Total	\$90,000		\$110,000
	(\$643/sf)		(\$786/sf) approx. increase of 22%

VP, Academic & Provost
 Dean, Mathematics
 VP, Administration & Finance

**University of Waterloo
Board of Governors
BUILDING & PROPERTIES COMMITTEE
2022-2023 Work Plan**

Draft revisions:
~~Struck through:~~ proposed
deleted text
Underlined: proposed
added text

May Meeting*

- Campus Master Plan (as needed)
- Capital financing commitments and construction status
- ~~Environmental sustainability practices in the context of campus planning and development activity~~
- Maintenance program and energy conservation efforts
- Orientation/tour of campus – as required/for new members

September/October Meeting*

- Capital financing commitments and construction status
- Five-year plan for development projects anticipated to be considered during that five-year Period
- Assessment of adequacy of committee's term of reference with recommendations for amendments, as appropriate, to the Governance Committee
- Review results of Self-Assessment

January Meeting*

- Capital financing commitments and construction status
- Statutory compliance
- University of Waterloo real estate holdings
- Work plan for next fiscal year/special topics; orientation/briefing requirements

March Meeting*

- Capital financing commitments and construction status
- Comprehensive sustainability program (formally: Environmental sustainability practices in the context of campus planning and development activity)
- Committee Self-Assessment Survey Committee Self-Assessment (ahead of Board of Governors meeting)

*each meeting will also include, as required, award of tenders (approval of recommendation to the board) and appointment of architects/consultants

September 2022

University of Waterloo
Board of Governors
BUILDING & PROPERTIES COMMITTEE

1. MEMBERSHIP

This committee shall consist of a maximum of nine members. Of those, at least five members shall be members of the board appointed to the board by the Lieutenant Governor in Council or elected by the board from the community-at-large, and one shall be a faculty member of the board.

One undergraduate student member of the board and one graduate student member of the board shall be members of the committee. If the presidents of the Waterloo Undergraduate Student Association and the Graduate Student Association – UW are members of the board, then they shall serve respectively as the undergraduate and graduate student members of the committee. Should the president of the Waterloo Undergraduate Student Association or the Graduate Student Association – UW be unwilling to serve on the committee or not be a member of the board, then the respective seat on the committee shall be filled by appointment from among student governors made by the president of the respective student association.

It is expected that at least two members of the committee will have experience with capital construction and/or property development.

2. MEETINGS

The committee will meet at the call of the chair of the committee, but not less than four times annually.

The quorum for the transaction of business at any meeting of the committee shall be a majority of the members of the committee, present either in person, by teleconference or by videoconference, provided that not less than a majority of those constituting the quorum shall be members appointed to the board by the Lieutenant Governor in Council or elected by the board from the community-at-large.

3. TERMS OF REFERENCE

The committee is established for the following purposes:

To oversee campus planning and development activity in the context of the Campus Master Plan and prudent environmental sustainability practices, and not less than annually to perform a review of the Campus Master Plan in the context of the university strategic plan.

To make recommendations to the Board of Governors on campus planning and development initiatives, with due consideration to the impact on multi-campus sites, including (without limitation) the acquisition or disposal of land or buildings, the use of land, buildings and facilities, the siting of buildings and roads, and the review of all agreements to which the university is a party (including donor agreements and academic agreements) having impact on the acquisition, use and/or development of real property.

To approve on behalf of the board, construction projects between \$5,000,000 and \$10,000,000 and to make recommendations to the Board of Governors regarding construction projects exceeding \$10,000,000, including (without limitation) the appointment of architects and design consultants, the business plan and budget, the design, and the award of construction contracts.

To ensure that the university has in place appropriate procedures for cost estimating, competitive tendering of bids, awarding of contracts, contract administration, cost control and payment to contractors for all site work, new construction, alternations and major repair.

To ensure that the university complies with all building codes, fire codes, safety regulations and statutory and regulatory provisions, as appropriate, in its building and properties program, and to review compliance annually.

To ensure that the university has appropriate maintenance programs in place for buildings and properties.

To review annually the status of capital construction projects, including status of accumulated debt and compliance with approved debt policy.

To report on its activities to the Board of Governors at least annually.

To assess annually the adequacy of the committee's terms of reference and to propose any needed amendments to the Governance Committee.

Approved by the Board of Governors, 6 June 2006

Amended by the Board of Governors, 1 April 2008

Amended by the Board of Governors, 27 October 2009

Amended by the Board of Governors, 2 April 2013

Amended by the Board of Governors, 1 April 2014

Amended by the Board of Governors, 4 February 2020

University of Waterloo
Board of Governors
BUILDING & PROPERTIES COMMITTEE
Work Plan Execution

Task	Frequency	<i> canceled </i>										<i> canceled </i>			
		08/03/2019	15/05/2019	02/10/2019	15/01/2020	03/04/2020 and 5/13/2020	30/09/2020	13/01/2021	10/03/2021	12/05/2021	29/09/2021	12/01/2022	09/03/2022	18/05/2022	5/10/2022
Campus Master Plan (as needed)	annual				•			•							
Capital financing commitments and construction status	each meeting	•	•	•	•		•	•	•	•	•	•		•	•
Committee self-assessment survey results	annual	•		•			•	•		•					•
Environmental sustainability practices	annual									•					•
Maintenance program and energy conservation efforts	annual			•						•				•	•
Orientation/tour of campus	as required		•							•				•	
Development projects five-year plan															
Committee terms of reference	annual			•			•				•				•
Statutory compliance	annual				•			•						•	
University of Waterloo real estate holdings	annual				•			•				•			
Committee work plan/special topics; orientation/briefing requirements	annual				•		•					•			•