Cisco

Mechanical Auxiliary Building
Cisco Ottawa Campus OTT01

2000 & 3000 Innovation Drive, Kanata, ON, K2K 3E8

Design Brief

May 2026



Mechanical Auxiliary Building

Cisco Ottawa Campus OTT01

2000 & 3000 Innovation Drive
Design Brief
City of Ottawa
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1 Introduction

1.1 Scope

Arcadis Professional Services (Canada), hereinafter referred to as Arcadis, has been retained by Cisco Systems Inc., hereinafter referred to as Cisco, to prepare the necessary engineering plans, specifications and documents to support the proposed Site Plan Application for a new Mechanical Auxiliary Building on the subject lands in accordance with the policies set out by the Planning and Development Branch of the City of Ottawa. This Brief will present a detailed grading and servicing scheme to support the development of the property and will include sections on-site grading, water supply, wastewater management, minor and major stormwater management, and erosion and sediment control.

1.2 Subject Site

The proposed development is located at 2000 and 3000 Innovation Drive within ward 4 Kanata. It is described as Block 3 and Part of Block 11, Registered plan 4M-1075 and part of block 5 registered plan 4m-1104, City of Ottawa. The land in question covers approximately 7.84 ha and is fronted by Innovation Drive to the South.

Please refer to **Figure 1**, below, for more information regarding the site location.

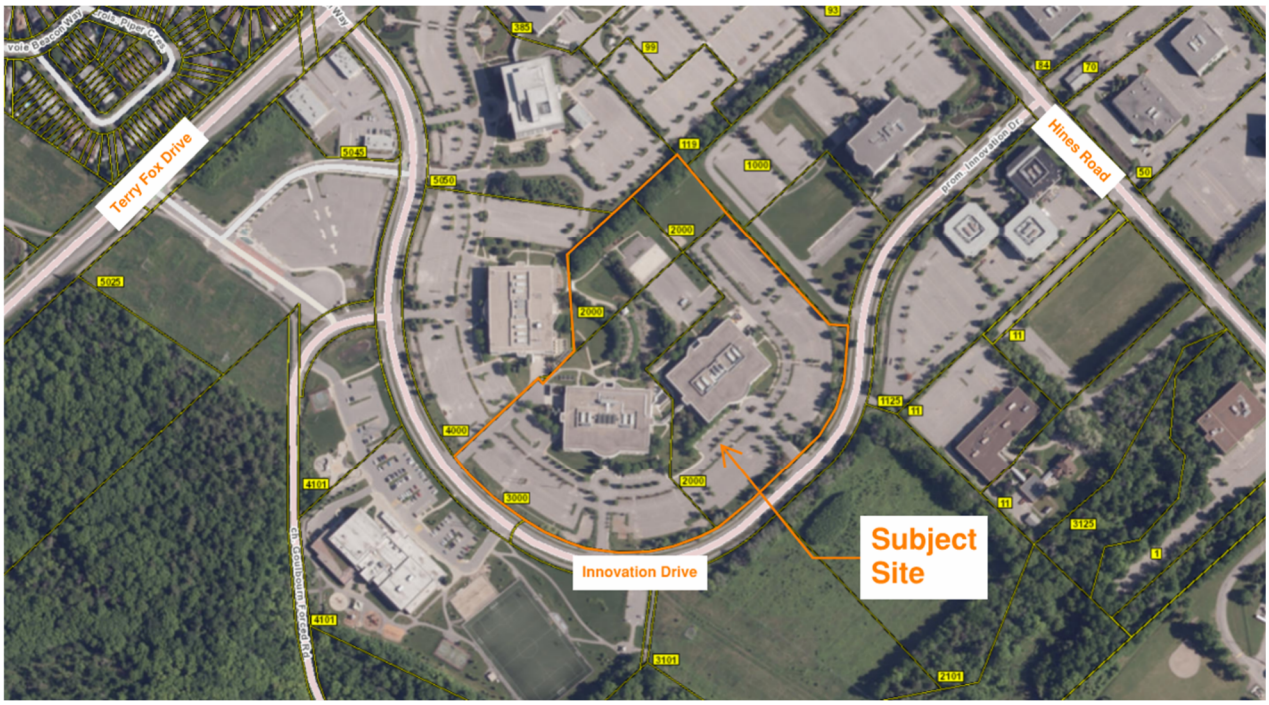


Figure 1 Subject Site Location

The subject property comprises two interconnected, two-story office and laboratory buildings. The exterior features include large asphalt-paved parking areas, landscaped grass margins, a sports field, an amenity area and a stormwater retention area. The property is fully serviced by the private services extending from the City of Ottawa's

municipal infrastructure, including water, sanitary, storm , hydro, and telecommunications. The site is zoned General Industrial Subzone 6.

Cisco plans to construct two connected buildings on the subject property, with approximate areas of 275 m² and 800 m², respectively. The facilities will house cooling, power, mechanical, electrical, and telecommunications infrastructure to support current and future operations of the computing laboratories located in the existing OTT01 building.

A new drive aisle will branch from the existing one that runs alongside the OTT01 building, providing the primary vehicular access to the proposed facility. Pedestrian pathways will encircle the building and be complemented by enhanced soft landscaping. The site plan for the proposed development is included in **Appendix A**.

1.3 Previous Studies

Design of this project has been undertaken in accordance with the following report:

- Northtech Campus Stormwater Management Implementation Plan, prepared by Novatech Engineering Consultants, final submission January 2000

An engineering pre-consultation with the City of Ottawa was held in May 2025 regarding the proposed development. Notes from this meeting is included in **Appendix A**. It should be noted that record drawings exist for each phase of the development from both Novatech Engineering and David McManus Engineering. Cisco and City archives were unable to find records of the Site Servicing and/or Stormwater Management Reports.

1.4 Geotechnical Considerations

Golder Associates Ltd. prepared a geotechnical investigation for the site. The objectives of the investigation were to prepare a report to:

- Determine the subsoil and groundwater conditions at the site by means of test pits and boreholes
- To provide geotechnical recommendations pertaining to the design of the proposed development including construction considerations

The geotechnical investigation report 991-2238 Revision No. 3. Dated January, 2000 confirmed that the site consists of topsoil underlain by a layer of fill, over a deep deposit of silty clay. Groundwater level measured in the standpipes in the boreholes ranged from 1.0 m to 1.5 m below the existing ground surface.

The report contains recommendations which include but are not limited to the following:

- Fill used for grading beneath the proposed development to meet OPSS Select Subgrade Material compacted to at least SPMDD
- Pavement Structures as identified below

Table 1-1 Pavement Structure – Car Only Parking Areas

Parking Areas	Thickness
HL3 Surface Course	50 mm
OPSS Granular A Base	150 mm
OPSS Granular B Type II Subbase	300 mm

Table 1-2 Pavement Structure – Access Lanes, Fire Routes and Heavy Truck Parking Areas

Local Road	Thickness
HL3 Surface Course	40 mm
HL8 Surface Course	50 mm
OPSS Granular A Base	150 mm
OPSS Granular B Type II Subbase	450 mm

The report contains recommendations which include but are not limited to the following:

- Pipe bedding and cover: The pipe bedding for water and sewer pipes is to be placed on at least 150 mm of OPSS Granular A material. Where unavoidable disturbances to the subgrade surface occur, it may be necessary to place a sub-bedding layer consisting of 300 mm of compacted OPSS Granular B Type II beneath the Granular A Bedding. The bedding layer should extend to the spring line of the pipe. Cover material, from the spring line to at least 300 mm above the obvert of the pipe should consist of OPSS Granular A or Granular B Type I with a maximum particle size of 25 mm. The bedding and cover materials should be placed in maximum 300 mm thick lifts compacted to a minimum of 95% of the material's SPMDD.
- The excavation side slopes above the groundwater level extending to a maximum depth of 4 m should be cut back at 1H:1V or flatter.

2 Water Supply

2.1 Existing Conditions

The 2000 Innovation Drive property is currently serviced by a private 305mm diameter PVC watermain, extending from the Municipal 406 mm PVC within Innovation Drive. A 203 mm diameter water service branches from the 305 mm watermain to the OTT01 building. In addition to servicing the building, the 305 mm watermain provides service for two private hydrants located south and northeast of the existing building. The watermains fall within the City of Ottawa's pressure district, Pressure Zone 3W.

2.2 Proposed Water Plan

Water demand for the MAB will consist of the proposed cooling towers, the chilled makeup water system, and domestic demand for a service sink. As per the Mechanical Engineer's plans, the water system will be extended from the existing office building to provide service to the cooling towers. Domestic water servicing for the proposed mechanical and electrical building will be provided by a 76mm PVC water lateral extending from the existing building. Refer to the general plan of services **Drawing C-001.**

The anticipated demands for the parcel will exceed 50 m^3/day, necessitating a second connection to the existing watermain. A new 305 mm diameter PVC watermain is proposed to connect to the existing 406 mm municipal watermain separated from the existing private main by an isolation valve in the ROW. The isolation valve will be within a valve chamber conforming to City Standard W2. Please refer to **Drawing C-001**.

2.3 Design Criteria

2.3.1 Water Demands

Water demands for the development were assessed by estimating both existing demands for the OTT01 building and new demands from the MAB. The existing water demands have been calculated based on light industrial rates with a gross area of 3.13 ha. Consumption rates are taken from Tables 4.1 and 4.2 at the Ottawa Design Guidelines – Water Distribution and are summarized as follows:

- ICI Average Day Demand 35,000 l/gross ha/day
- ICI peak Daily Demand 52,500 l/gross ha/day
- ICI Peak Hour Demand 77,000 l/gross ha/day

The Mechanical Engineer has indicated that the peak demand for the MAB will be a constant demand of 4.42 l/s (70 usgpm) during warm weather months. This peak demand is for makeup water to the chilling towers. The calculations have been included in **Appendix B**.

A watermain demand calculation sheet is included in **Appendix B** and the total water demands are summarized as follows:

- Average Day 5.68 /s
- Maximum Day 6.32 l/s
- Peak Hour 7.84 l/s

2.3.2 System Pressure

The Ottawa Design Guidelines – Water Distribution (WDG001), July 2010, City of Ottawa, Clause 4.2.2 states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 480 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in Clause 4.2.2 of the guidelines are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.
Water Age	A total travel time of 5 days or less during basic day demand is reasonable. A residence time of 8 days should not be exceeded.

2.3.3 Fire Flow Rates

The electrical and mechanical buildings are to be Type II non-combustible construction with a 1-hour fire resistance rating assembly, sprinkler system and combustible occupancy. The existing OTT01 building has been determined to be of Type II non-combustible construction with a sprinkler system and limited combustible occupancy.

Calculations using the Fire Underwriting Survey (FUS version 2020) were conducted to determine the fire flow requirement for the site. The analysis considered fire demands for the existing OTT01 building, MAB electrical building and MAB mechanical building. Results of the analysis provides a fire flow rated of 12,000 l/min (200 l/s), 5,000 l/min (83 l/s) and 8,000 l/min (133 l/s), respectively. A copy of the FUS calculations is included in **Appendix B**.

2.3.4 Boundary Conditions

The City of Ottawa has provided the hydraulic boundary conditions for the watermain within Innovation Drive for current pressures. A copy of the boundary conditions is included in **Appendix B** and summarized as follows:

Table 2-1 Hydraulic Boundary Conditions

Criteria	Hydraulic Head – Innovation Drive	Pressure (psi)	Pressure (kPa)
Max HGL (Basic Day)	130.3 m	65.4 psi	450.9 kPa
Peak Hour	125.7 m	59.0 psi	406.8 kPa
Max Day + Fireflow (12,000 L/m)	121.5 m	53.0 psi	365.4 kPa

Ground elevation: 84.3 m

2.3.5 Hydraulic Model

A computer model for the subject site has been developed using the InfoWater program. The model includes the existing water network under the proposed demands and boundary condition at Innovation Drive.

2.3.6 Hydraulic Analysis

The hydraulic model was run under basic day, peak hourly and fire flow conditions to determine the expected operating pressures for the site. Results of the analysis for the site are summarized in Section 2.3.2 and the water model schematic and model results are included in **Appendix B**. As per the City of Ottawa Water Design Guidelines,

2.3.7 Modeling Results

The hydraulic model was run under basic day, maximum day with fire flows and under peak hour conditions. Results of the hydraulic model are included in **Appendix B** and summarized as follows:

- Basic Day (Max HGL) Pressure Range 422 kPa to 426 kPa
- Peak Hour (Min HGL) Pressure Range 378 kPa to 381 kPa
- Max Day Pressure Range + Fire Flow 288 kPa to 336 kPa

A comparison of the results and design criteria is summarized as follows:

Maximum Pressure — No nodes in basic day scenario exceed 552 kPa (80 psi), therefore no pressure reducing control is required for the buildings in this development.

Minimum Pressure — All nodes in the model exceed the minimum value of 276 kPa (40 psi) during normal operating conditions.

Fire Flow — The required fire flow can be provided through two existing private hydrants located on the site and two municipal hydrants on Innovation Drive. All nodes will exceed the 138 kPa (20 psi) requirement during the maximum day plus fire flow scenario.

3 Wastewater Disposal

3.1 Existing Conditions

There is an existing private 200 mm diameter PVC sanitary sewer which extends from the Municipal 250 mm diameter PVC sewer within Innovation Drive. The sewer is routed through the site just east of the existing OTT01 building. A 200 mm diameter sanitary service lateral extends from the sewer to service the existing building. Effluent flows from the site are tributary to the March Road Collector sewer.

3.2 Design Criteria

The sanitary sewers for the subject site will be based on the City of Ottawa design criteria. It should be noted that the sanitary sewer design for this study incorporates the latest City of Ottawa design parameters identified in Technical Bulletin ISTB-2018-01. Some of the key criteria will include the following:

- Average Institutional = 28,000 L/Ha/day
- Peak ICI flow factor = 1.5 if ICI area is > 20% total area
1.0 if ICI area is ≤ 20% total area
- Inflow and Infiltration Rate = 0.33 l/s/ha
- Minimum Full Flow Velocity = 0.60 m/s
- Maximum Full Flow Velocity = 3.0 m/s
- Minimum Pipe Size = 200 mm diameter (for ICI lands per OSDG)

Peak design flows for the development have been evaluated by combining the existing demand from the OTT01 building and the proposed demand for the MAB. The Mechanical Engineer has indicated that the expected sanitary load from the MAB will consist of blowdown from the cooling tower system, sprinkler drainage for the electrical room and domestic load from a janitor's closet.

Effluent flows from the existing office building are estimated to be 2.55 l/s using the parameters noted above. The Mechanical Engineer has indicated that the cooling towers, sprinkler drainage and domestic loads will produce a peak effluent demand of 6.04 L/s. The resultant peak effluent flow for the development is expected to be 8.59 l/s. Please refer to **Appendix C** for supporting materials.

3.3 Recommended Wastewater Plan

Sanitary servicing for the proposed mechanical auxiliary building will consist of a 150 mm PVC service connection extending from the existing 150 mm PVC sewer at normal depth and slope. The lateral has been designed using the criteria noted above in section 3.2 and outlet via the existing sanitary network connection to the sanitary sewer within Innovation Drive.

A copy of the sanitary sewer design sheet can be found in **Appendix C.** Based on the design sheet; the existing 200 mm diameter sewer has capacity to accommodate the 8.59 l/s peak flow. Flow monitoring for the site will continue to be provided via an existing sanitary maintenance structure located just inside the property line. City

Staff is to advise of any downstream capacity constraints for the Municipal sanitary sewer network. Please refer to the General Plan of Services **Drawing C-001** for further details.

4 Site Stormwater Management

4.1 Existing Conditions

The subject site is located within the Shirley's Brook watershed, a tributary to the Ottawa River. The site is currently served by a storm sewer network ranging in diameter from 200 to 450 mm. The network conveys surface runoff to a municipal ditch fronting the site, which is collected by a ditch inlet catchbasin in the Innovation Drive ROW. Runoff from the sewer discharges to a watercourse approximately 250m southeast of the site.

The limits of site works have been used to evaluate the impact of the proposed development on the existing conditions. Within these limits, three primary runoff areas have been identified and evaluated for their flows during existing conditions (pre-development):

- **Area A1**: Surface runoff travels overland to the naturalized stormwater management facility located northwest of OTT01. Minor system flows infiltrate through the permeable surface of the storage area, while major system flows area retained on-site and overflow into a raised ditch inlet catch basin. There is an existing 4 m easement in place for the catchbasin lead. Runoff collected in the catchbasin is conveyed through the storm sewer network to the site outlet.
- **Area A2**: A landscaped area with a sidewalk located between the OTT01 building and the existing parking lot. Runoff is collected by a swale and catchbasin, which discharges uncontrolled to a 375 mm diameter storm sewer within the drive aisle and ultimately the site outlet.
- **Area A3:** A section of land which flows overland toward the eastern parking lot. Curb cuts provide a path for drainage to flow into a swale along the eastern property line, which conveys runoff toward the site outlet.

Please refer the Storm Drainage Area Plan in **Appendix D**.

4.2 Design Criteria

The stormwater system was designed following the principles of dual drainage, making accommodations for both major and minor flow. The on-site minor system design criteria identified below is consistent with the current City of Ottawa Sewer Design Guidelines

Some of the key criteria include the following:

• Design Storm	1:5year return (Ottawa)
• Rational Method Sewer Sizing	
• Initial Time of Concentration	10 minutes
• Runoff Coefficients	
– Landscaped Areas	C = 0.20
– Granular Areas	C = 0.60
– Asphalt/Concrete	C = 0.90
– Roof	C = 0.90
• Pipe Velocities	0.80 m/s to 6.0 m/s
• Minimum Pipe Size	250 mm diameter (200 mm CB Leads)

4.3 Proposed Storm Sewers

New minor storm sewers for the subject site will be sized using the rational method and the City of Ottawa 100-year event.

The proposed development will maintain the same general drainage pattern with post-development areas B1, B2, and B3 corresponding directly to the outlets of A1, A2 and A3, respectively.

Area B1, the post-development equivalent of Area A1, is primarily comprised of the MAB roof, soft landscaping, semi-permeable gravel, a new drive aisle and concrete pads. In accordance with existing conditions, stormwater runoff will be conveyed through the site primarily via positive surface drainage. Based on calculations in section 4.4, runoff conveyed to the swm area is expected to decrease; therefore, minor-system flows are expected to infiltrate in accordance with existing conditions. The existing ditch inlet catchbasin, which is responsible for conveying major system flows, is proposed for removal and replacement with a new ditch inlet catchbasin within the storm area. The top of grate elevation is to remain the same to ensure major system flows pond to the same elevation before discharging to the sewer system.

Area B2, the post-development equivalent of area A2, consists of runoff from between the new mechanical auxiliary building and the existing OTT01 building. The existing catchbasin collecting runoff will be re-located to collect drainage from the area. In accordance with existing drainage conditions, the catchbasin will tie into the existing 375mm storm sewer within the parking lot with a new lead.

Area B3, the post-development equivalent of area A3, consists of surface runoff along the eastern face of the MAB building that will continue to flow overland towards the east.

A detailed storm sewer design sheet and the associated storm sewer drainage area plan are included in Appendix D. The General Plan of Services, depicting all on-site storm sewers, can be found in **Appendix A**.

4.4 Quantity Control

During the pre-consultation meeting, City Staff indicated all storm events up to and including the 100-year post-development peak flow rate must match the pre-development peak flow rate. The proposed approach ensures that runoff within the development limits and flow to the existing stormwater management area will not exceed current conditions, preserving the system's functionality. Please refer pre-consultation notes in **Appendix B**.

To demonstrate that post-development peak flows do not exceed pre-development conditions, a comparison of Area x Runoff Coefficient (A x C, or AC) has been implemented. Pre-development areas A1, A2 and A3, corresponds to post-development areas B1, B2 and B3, respectively. Calculated pre-development runoff values are presented in Table 4-1 below. By increasing the percentage of pervious and semi-pervious areas within the development limits, the overall runoff from the site is expected to decrease compared to existing conditions. Pre-development drainage areas A1, A2 and A3 are analogous to post-development areas B1, B2, and B3. Area, runoff coefficient, and AC values for the post-development areas are summarized in Table 4-2 below.

Table 4-1 Pre-Development Runoff

Area ID	Area (ha)	C	AC Value
A1	0.57	0.63	0.36
A2	0.08	0.28	0.02
A3A	0.14	0.35	0.05
A3B	0.02	0.73	0.013

By increasing the percentage of pervious and semi-pervious area located within the development limits, the overall runoff from each drainage area will not exceed existing conditions. Post-development runoff values have been summarized in Table 4-2 below.

Table 4-2 Post-Development Runoff

Area ID	Area (ha)	C	AC Value
B1	0.60	0.59	0.35
B2	0.04	0.26	0.01
B3A	0.15	0.31	0.05
B3B	0.02	0.38	0.007

4.5 On-Site Detention

Post-development runoff from Area B1 will be conveyed to the existing surface storage area. This drainage area consists primarily of the MAB roof, soft landscaping, semi-permeable gravel areas, a new drive aisle, and concrete pads. Consistent with existing conditions, major storm event storage will continue to be provided within the surface storage area. There are no proposed modifications to the grading within the storage area, and the overall runoff directed towards it is expected to decrease. Therefore, it has been assumed that sufficient storage is provided for major storm events, and the system will operate in accordance with existing conditions.

4.6 Quality Control

It has been assumed that on-site quality treatment measures for the development area are currently provided within the surface stormwater management area. As the AC value of the runoff tributary to the SWM area is less than pre-development (existing conditions), the level of quality control provided is expected to improve relative to existing

conditions. Based on this rationale, City Staff confirmed that additional quality control measures are not required for the site.

5 Grading and Roads

5.1 Site Grading

The site grading plan will require the balancing of various requirements, including but not limited to geotechnical constraints, minimum/maximum slopes, and overland routing of stormwater, all to ensure the site is graded in accordance with municipal and accessibility standards.

Refer to the grading plan provided in **Appendix E**.

5.2 Road Network

Vehicular access for the MAB will be provided via a drive aisle extending from an existing on-site drive aisle. No public roads are proposed through the site, as shown on the Site Plan in **Appendix A.** An internal Fire route has been shown where fire truck access is required, as determined by the site architect.

There are 757 parking stalls provided on the site, of which 24 are barrier-free.

A sidewalk extending the perimeter of the building and will provide pedestrian access.

6 Source Controls

6.1 General

Since an end-of-pipe treatment facility is already provided for the development lands, stormwater site management for the subject lands will focus on site-level or source control management of runoff. Such controls or mitigative measures are proposed for this development, not only for final development but also during construction and build-out. Some of these measures are:

- Flat site grading where possible
- Vegetation planting
- Groundwater recharge in landscaped areas

6.2 Lot Grading

Where possible, all of the hard surfaces within the development will make use of gentle surface slope. In accordance with local municipal standards, all grading will be between 0.5 and 5.0 percent for hard surfaces and 2.0 and 7.0 percent for all landscaped areas. If required, significant grade changes will be accomplished through the use of terracing (3:1 max slope), ramps and/or retaining walls.

6.3 Vegetation

As with most site plans, the developer will be required to complete a vegetation and planting program. Vegetation throughout the development including planting throughout the development limits.

7 Conveyance Controls

7.1 Generals

Besides source controls, the development also proposes to use several conveyance control measures to improve runoff quality. These will include:

- Vegetated swales
- Catchbasin sumps and manhole sumps

7.2 Catchbasins and Maintenance Hole Sumps

All catchbasins within the development, either rear yard or street, will be constructed with minimum 600 mm deep sumps. These sumps trap pollutants, sand, grit and debris which can be mechanically removed prior to being flushed into the minor pipe system. Both rear yard and street catchbasins will be to OPSD 705.02. All storm sewer maintenance holes serving local sewers less than 900 mm diameter shall be constructed with a 300 mm sump as per City standards.

8 Sediment and Erosion Control Plan

8.1 General

During construction, existing stream and conveyance systems can be exposed to significant sediment loadings. Although construction is only a temporary situation, it is proposed to possibly introduce a number of mitigative construction techniques to reduce unnecessary construction sediment loadings. These may include:

- Until the local storm sewer is constructed, groundwater in construction trenches shall be pumped into a filter mechanism prior to release to the environment
- Vegetated swale sediment capture filter socks will remain on open surface structures such as maintenance holes and catchbasins until these structures are commissioned and put into use
- Silt fence on the site perimeter will be installed

8.2 Trench Dewatering

Any trench dewatering using pumps will be discharged into a filter trap made up of geotextile filters and straw bales similar in design to the OPSD 219.240 Dewatering Trap. These will be constructed in a bowl shape with the fabric forming the bottom and the straw bales forming the sides. Any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filters as needed, including sediment removal and disposal and material replacement as needed. It should be noted that that the contractor will be responsible for the design and management of the trap(s).

8.3 Seepage Barriers

In order to further reduce sediment loading to the stormwater management facility, seepage barriers will be installed on any surface water courses at appropriate locations that may become evident during construction. These barriers will be Light Duty Straw Bale Barriers per OPSD 219.100 and Heavy-Duty Silt Fence Barriers per OPSD 219.130; locations are shown on the Sediment and Erosion Control Plan included in **Appendix E**. They are typically made of layers of straw bales or geotextile fabric staked in place. All seepage barriers will be inspected and maintained as needed.

8.4 Surface Structure Filters

All catchbasins, and to a lesser degree, manholes, convey surface water to sewers. Until streets are asphalted and curbed, all catchbasins and manholes will be constructed with sediment capture inserts or equivalent located between the structure frame and cover. These will stay in place and be maintained during construction and build until it is appropriate to remove same.

9 Conclusion

This report has illustrated that the proposed mechanical auxiliary building on the existing Cisco campus can be serviced via existing private services. Water services will be extended from the existing building to meet the necessary demands. All sanitary and storm sewer designs for this development will be completed in conformance with City of Ottawa standards while acknowledging downstream constraints. By reducing surface runoff from existing conditions, stormwater management requirements will be met. Adherence to the Sediment and Erosion Control Plan during construction will minimize harmful impacts on surface water.

Based on the information provided within this report, the plans prepared for the subject development can be serviced to meet City of Ottawa requirements.

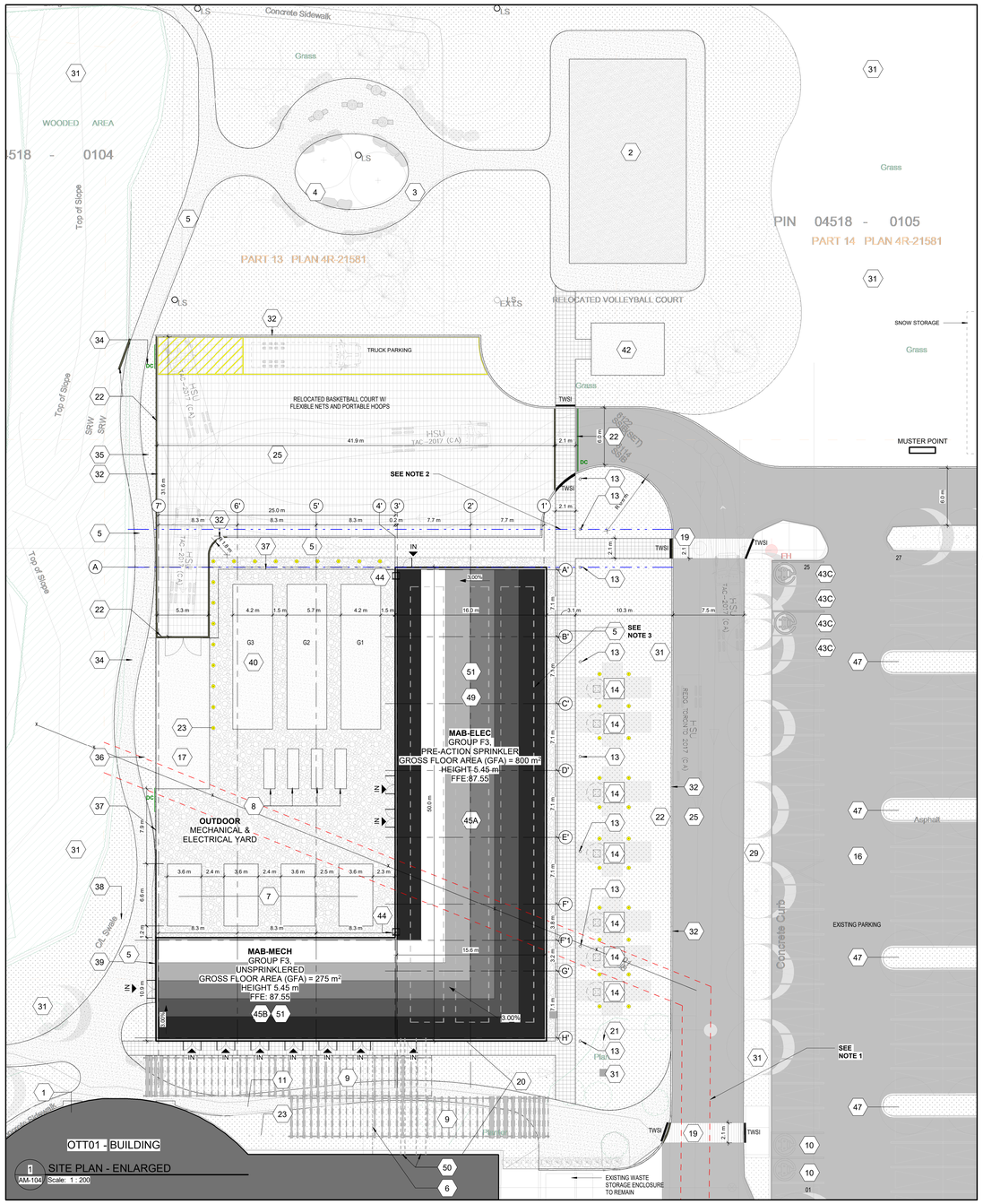
Appendix A

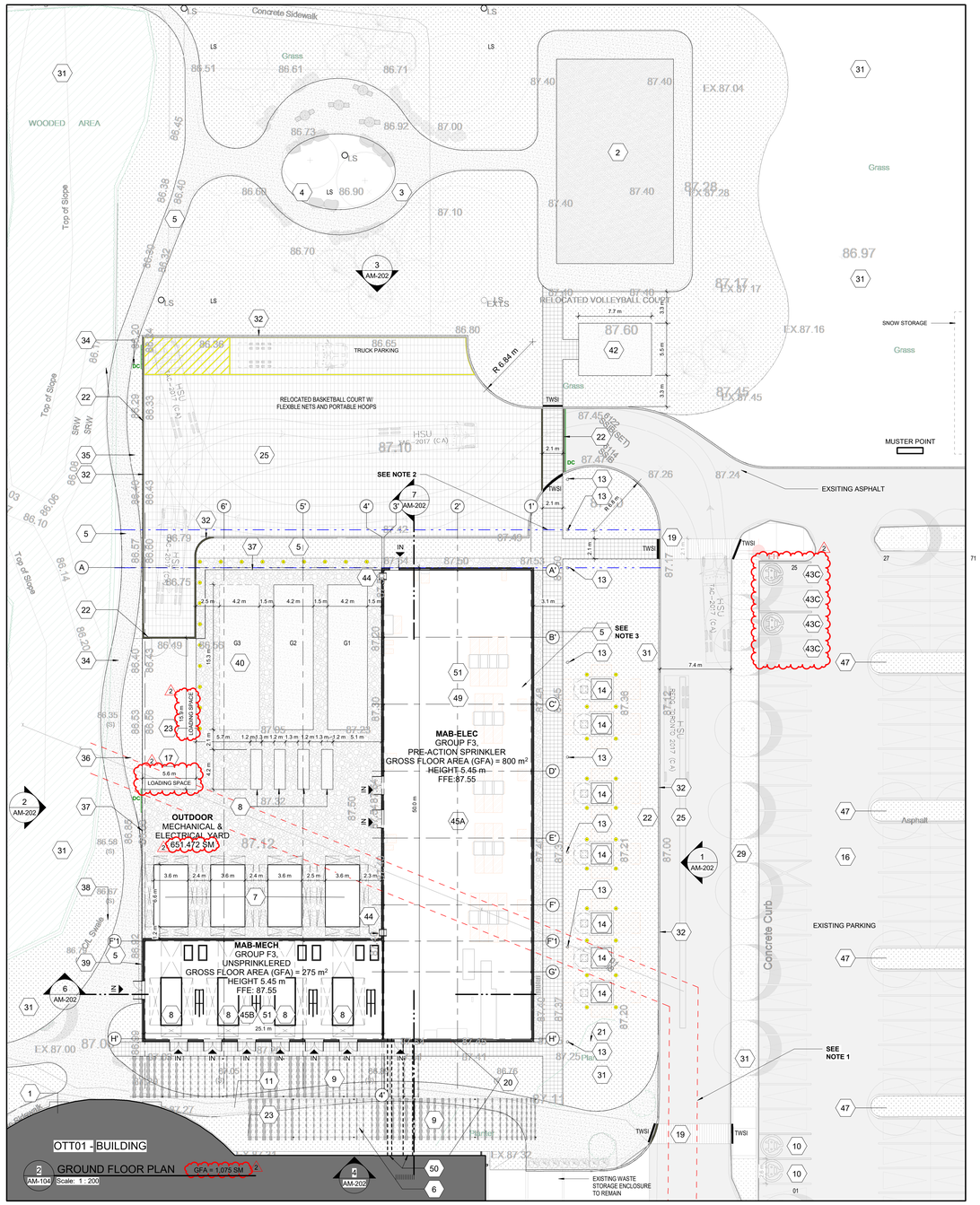
Site Plan

Site Servicing Plan 30298433-C-001

AOV Legal Plan – 2025-06-24

Pre-Consultation City Comments





SITE LEGEND:

- PROPERTY LINE
- ZONING SETBACKS
- FIRE ACCESS ROUTE (FAR)
- PROPOSED SITE PLAN SCOPE OF WORK
- PRIVATE EASEMENT TO BE RELOCATED
- PROPOSED EASEMENT
- EXISTING FIRE HYDRANT
- FENCE
- BOLLARDS
- BIKE RACKS
- EXIT OR ENTRANCE
- EXTERIOR LIGHT BOLLARD
- WALL MOUNTED DOWN LIGHT - DARK SKY COMPLIANT
- EXISTING TREE TO REMAIN
- EXISTING TREE TO BE REMOVED
- EXISTING CONIFEROUS TREE
- PROPOSED DECIDUOUS TREE
- PROPOSED CONIFEROUS TREE
- PROPOSED SPECIMEN SHRUB
- TABLE AND CHAIRS
- PROPOSED LIGHT STANDARD
- EXISTING LIGHT STANDARD
- ARMOURSTONE BOULDERS
- NATIVE SEED MIX
- PERENNIAL PLANTING
- EXISTING SOD TO REMAIN
- BOUND AGGREGATE PAVING
- C.I.P CONCRETE PAVING
- GRAVEL
- LOOSE SAND
- HD INTERLOCKING PAVERS W/ HIGH ALBEDO TO REDUCE URBAN HEAT ISLAND EFFECT
- SAFTY ZONE /NO PARKING
- TACTILE WALKING SURFACE INDICATOR (TWSI)
- DMC / MC / DC - DEPRESSED / MOUNTABLE CURB / BARRIER CURB ** PARKING AREAS AND ENTRANCES SHALL HAVE BARRIER CURBS

- SANITARY MANHOLE
- SANITARY SEWER
- STORM MANHOLE
- STORM SEWER - <9000
- STORM SEWER - >9000
- WATERMAIN
- STREET CATCHBASIN - TOP GRATE
- STREET CATCHBASIN - GUTTER
- DOUBLE CATCHBASIN - TOP
- DOUBLE CATCHBASIN - GUTTER
- DITCH INLET MANHOLE
- CATCHBASIN MANHOLE
- REAR YARD CATCHBASIN
- REAR YARD "TEE" CATCHBASIN
- REAR YARD "END" CATCHBASIN
- REAR YARD "CUSTOM ANGLED" CATCHBASIN
- REAR YARD "THREE WAY" CATCHBASIN
- PERFORATED REAR YARD SUBDRAIN
- CSP CULVERT C/W DIAMETER
- VALVE AND VALVE BOX
- VALVE AND VALVE CHAMBER
- PARK VALVE CHAMBER C/W SERVICE POST
- FIRE HYDRANT C/W BOTTOM
- WIRE MAIN REDUCER
- VERTICAL BEND LOCATION
- SIAMESE CONNECTION
- METER (IF REQUIRED)
- REMOTE METER (IF REQUIRED)
- WATER MAIN IDENTIFICATION (IF REQUIRED)
- PIPE CROSS IDENTIFICATION (IF REQUIRED)
- SINGLE SERVICE LOCATION
- DOUBLE SERVICE LOCATION
- SINGLE SERVICE LOCATION (REQUIRES SLEEVE)
- INFERRED REFUSAL (SEE GEOTECHNICAL)
- 100 YEAR STORM HYDRAULIC GRADE LINE
- UNDERSIDE OF FOOTING ELEVATION
- CLAY SEAL IN SEWER / WATERMAIN TRENCH

PARKING SPACE 5.5 m × 2.6 m
PARKING SPACE TO BE REMOVED 5.5 m × 2.6 m
EV CHARGING STATION 6.7 m × 2.6 m
PARKING SPACE 5.5 m × 2.6 m

AERIAL FIRE TRUCK

WIDTH	2.54 m
TRACK	2.54 m
LOCK TO LOCK TIME	6.0 m
STEERING ANGLE	37.0 m

TRUCK

WIDTH	2.60 m
TRACK	2.60 m
LOCK TO LOCK TIME	6.0 m
STEERING ANGLE	40.0 m

KEYNOTES

No.	Note Content
1	20 EXISTING BICYCLE STORAGE RACKS TO BE RELOCATED
2	RELOCATED VOLLEYBALL COURT
3	EXISTING CAR PARKING ASPHALT AREA CONVERTED TO LANDSCAPE (1010 SM)
4	EXISTING SHED TO BE RELOCATED ON SITE
5	NEW PEDESTRIAN WALKWAY, 2.1M WIDE PER AODA
6	76 MM WATERMAIN BLDG INV. TO BE COORDINATED (BELOW GRADE, IF IT'S SHALLOW DUE TO SITE CONSTRAINTS, HEAT TRACED C/W INSULATION IS NEEDED TO MAB MECHANICAL ROOM)
7	FOUR COOLING TOWERS - SEE MECH
8	PUMPS
9	A SLEEK TRELLIS/CANOPY BETWEEN THE EXISTING BUILDINGS AND THE NEW MAB BUILDING TO CONCEAL OVERHEAD SERVICES FROM MAB ELEC TO OTT01
10	NEW LOCATION OF EXISTING EV CHARGING STATION
11	EXISTING PEDESTRIAN WALKWAY TO REMAIN
12	FOUR DIESEL GENERATORS
13	LANDSCAPE LIGHTING, DARK SKY COMPLIANT
14	SEVEN HYRDO OTTAWA TRANSFORMERS, OPEN ACCESS REQUIRED FOR HYDRO EQUIPMENT
15	NEW ASPHALT ROAD/PARKING
16	EXISTING PARKING TO REMAIN
17	NEW CONCRETE PLINTH, 0.3M HIGH
18	EXISTING LOADING AREA
19	CROSSWALK
20	LIMITING DISTANCE BETWEEN THE MAB AND EXISTING OTT01 BUILDING IS MIN. 10m TO PREVENT EXTENSIVE OTT01 FACADE FIRE RATING
21	4" - SAN LEAVING, 2 METERS BELOW GRADE, REFERENCE CIVIL
22	DEPRESSED CURB, DC
23	NEW BOLLARDS (TYP.)
24	EXISTING TREES TO BE REMOVED
25	EXISTING ROAD TO REMAIN
26	DEMOLISH CURB
27	DEMOLISH SIDE WALK
28	FOUR FUEL TANKS
29	EXISTING TREES TO REMAIN, SEE LANDSCAPE
30	EXISTING ASPHALT AND PARKING TO REMAIN
31	EXISTING SOFT LANDSCAPING TO REMAIN
32	PROPOSED CURB PER SC1.1
33	DEMOLISH EXISTING PARKING SPACES
34	FULLY DEPRESSED CURB PER CITY SC1.1
35	RE-GRADE EXISTING PATHWAY ENSURING POSITIVE DRAINAGE FROM CURB CUT TO EX. STORMWATER STORAGE AREA
36	REPLACE EXISTING CURB
37	NEW METAL FENCE
38	PROVIDE SWALE ENSURING POSITIVE DRAINAGE TOWARDS CURB DEPRESSION

KEYNOTES

No.	Note Content
39	RAISED CONCRETE PADS. ENSURE POSITIVE DRAINAGE AWAY FROM BASE PAD
40	POTENTIAL FUTURE GENERATOR
41	RELOCATED BICYCLE RACK HERE. 20 TOTAL
42	NEW CONCRETE PAD FOR EXISTING SHED IN PARKING LOT
43A	EXISTING CHARGING STATIONS TO BE RELOCATED
43B	EXISTING EV PARKING SPOTS TO BE RELOCATED. EACH CHARGING STATION CAN HAVE 2 EVS.
43C	RELOCATE CHARGING STATION/EV SPOTS.
44	METAL ROOF ACCESS LADDER
45A	MAB - ELECTRICAL ENCLOSURE
45B	MAB - MECHANICAL ENCLOSURE
46	RELOCATE EXISTING EVACUATION SIGNAGE TO NEW MUSTER POINT LOCATION
47	NEW LANDSCAPED ISLAND
49	PHOTOVOLTAIC (PV) PANEL
50	EXPOSED CONDUIT FROM MAB TO OTT01 TO BE CONCEALED ABOVE NEW CANOPY
51	COLOURED ROOF GRAVEL (BLACK TO WHITE)

Scale 1:200
0 5 10 20 m





(Left) This view shows a landscaped outdoor area with a mix of open green spaces, mature trees and pedestrian pathways. In the background, the MAB with bronze-toned perforated panels and rooftop mechanical units contrasts with the natural setting. The foreground includes a sandy sports court with volleyball net, while curved walkways and planted areas create a welcoming recreational environment.

(Top) The image depicts the MAB's flat roof and patterned facade, characterized by clean geometric lines and a pergola-style entrance, set against a snowy backdrop.

True North Project North

4/17/2026 4:21:02 PM

File No: D07-12-25-0168

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Arcadis Architects (Canada) Inc.



ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPC ROUND 1	2025.12.12
2	RESPONSE TO SPC ROUND 1 COMMENTS	2026.04.30

NOT FOR CONSTRUCTION

CONSULTANTS

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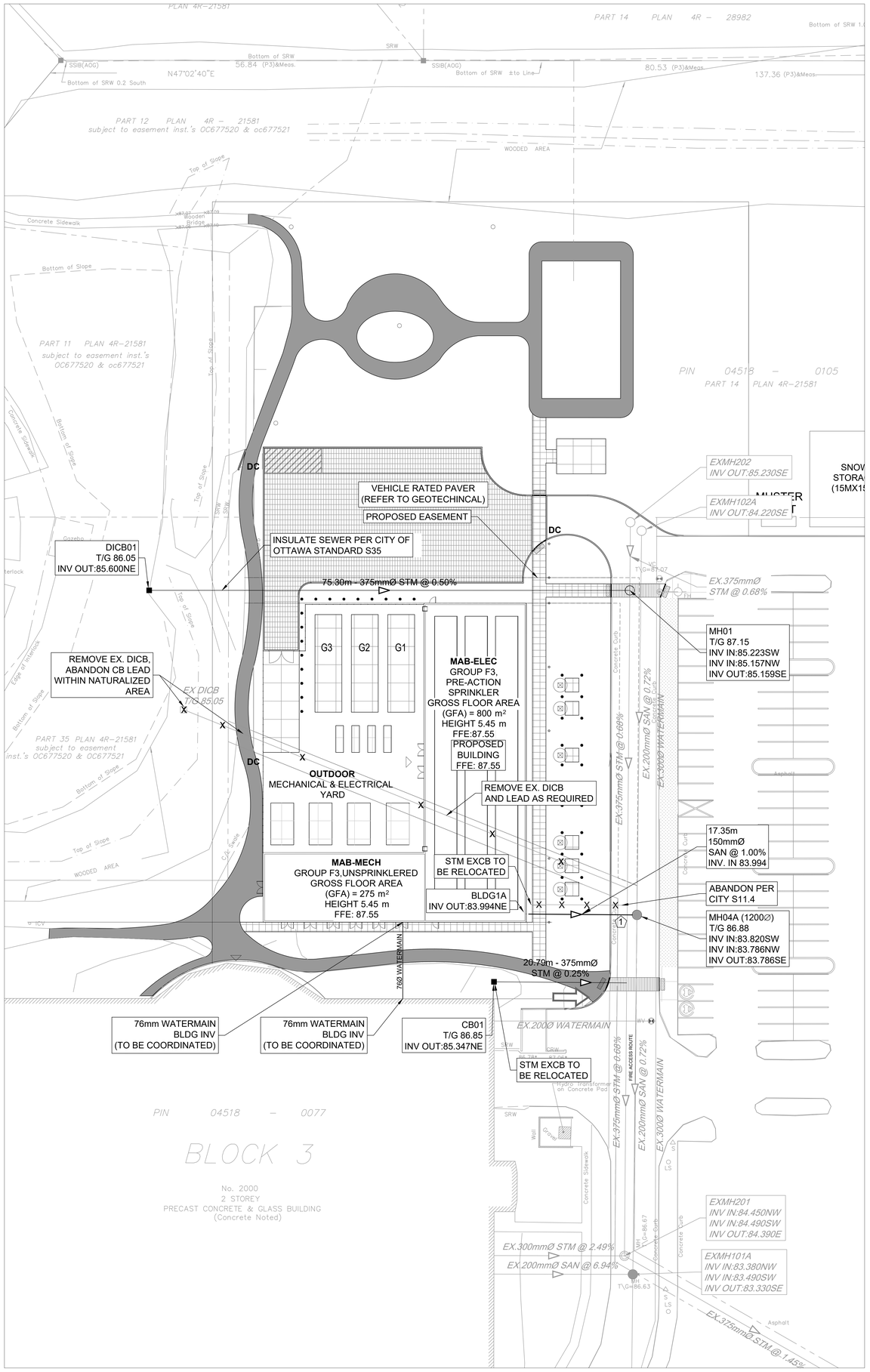
PROJECT NO:	APPLICATION NO:
MAB:30298433	PC2025-0127
DRAWN BY: ARCADIS	CHECKED BY: YB
PROJECT MGR: YB	APPROVED BY: TW

SHEET TITLE
PROPOSED SITE PLAN & GROUND LEVEL-ENLARGED

SHEET NUMBER AM-104 | ISSUE 2

Autodesk Docs://Cisco - Ottawa Campus/14678 - CISCO-A-MAB-R24.rvt

PLOT CHECK



GENERAL LEGEND

- LIMIT OF CONSTRUCTION
- PHASING LINE
- BARRIER CURB
- MOUNTABLE CURB
- DEPRESSED BARRIER CURB
- CONCRETE SIDEWALK
- TACTILE WALKING SURFACE INDICATOR
- ASPHALT SIDEWALK / PATHWAY
- BUS STOP CONCRETE / ASPHALT
- PERMEABLE PAVING PER LANDSCAPE
- VEHICLE PAVERS PER GEOTECH
- CAST IN PLACE CONCRETE

SERVICING LEGEND

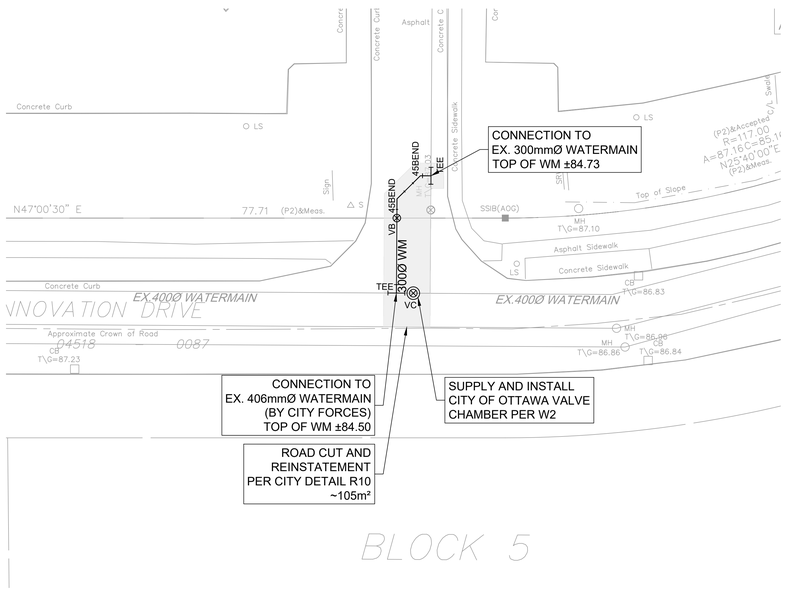
- MH118A — SANITARY MANHOLE
- 200mmØ SAN — SANITARY SEWER
- MH109 / MH118 — STORM MANHOLE
- 825mmØ STM — STORM SEWER - LESS THAN 900Ø
- 900mmØ STM — STORM SEWER - 900Ø AND GREATER
- 200Ø WATERMAIN — WATERMAIN
- CB100, T/G 104.10 — STREET CATCHBASIN C/W TOP OF GRATE
- OCB101, G/G 104.25 — CURB INLET CATCHBASIN C/W GUTTER GRADE
- DCB100, T/G 104.10 — DOUBLE CATCHBASIN C/W TOP OF GRATE
- DCB(100), G/G 104.25 — DOUBLE CURB INLET CATCHBASIN C/W GUTTER GRADE
- DI101, T/G 103.59 — DITCH INLET MANHOLE C/W TOP OF GRATE
- CBMH100, T/G 103.85 — CATCHBASIN MANHOLE C/W TOP OF GRATE
- RYCB, T/G 104.35 — REAR YARD CATCHBASIN IN ROAD CONNECTING STRUCTURE C/W SOLID GRATE
- T/G 104.35, INV 103.35 — REAR YARD "TEE" CATCHBASIN (300Ø) C/W TOP OF GRATE AND INVERT OUT
- T/G 104.50, INV 103.50 — REAR YARD "END" CATCHBASIN (300Ø) C/W TOP OF GRATE AND INVERT OUT
- T/G 104.35, INV 103.35 — REAR YARD "CUSTOM ANGLED " CATCHBASIN (450Ø) C/W TOP OF GRATE AND INVERT OUT
- T/G 104.35, INV 103.35 — REAR YARD "THREE WAY" CATCHBASIN (450Ø) C/W TOP OF GRATE AND INVERT OUT
- 300mmØ CSP — PERFORATED REAR YARD SUBDRAIN
- CSP CULVERT C/W DIAMETER
- VB — VALVE AND VALVE BOX
- V&VC — VALVE AND VALVE CHAMBER
- PARK VALVE CHAMBER C/W SERVICE POST
- HYD, 104.35 — FIRE HYDRANT C/W BOTTOM OF FLANGE ELEVATION
- 200Ø WM, RED 150Ø WM — WATERMAIN REDUCER
- VERTICAL BEND LOCATION
- SIAMESE CONNECTION (IF REQUIRED)
- METER (IF REQUIRED)
- RM — REMOTE METER (IF REQUIRED)
- WATERMAIN IDENTIFICATION (IF REQUIRED)
- PIPE CROSSING IDENTIFICATION (IF REQUIRED)
- SINGLE SERVICE LOCATION
- DOUBLE SERVICE LOCATION
- SINGLE SERVICE LOCATION (REQUIRES FOUNDATION SLEEVE)
- BH 12, 101.79 — INFERRED REFUSAL (SEE GEOTECHNICAL REPORT)
- HGL, 101.79 — 100 YEAR STORM HYDRAULIC GRADE LINE AT MANHOLE
- USF, 101.79 — UNDERSIDE OF FOOTING ELEVATION
- CLAY SEAL IN SEWER / WATERMAIN TRENCH

NOTES :

1. ALL MATERIALS AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH THE CURRENT CITY OF OTTAWA STANDARD DRAWINGS & SPECIFICATIONS OR OPSD/OPSS IF CITY DRAWINGS AND SPECIFICATIONS DO NOT APPLY.
2. THE POSITION OF UNDERGROUND AND ABOVE GROUND SERVICE, UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH SERVICE, UTILITIES AND STRUCTURES IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL REPORT ALL CONFLICTS, DISCOVERIES OF ERROR AND DISCREPANCIES TO THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT AND ASSUME RESPONSIBILITY FOR ALL UTILITIES WHETHER OR NOT SHOW ON THESE DRAWINGS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT ALL LANDS BEYOND THE SITE LIMITS. ANY AREAS BEYOND THE SITE LIMITS, WHICH ARE DISTURBED DURING CONSTRUCTION, SHALL BE REPAIRED AND RESTORED TO ORIGINAL CONDITION OR BETTER, TO THE SATISFACTION OF THE ADJACENT LAND OWNER, THE OWNER, THE OWNERS REPRESENTATIVES AND/OR THE AUTHORITY HAVING JURISDICTION AT THE EXPENSE OF THE CONTRACTOR.
6. WHERE NECESSARY, THE CONTRACTOR SHALL IMPLEMENT A TRAFFIC MANAGEMENT PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO THE LATEST VERSION OF THE M.T.O. MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. ALL TEMPORARY TRAFFIC CONTROL MEASURES MUST BE REMOVED UPON THE COMPLETION OF THE WORKS.
7. SHOULD ANY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL NOTIFY THE OWNER TO CONTACT THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATE, AND WORK WITHIN THE AREA SHALL BE CEASED UNTIL FURTHER NOTICE.
8. FOR GEOTECHNICAL INFORMATION REFER TO GEOTECHNICAL REPORT 991-2238, REVISION No.3, PREPARED BY GOLDER ASSOCIATES LTD.

   ACCESS LANES, FIRE ROUTES, HEAVY TRUCK PARKING AREAS: (690mm)
   40mm - HL3 SURFACE COURSE ASPHALTIC CONCRETE
   50mm - HL8 SURFACE COURSE ASPHALTIC CONCRETE
   150mm - OPSS GRANULAR "A" CRUSHED STONE
   450mm - OPSS GRANULAR "B" TYPE II

   CAR ONLY PARKING AREA : (300mm)
   50mm - SUPERPAVE 12.5 ASPHALTIC CONCRETE
   150mm - OPSS GRANULAR "A" CRUSHED STONE
   300mm - OPSS GRANULAR "B" TYPE II
9. FOR GEODETIC BENCHMARK AND GEOMETRIC LAYOUT OF STREET AND LOTS, REFER TO TOPOGRAPHICAL SURVEY PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. BENCHMARK BASED ON CAN–NET VIRTUAL REFERENCE SYSTEM NETWORK.
10. FOR SITE PLAN INFORMATION, REFER TO SITE PLAN PREPARED BY ARCADIS ARCHITECTS INC (CANADA).
11. THESE DRAWINGS ARE NOT TO BE SCALED OR USED FOR LAYOUT PURPOSES.
12. ROADWAY SECTIONS REQUIRING GRADE RAISE TO PROPOSED SUB GRADE LEVEL TO BE FILLED WITH ACCEPTABLE NATIVE EARTH BORROW OR IMPORTED OPSS SELECTED SUBGRADE MATERIAL. IF NATIVE MATERIAL IS DEFICIENT AS PER RECOMMENDATION OF GEOTECHNICAL ENGINEER.
13. IN AREAS WHERE EXISTING GROUND IS BELOW THE PROPOSED ELEVATION OF SEWER AND WATERMAINS, GRADE RAISING AND FILLING IS TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT, AS PER CITY GUIDELINES ALL WATERMAINS IN FILL AREAS ARE TO BE TIED WITH RESTRAINING JOINTS AND THRUST BLOCKS.
14. THE CONTRACTOR SHALL IMPLEMENT THE EROSION AND SEDIMENT CONTROL PLAN PRIOR TO THE COMMENCEMENT OF ANY SITE CONSTRUCTION. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED TO THE SATISFACTION OF THE ENGINEER, OR ANY REGULATORY AGENCY. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL THE START OF A SUBSEQUENT PHASE.
15. CONTRACTORS SHALL BE RESPONSIBLE FOR KEEPING CLEAN ALL ROADS WHICH BECOME COVERED IN DUST, DEBRIS AND/OR MUD AS A RESULT OF ITS CONSTRUCTION OPERATIONS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL BEDDING OR ADDITIONAL STRENGTH PIPE SHOULD THE MAXIMUM OPSD TRENCH WIDTH BE EXCEEDED.
17. ALL PIPE, CULVERTS, STRUCTURES REFER TO NOMINAL INSIDE DIMENSIONS.
18. SHOULD CLAY SEALS BE REQUIRED, THEY SHALL BE INSTALLED AS PER THE RECOMMENDATIONS WITHIN THE GEOTECHNICAL REPORT.
19. UNLESS SPECIFICALLY NOTED OTHERWISE, PIPE MATERIALS SHALL BE AS FOLLOWS;
    -WATERMAINS TO BE PVC DR18
    -SANITARY SEWER TO BE PVC DR35
    -PERFORATED STORM SEWERS IN REAR YARDS AND LANDSCAPE AREAS TO BE HDPE
    -STORM SEWERS 375mm DIAMETER AND LESS TO BE PVC DR35
    -STORM SEWERS 450mm DIAMETER AND GREATER TO BE CONCRETE, CLASS AS PER OPSD 807.010 OR 807.030, OR HIGHER
    FOR SHALLOW SEWERS, REFER TO CITY STANDARD S35.
20. ALL CONNECTIONS TO EXISTING WATERMAINS ARE TO BE COMPLETED BY CITY FORCES. CONTRACTOR IS TO EXCAVATE, BACKFILL, COMPACT AND REINSTATE.
21. ANY WATERMAIN WITH LESS THAN 2.4m AND ANY SEWER WITH LESS THAN 2.0m DEPTH OF COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22 OR AS APPROVED BY THE ENGINEER.
22. ALL FIRE HYDRANTS AS PER CITY STANDARD W19, c/w 150mmØ LEAD UNLESS OTHERWISE SPECIFIED.
23. ALL STUBBED SEWERS SHALL HAVE PRE-MANUFACTURED CAPS INSTALLED.
24. ALL CATCHBASINS SHALL HAVE A 600mm SUMP. ALL CATCHBASIN MANHOLES, AND ALL STORM MANHOLES WITH OUTLETTING PIPE SIZES LESS THAN 900mm, SHALL HAVE A 300mm SUMP.
25. ALL SANITARY MANHOLES IN PONDING AREAS SHALL BE EQUIPPED WITH A WATERTIGHT COVER.
26. ALL LEADS FOR STREET CATCHBASINS AND CURB INLET CATCHBASINS CONNECTED TO MAIN SHALL BE 200mmØ PVC DR35 @ MIN 2% SLOPE UNLESS NOTED OTHERWISE. ALL LEADS FOR RYCB'S CONNECTED TO MAIN SHALL BE 200mmØ PVC DR35 @ MIN 1% SLOPE UNLESS NOTED OTHERWISE.
27. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL STREET CATCHBASINS SHALL BE INSTALLED WITH TWO - 3.0m MINIMUM SUBDRAINS INSTALLED LONGITUDINALLY, PARALLEL WITH THE CURB. ALL CATCHBASINS IN ASPHALT AREAS, NOT ADJACENT TO A CURB, SHALL BE INSTALLED WITH FOUR - 3.0m MINIMUM SUBDRAINS INSTALLED ORTHOGONALLY.
28. INLET CONTROL DEVICES SHALL BE INSTALLED PRIOR TO COMPLETING THE ROAD BASE (GRANULAR A).
29. ALL SEWER SERVICE LATERALS WITH MAINLINE CONNECTIONS DEEPER THAN 5.0m REQUIRE A CONTROLLED SETTLEMENT JOINT.
30. EACH BUILDING SHALL BE EQUIPPED WITH A SANITARY AND STORM SEWER BACKWATER VALVE AND CLEAN-OUT ON ITS PRIMARY SERVICE, AS PER ONTARIO BUILDING CODE REQUIREMENTS (BY OTHERS).
31. THE SUBGRADE OF ALL STRUCTURES, PIPE, ROADS, SIDEWALKS, WALKWAYS, AND BUILDINGS SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
32. TOP COURSE ASPHALT SHALL NOT BE PLACED UNTIL THE FINAL CCTV INSPECTION AND NECESSARY REPAIRS HAVE BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF OTTAWA.
33. ALL RETAINING WALLS GREATER THAN 1.0m IN HEIGHT SHALL BE DESIGNED BY A QUALIFIED STRUCTURAL ENGINEER.
34. ALL RETAINING WALLS GREATER THAN 0.6m IN HEIGHT REQUIRE A GUARD. ANY GUARD ON A RETAINING WALL GREATER THAN 1.0m IN HEIGHT SHALL BE DESIGNED BY THE QUALIFIED STRUCTURAL ENGINEER RESPONSIBLE FOR THE WALL DESIGN.
35. UPON COMPLETION OF THE RETAINING WALL, THE CONTRACTOR SHALL REQUEST A CONFORMANCE CERTIFICATE FROM THE QUALIFIED ENGINEER RESPONSIBLE FOR THE WALL DESIGN.



0 5 10 20 m

Scale 1:250

True North Project North

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Arcadis Architects (Canada) Inc.

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SITEPLAN CONTROL	2025.12.12
2	ISSUED FOR SITEPLAN CONTROL	2026.05.08

CONSULTANTS

NOT FOR CONSTRUCTION

SEAL

LICENSED PROFESSIONAL ENGINEER
R. R. ROBINEAU
100611774
2026/05/08
PROVINCE OF ONTARIO

PRIME CONSULTANT

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PROJECT NO:
OTT01 MAB 30298433

DRAWN BY:	CHECKED BY:
CC	RR
PROJECT MGR:	APPROVED BY:
RM	RR/RM

SHEET TITLE
SERVICING PLAN

SHEET NUMBER C-001 | ISSUE 2

Autodesk Docs://Cisco - Ottawa Campus/14879-CSCO-A-MAB-R24.rvt
D07-12-25-0168
Drawn
Check
Scale
XXXXX

TOPOGRAPHIC PLAN OF SURVEY OF

BLOCK 3 and PART OF BLOCK 11 REGISTERED PLAN 4M-1075 PART OF BLOCK 5 REGISTERED PLAN 4M-1104 CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 400

0 5 10 15 20 25 30 35 40 Metres

Metric

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

Surveyor's Certificate

I CERTIFY THAT:

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the regulations made under them.
2. The survey was completed on the 24th day of July, 2025.

July 24, 2025
Date

T. Harbeck
Ontario Land Surveyor

Notes & Legend

Denotes

⊙—□	-	Survey Monument Planted
●—	-	Survey Monument Found
SIB	-	Standard Iron Bar
SSIB	-	Short Standard Iron Bar
IB	-	Iron Bar
CC	-	Cut Cross
CP	-	Concrete Pin
(WIT)	-	Witness
Meas.	-	Measured
(AOG)	-	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	-	Registered Plan 4M-1104
(P2)	-	Registered Plan 4M-1075
(P3)	-	Plan 4R-21581
⊙ MH-H	-	Maintenance Hole (Hydro)
⊙ MH-C	-	Maintenance Communication
⊙ MH	-	Maintenance Hole (Unidentified)
⊙ VC	-	Valve Chamber (Watermain)
—OHW—	-	Overhead Wires
○ UP	-	Utility Pole
⌖ AN	-	Anchor
○ LS	-	Light Standard
□ DR	-	Catch Basin Inlet
□ CB	-	Catch Basin
CSP	-	Corrugated Steel Pipe
○ FH	-	Fire Hydrant
⊕ WV	-	Wotor Valve
⌖ ICV	-	Irrigation Control Valve
T/P	-	Top of Pipe
T/G	-	Top of Grate
□ HH	-	Handhole
⌖ TB	-	Unidentified Terminal Box
⌖ TB-C	-	Cable Terminal Box
△ S	-	Sign
SRW	-	Stone Retaining Wall
CRW	-	Concrete Retaining Wall
Ø	-	Diameter
+ 69.00	-	Location of Elevations
+ 69.00T	-	Top of Retaining Wall/ Concrete Curb Elavation
℄	-	Centreline
	-	Deciduous Tree 0.1Ø unless otherwise noted
	-	Coniferous Tree 0.1Ø unless otherwise noted
● B	-	Bollard
F@	-	Foundation

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations and are referenced to Specified Control Points 0191968037 and 0191979101, MTM Zone 9 (76°30' West Longitude) NAD-83 (csrs)(original).

For bearing comparisons, a rotation of 0°23'20" counter-clockwise was applied to bearings on plans P1, P2, P3.

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-110869

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR
July 24, 2025
Regulation 1026, Section 29 (3)

SITE AREA = 7.8358 Hectares

ELEVATION NOTES

1. Elevations shown are geodetic, derived from Vertical Control Monument 2019-0170 having an elevation of 77.964 metres and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

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Ontario Land Surveyors

Job No. 25OCB-05 Combo_Innovation_BLK 11_03 | 1 |

File No.: PC2025-0127

June 4, 2025

Nick Sutherland
Arcadis
Via email: nick.sutherland@arcadis.com

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Application – 2000 Innovation Drive

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on May 7, 2025.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐

One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Should you choose, proceed to complete a Phase 3 Pre-consultation Application Form. Please submit this information together with the necessary studies and/or plans to planningcirculations@ottawa.ca.

2. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed is requested with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

3. Please note, if your development proposal changes significantly in scope, design, or density it is recommended that a subsequent pre-consultation application be submitted.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Proposed Development

1. The proposed development includes a 1,600m^2 building in the northern portion of the site, situated behind the eastern building. The structure will house colling, mechanical and electrical infrastructure needed to support the existing uses on the site. A standalone building is required due to structural limitations to weight constraints of the equipment.

2. The subject site is comprised of multiple parcels – 2000 Innovation Drive (including PINs 045180077, 045180105, 045180104) and 3000 Innovation Drive. All parcels are owned and operated by the same property owner.

3. The applicant provided the following description of the proposed use:

   "The proposed services yard does not meet either the city's principal or accessory definition of BESS (Battery Energy Storage System). The primary purpose of this services yard extension is to provide both normal power and some emergency power to new functions in the building.

   The normal power is provided by the addition of new equipment (switchboards), housed within a new electrical building. Additional equipment for normal power (MV Switches and transformers) are located outdoors, directly adjacent to the new electrical building. The purpose of this new electrical infrastructure is to supply new IT equipment inside the main building and also new mechanical plant (air cooled chillers and cooling towers) in the yard, to support this new IT equipment.

   A portion of this supply (approximately 20%) has been designated as emergency power, in the event of utility power loss. This comes in two forms. The first is a UPS and batteries that will provide approx. 5mins of backup, while the generators start to carry this load until utility power is reinstated."

Planning

Comments:

1. Kanata North Economic District (KNED)

    a. The subject site is designated Kanata North Economic District on Schedule B5 - Suburban (West) Transect, of the Official Plan

    b. Refer to Section 6.6.3.2 of the Official Plan for policies related to the the Kanata North Economic District. Please note that the subject site is not located in an activity centre, or along key streets such as March Road and Legget Drive. Policy 6 of Section 6.6.3.2 directs that land uses within the district outside of the activity centres and March Road should generally be focused on employment uses such as office and light industrial uses, research facilities and post-secondary institutions as well as ancillary uses.

    c. The Kanata North Urban Design Guidelines were approved at the September 18 2024 Council meeting, are now in effect, and apply to the site. The subject site is identified as being within the 'Outer Areas' in the Charater District Framework.

2. The site is indicated as having archaeological potential. An Archaeological Assessment will be required in accordance with Section 4.5 of the Official Plan.

3. Please consider opportunities for improved soft landscaping and additional tree planting around the proposed addition or within the site. Section 4.8.2 of the Official Plan directs that development shall preserve and provide space for mature, healthy trees and accommodate space for tree planting.

4. It appears that the development will have the effect of removing vehicular access to the parking lot north of the existing building. Is a new internal access proposed? Will this parking area be removed? If the parking is not required, please consider opportunities to convert this area to soft landscaping, and review opportunities to introduce trees.

Zoning

5. The subject site is zoned IG6 H(44) (General Industrial Subzone 6, Maximum Height 44 meters).

6. Land Use

    a. Staff have reviewed the description of the proposed use provided by the applicant and have confirmed that the use does not meet the definition for Battery Energy Storage System (BESS). The use is considered an extension of the existing Technology Industry use on the site.

    b. Staff have no concerns with the proposed use as Technology Industry use is a permitted use.

7. Additional information will be required to assess the proposal's adherence to the zoning provisions, for example, existing and proposed lot coverage, building gross floor area, setbacks, landscape areas, etc.

8. Based on the information received to date, the subject site is considered one lot for zoning purposes – refer to Section 93 in the Zoning By-law for applicable provisions.

9. Parking Requirements

    a. Please provide the parking calculations and location of parking, including vehicle and bicycle parking.

        i. In order to determine whether the site will meet the minimum parking requirements following the addition, please provide the following information:

            1. Total parking available on site prior to development

            2. Parking spaces to be removed as a result of the addition

            3. Available parking spaces following the addition

            4. Total gross floor area following the addition

    b. Vehicle Parking

        i. Technology Industry, 0.8 per 100 m2 for the first 5000 sq.m of gross floor area, 0.4 per 100 sq.m above 5000 m2 of gross floor area

    c. Bicycle Parking Requirements

        i. Technology Industry, 1 per 1000 sq.m of gross floor area

Required Applications

10. Site Plan Control, Standard

Feel free to contact Amanda Davidson, Planner, for any follow up questions.

Urban Design

Preliminary Design Comments (to be addressed within the design brief):

11. The subject site is within a Design Priority area and the Urban Design Guidelines for the Kanata North Economic District apply. A high quality of design and landscaping is expected.

12. A short design brief should be provided to describe the proposal, rationale based on the Official Plan and Design Guidelines, and to provide a response related to site circulation and landscaping.

13. Please ensure that the proposed structure is sited to ensure that the trees within the amenity space are maintained.

14. Please ensure that these are well screened from the road – you may consider a incorporating similar concrete panel cladding to what is used on the existing building into the design.

15. Please provide additional landscaping and screening along the building

16. As the parking area will not be able to be accessed with the addition of this new structure please remove this hard surface and provide additional landscaping.

17. It appears that the proposal will cut off the connection from the parking to the on-site trails and amenity area. Please reinstate a connection.

Feel free to contact Lisa Stern, Planner, for follow up questions.

Engineering

Comments:

18. The Stormwater Management Criteria, for the subject site, is to be based on the following reports:

    a. Northtech Campus Stormwater Management Implementation Plan, Prepared by Novatech, final submission January 2000.

19. For all storm events up to and including the 100-year event, the post development peak flow rate must match the pre-development peak flow rate. All existing onsite SWM controls to be adjusted / modified as needed to support the proposed infrastructure additions.

20. All flow depth must be controlled on-site. For events greater than the 100-year storm event, spillage must be directed to the public ROW. Overland flow cannot discharge to neighbouring private property.

21. Existing onsite quality control criteria to be confirmed and maintained.

22. An amendment to the existing MECP Environmental Compliance Approval will be required for the proposed infrastructure additions. A Ministry contact has been provided below but please work with City staff for the amendment application.

    a. Shannon Hamilton-Browne at (613) 521-3450 or Shannon.Hamilton-Browne@ontario.ca

23. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:

    i. Location of service

    ii. Type of development

    iii. The amount of fire flow required (per OBC or FUS).

    iv. Average daily demand: ___ l/s.

    v. Maximum daily demand: ___l/s.

    vi. Maximum hourly daily demand: ___ l/s.

Feel free to contact Julie Candow, Project Manager, for follow-up questions.

Transportation

Comments:

24. A Transportation Impact Assessment (TIA) is not required.

25. A Surface Transportation Noise study is not required.

26. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16.

27. There is an existing transit stop (#1179) along the property frontage.

28. On site plan:

    a. Ensure the Site Plan meets the City's terms of reference.

    b. Ensure site access meets the City's Private Approach Bylaw.

    c. AODA legislation applies.

d. Show all details of the roads abutting the site; include such items as pavement markings, signage, accesses, on-street parking, and/or sidewalks.

e. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.

f. Turning movement diagrams required for internal movements (loading areas, garbage).

g. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).

h. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)

Feel free to contact Josiane Gervais, Transportation Project Manager, for follow-up questions.

Environment

Comments:

29. There are no triggers for an Environmental Impact Study.

30. Bird-Safe Design Guidelines - Please review and incorporate bird safe design elements where relevant. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here: https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf

31. Please consider if there are features that can be added reduce the urban heat island effect (see OP 10.3.3). For example, this impact can be reduced by adding large canopy trees, green roofs or vegetation walls, or incorporating building with low heat absorbing materials.

Feel free to contact Matthew Hayley, Environmental Planner, for follow-up questions.

Forestry

Comments:

32. A Tree Conservation Report (TCR) & Landscape Plan (LP) are required, in accordance with Schedule E of the Tree Protection By-law and the Landscape Plan Terms of Reference.

33. A tree permit is required prior to any proposed removals.

34. The addition should be set back sufficiently from the treed amenity area shared between the buildings to allow for their retention and adequate protection.

35. The Landscape Plan should include tree planting for screening of the building, meeting any required setbacks for battery storage facilities.

36. Confirm plans for the remaining unusable portion of the parking lot. If not being used, prefer to reclaim as green space with tree planting to increase canopy cover, screening, and amenity area.

Feel free to contact Nancy Young, Forester, for follow-up questions.

Parkland

Comments:

37. Where there is an increase in gross floor area resulting from the commercial or industrial redevelopment, Parkland Dedication is required in accordance with By-law No. 2022-280.

38. The applicable parkland dedication rate for industrial and commercial uses is 2% of the gross land area. For Commercial and Industrial redevelopment, gross land area means the portion of the property that is impacted by the development.

39. For the purpose of calculating gross land area, the applicant is advised that must identify the impacted land area is identified on the survey, site plan or supporting plan the *portion of the property impacted by the development*. The portion of the site impacted includes the landscaping, parking lot, drive aisles, snow storage, outbuildings and amenity areas, to the satisfaction of Parks & Facilities Planning.

40. Parks & Facilities Planning is requesting payment of Cash-in-lieu-of-Parkland for this development. The value of the land, equivalent to the Parkland Dedication requirement, will be determined as of the day before planning approval is given for the development. The Applicant shall bear the cost of any appraisal costs incurred by the City;

Feel free to contact Anissa McAlpine, Parks Planner, for follow-up questions.

Other

41. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design and will be applicable to Site Plan Control and Plan of Subdivision applications.

a. The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. The timing of an updated report to Committee is unknown at this time, and updates will be shared when they are available.

b. Please refer to the HPDS information at ottawa.ca/HPDS for more information.

Submission Requirements and Fees

1. Site Plan Control, Standard
    a. Additional information regarding fees related to planning applications can be found here.
2. The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.
    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.
3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Yours Truly,

Amanda Davidson
Planner, Development Review

Encl. Study and Plan Identification List, List of Technical Agencies, Supplementary Development Information

c.c. Colette Gorni, Planner, Development Review
Julie Candow, Project Manager, Infrastructure Approvals
Mohammed Fawzi, Senior Project Manager, Infrastructure Approvals
Josiane Gervais, Transportation Project Manager
Matthew Hayley, Planner, Environment
Lisa Stern, Planner, Urban Design
Anissa McAlpine, Parks Planner
Nancy Young, Planning Forester

Appendix B

Watermain Boundary Conditions

Water Demand Calculations

Water Demands from Mechanical Engineer

FUS Calculations

Water Model Results

Outlook

RE: File No.: PC2025-0127 - 1000/2000 Innovation Dr. Cisco Campus

From Candow, Julie <julie.candow@ottawa.ca>
Date Thu 11/27/2025 1:06 PM
To Robineau, Ryan <ryan.robineau@arcadis.com>; Magladry, Ryan <ryan.magladry@arcadis.com>
Cc Davidson, Amanda <amanda.davidson@ottawa.ca>; Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>

1 attachment (1 MB)
1000 Innovation Boundary Condition(18Nov2025).docx;

Arcadis Warning: Exercise caution with email messages from external sources such as this message. Always verify the sender and avoid clicking on links or scanning QR codes unless certain of their authenticity.

Hi Ryan,

Please see attached the BC results for 1000/2000 Innovation Drive.

Julie Candow, P.Eng
Project Manager
Development Review – West Branch
Planning, Development and Building Services Dept.
110 Laurier Avenue West, 4th Floor East
Ottawa, ON K1P 1J1
613.580.2424 ext. 13850

From: Candow, Julie <julie.candow@ottawa.ca>
Sent: November 18, 2025 12:04 PM
To: Robineau, Ryan <ryan.robineau@arcadis.com>; Magladry, Ryan <ryan.magladry@arcadis.com>
Cc: Davidson, Amanda <amanda.davidson@ottawa.ca>; Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Subject: RE: File No.: PC2025-0127 - 1000/2000 Innovation Dr. Cisco Campus

Arcadis Warning: Exercise caution with email messages from external sources such as this message. Always verify the sender and avoid clicking on links or scanning QR codes unless certain of their authenticity.

Thanks Ryan, I have forwarded your request to our Infrastructure Planning department.

Julie Candow, P.Eng
Project Manager
Development Review – West Branch
Planning, Development and Building Services Dept.
110 Laurier Avenue West, 4th Floor East
Ottawa, ON K1P 1J1
613.580.2424 ext. 13850

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

From: Robineau, Ryan <ryan.robineau@arcadis.com>
Sent: November 18, 2025 11:05 AM
To: Candow, Julie <julie.candow@ottawa.ca>; Magladry, Ryan <ryan.magladry@arcadis.com>
Cc: Davidson, Amanda <amanda.davidson@ottawa.ca>; Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Subject: RE: File No.: PC2025-0127 - 1000/2000 Innovation Dr. Cisco Campus

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Hello Julie,

Please see the attached revised demands which considers the entire site as light-industrial. The resultant demands are:

- Average Daily: 5.68 L/s
- Maximum Daily: 6.32 L/s
- Maximum Hourly: 7.84 L/s
- Fire Demand: 12,000 L/min

The secondary water connection will extend from the existing 400mm watermain with a proposed valve at the municipal main and a valve at the property line.

Thank you,

Ryan Robineau, P.Eng
Intermediate Civil Engineer, Land Engineering
Suite 500, 333 Preston Street | Ottawa | ON | K1S 5N4 | Canada
www.arcadis.com

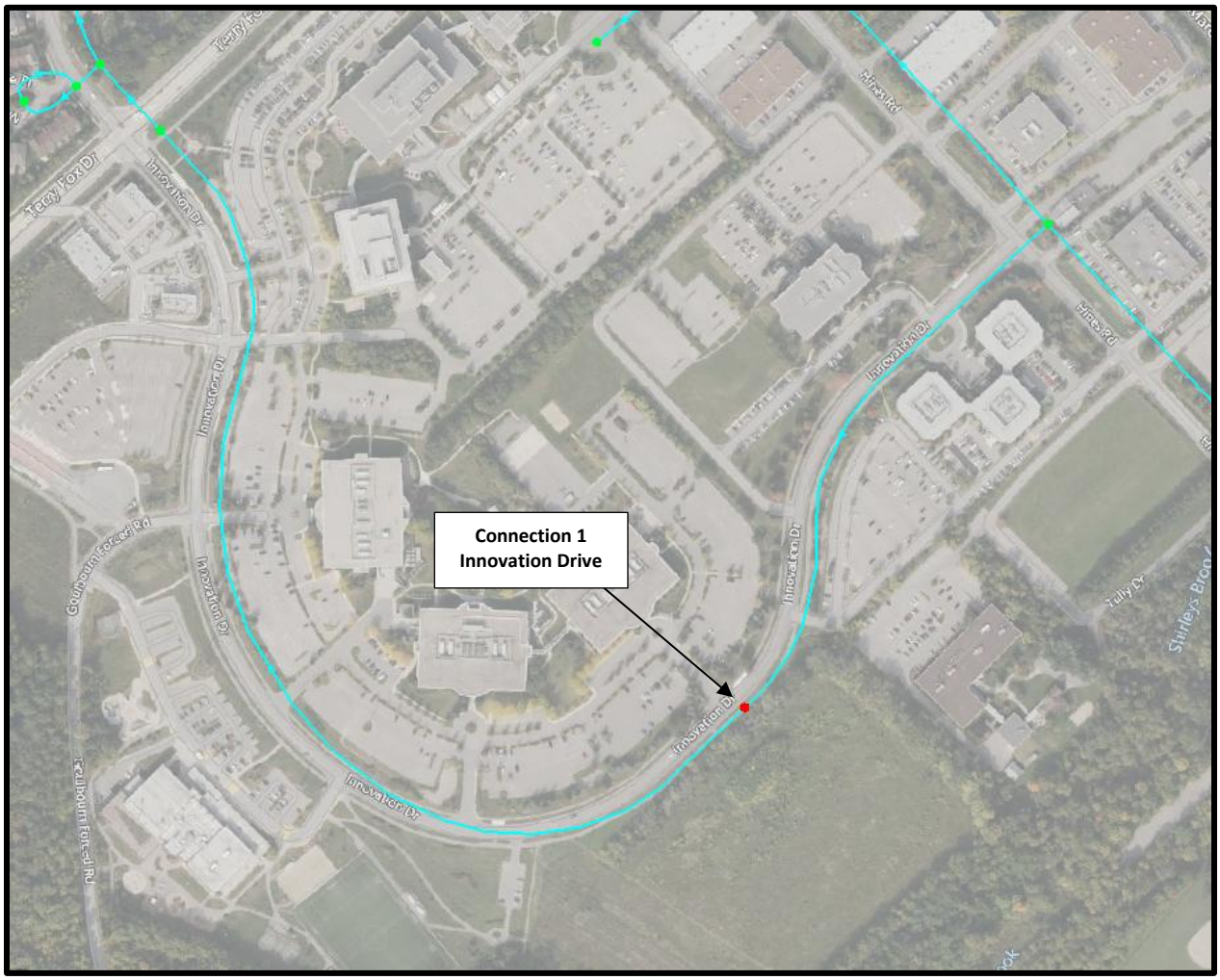


Boundary Conditions
1000 – 2000 Innovation Drive

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	341	5.68
Maximum Daily Demand	379	6.32
Peak Hour	470	7.84
Fire Flow Demand #1	12,000	200.00

Location



Results

Connection 1 – Innovation Drive

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.3	65.4
Peak Hour	125.7	59.0
Max Day plus Fire Flow #1	121.5	53.0

[1] Ground Elevation = 84.3 m

Notes

1. Any connection to a watermain 400 mm or larger should be approved by DWS as per the Water Design Guidelines Section 2.4 Review by Drinking Water Services.
2. Per the OWDG Tech Bulleting ISTB-2021- 03 Section 4.3.1.:
    a. Industrial, commercial, institutional service areas with a basic day demand greater than 50 m^3/day (0.58 L/s) and residential areas serving 50 or more dwellings shall be connected with a minimum of two watermains, separated by an isolation valve, to avoid the creation of a vulnerable service area. Individual residential facilities with a basic day demand greater than 50 m3/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid the creation of a vulnerable service area.

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

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WATERMAIN DEMAND CALCULATION SHEET
Existing Demands and Proposed Demands| Cisco
30298433 | Rev #0 | 2025-11-10
Prepared By: RRR | Checked By: RM

NODE	RESIDENTIAL				NON-RESIDENTIAL (ICI)			AVERAGE DAILY DEMAND (l/s)				MAXIMUM DAILY DEMAND (l/s)				MAXIMUM HOURLY DEMAND (l/s)				FIRE DEMAND (l/min)
	SINGLE FAMILY UNITS	3 bedroom UNITS	2 bedroom UNITS	POPULATION	INDUST. (ha)	ISNT. (ha)	COMM. (ha)	RESIDENTIAL	ICI	CONSTANT	TOTAL	RESIDENTIAL	ICI	CONSTANT	TOTAL	RESIDENTIAL	ICI	CONSTANT	TOTAL	
Site					3.13				1.27	4.42	5.68		1.90	4.42	6.32		3.42	4.42	7.84	12,000
TOTAL					**3.13**						**5.68**				**6.32**				**7.84**	

ASSUMPTIONS

POPULATION DENSITY

Single Family	3.4 persons/unit
3 Bedroom Units	2.7 persons/unit
2 Bedroom Units	1.8 persons/unit

Note: Constant Demand From Cooling Towers per Calculations by Mechanical Engineer

WATER DEMAND RATES

Light Industrial	35,000 L/gross ha/day
Commercial	28,000 L/gross ha/day

PEAKING FACTORS

Maximum Daily		
	Residential	2.5 x avg. day
	Commercial	1.5 x avg. day
Maximum Hourly		
	Residential	2.2 x max. day
	Commercial	1.8 x max. day

FIRE DEMANDS

Single Family	10,000 l/min (166.7 l/s)
Semi Detached & Townhouse	10,000 l/min (166.7 l/s)
Medium Density	15,000 l/min (250 l/s)

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FIRE UNDERWRITERS SURVEY
Mechanical Auxillary Building | Cisco
30298433 | Rev #0 | 2025-11-10
Prepared By: RRR | Checked By: RM

STEP	Contents	Description		Adjustment Factor		Result	
1	**OTT01 Building**	1st Floor Area	4717	Height 2.8m	1	4717	m2
	(2-storey)	2nd Floor Area	4717	Height 2.8m	1	4717	m2
		3rd Floor Area	0	Height 2.8m	1	0	m2
		4th Floor Area	0	Height 2.8m	1	0	m2
	Total Effective Floor Area	(Storage space exceeding 3m in height, floor area X 3)				**9434**	m2
2	**Type of Construction**	**Type V** Wood Frame	1.5	Type II Noncombustible Construction	0.8		
		Type III Ordinary Construction	1.0				
		Type II Noncombustible Construction	0.8				
		Type I Fire Resistive Construction	0.6				
3	**Required Fire Flow**	RFF = 220C√A, rounded to nearest 1000 L/min				**17000**	L/min
4	**Occupancy and Contents**	Noncombustible Contents	-25%	Limited Conbustible Contents	-15%	-2550	L/min
		Limited Conbustible Contents	-15%				
		Combustible Contents	0%				
		Free Burning Contents	15%				
		Rapid Burning Contents	25%				
	Fire Flow					**14450**	L/min
5	**Automatic Sprinkler Protection**	Automatic Sprinkler Conforming to NFPA 13	-30%	Yes	-30%	-4335	L/min
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	No	0%	0	L/min
		Fully Supervised System	-10%	No	0%	0	L/min
	Total Sprinkler Adjustment					**-4335**	L/min
6	**Exposure Adjustment**	Based on **Table 6** Exposure Adjustement Charges for Subject Building					
	North	Separation (m)	11	With unprotected opening	3%	434	L/min
		Length X Height Factor (m.storeys)	16				
		Construction Type	Type II				
	South	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	140				
		Construction Type	Type II				
	East	Separation (m)	18	With unprotected opening	8%	1156	L/min
		Length X Height Factor (m.storeys)	118				
		Construction Type	Type II				
	West	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	170				
		Construction Type	Type II				
	Total Exposure Adjustment					**1590**	L/min
7	**Total Required Fire Flow**					**11705**	L/min
		Rounded to Nearest 1000 L/min				**12000**	L/min
						200	L/s

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

2. If any vertical opening in the building are unprotected (e.g. interconnected floor spaces, elevators etc.), consider the two largest adjoining floor area plus 50% of all floors immediately above them up to a maximum of eight.

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FIRE UNDERWRITERS SURVEY
Mechanical Auxillary Building | Cisco
30298433 | Rev #0 | 2025-11-10
Prepared By: RRR | Checked By: RM

STEP	Contents	Description		Adjustment Factor		Result	
1	**MAB - Electrical** (1-storey)	1st Floor Area	275	Height 5.45m	2	550	m2
		2nd Floor Area	0	Height 3.0m	1	0	m2
		3rd Floor Area	0	Height 3.0m	1	0	m2
		4th Floor Area	0	Height 3.0m	1	0	m2
	Total Effective Floor Area	(Storage space exceeding 3m in height, floor area X 3)				**550**	m2
2	**Type of Construction**	**Type V** Wood Frame	1.5	Type II Noncombustible Construction	0.8		
		Type III Ordinary Construction	1.0				
		Type II Noncombustible Construction	0.8				
		Type I Fire Resistive Construction	0.6				
3	**Required Fire Flow**	RFF = 220C√A, rounded to nearest 1000 L/min				**4000**	L/min
4	**Occupancy and Contents**	Noncombustible Contents	-25%	Combustible Contents	0%	0	L/min
		Limited Conbustible Contents	-15%				
		Combustible Contents	0%				
		Free Burning Contents	15%				
		Rapid Burning Contents	25%				
	Fire Flow					**4000**	L/min
5	**Automatic Sprinkler Protection**	Automatic Sprinkler Conforming to NFPA 13	-30%	No	0%	0	L/min
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	No	0%	0	L/min
		Fully Supervised System	-10%	No	0%	0	L/min
	Total Sprinkler Adjustment					**0**	L/min
6	**Exposure Adjustment**	Based on **Table 6** Exposure Adjustement Charges for Subject Building					
	North	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	184				
		Construction Type	Type II				
	South	Separation (m)	11	With unprotected opening	15%	600	L/min
		Length X Height Factor (m.storeys)	158				
		Construction Type	Type II				
	East	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	120				
		Construction Type	Type II				
	West	Separation (m)	0	With unprotected opening	22%	880	L/min
		Length X Height Factor (m.storeys)	22				
		Construction Type	Type II				
	Total Exposure Adjustment					**1480**	L/min
7	**Total Required Fire Flow**					**5480**	L/min
		Rounded to Nearest 1000 L/min				**5000**	L/min
						83	L/s

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

2. If any vertical opening in the building are unprotected (e.g. interconnected floor spaces, elevators etc.), consider the two largest adjoining floor area plus 50% of all floors immediately above them up to a maximum of eight.

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
arcadis.com

FIRE UNDERWRITERS SURVEY
Mechanical Auxillary Building | Cisco
30298433 | Rev #0 | 2025-11-10
Prepared By: RRR | Checked By: RM

STEP	Contents	Description		Adjustment Factor		Result	
1	**MAB - Mechnical** (1-storey)	1st Floor Area	800	Height 5.45m	2	1600	m2
		2nd Floor Area	0	Height 3.0m	1	0	m2
		3rd Floor Area	0	Height 3.0m	1	0	m2
		4th Floor Area	0	Height 3.0m	1	0	m2
	Total Effective Floor Area	(Storage space exceeding 3m in height, floor area X 3)				**1600**	m2
2	**Type of Construction**	**Type V** Wood Frame	1.5	Type II Noncombustible Construction	0.8		
		Type III Ordinary Construction	1.0				
		Type II Noncombustible Construction	0.8				
		Type I Fire Resistive Construction	0.6				
3	**Required Fire Flow**	RFF = 220C√A, rounded to nearest 1000 L/min				**7000**	L/min
4	**Occupancy and Contents**	Noncombustible Contents	-25%	Combustible Contents	0%	0	L/min
		Limited Conbustible Contents	-15%				
		Combustible Contents	0%				
		Free Burning Contents	15%				
		Rapid Burning Contents	25%				
	Fire Flow					**7000**	L/min
5	**Automatic Sprinkler Protection**	Automatic Sprinkler Conforming to NFPA 13	-30%	Yes	-30%	-2100	L/min
		Standard Water Supply for both the system and Fire Department Hose Lines	-10%	No	0%	0	L/min
		Fully Supervised System	-10%	No	0%	0	L/min
	Total Sprinkler Adjustment					**-2100**	L/min
6	**Exposure Adjustment**	Based on **Table 6** Exposure Adjustement Charges for Subject Building					
	North	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	184				
		Construction Type	Type II				
	South	Separation (m)	6	With unprotected opening	25%	1750	L/min
		Length X Height Factor (m.storeys)	158				
		Construction Type	Type II				
	East	Separation (m)	0	With unprotected opening	25%	1750	L/min
		Length X Height Factor (m.storeys)	99				
		Construction Type	Type II				
	West	Separation (m)	>30	With unprotected opening	0%	0	L/min
		Length X Height Factor (m.storeys)	170				
		Construction Type	Type II				
	Total Exposure Adjustment					**3500**	L/min
7	**Total Required Fire Flow**					**8400**	L/min
		Rounded to Nearest 1000 L/min				**8000**	L/min
						133	L/s

Notes 1. Fire flow calculation are based on Fire Underwriters Survey version 2020.

2. If any vertical opening in the building are unprotected (e.g. interconnected floor spaces, elevators etc.), consider the two largest adjoining floor area plus 50% of all floors immediately above them up to a maximum of eight.

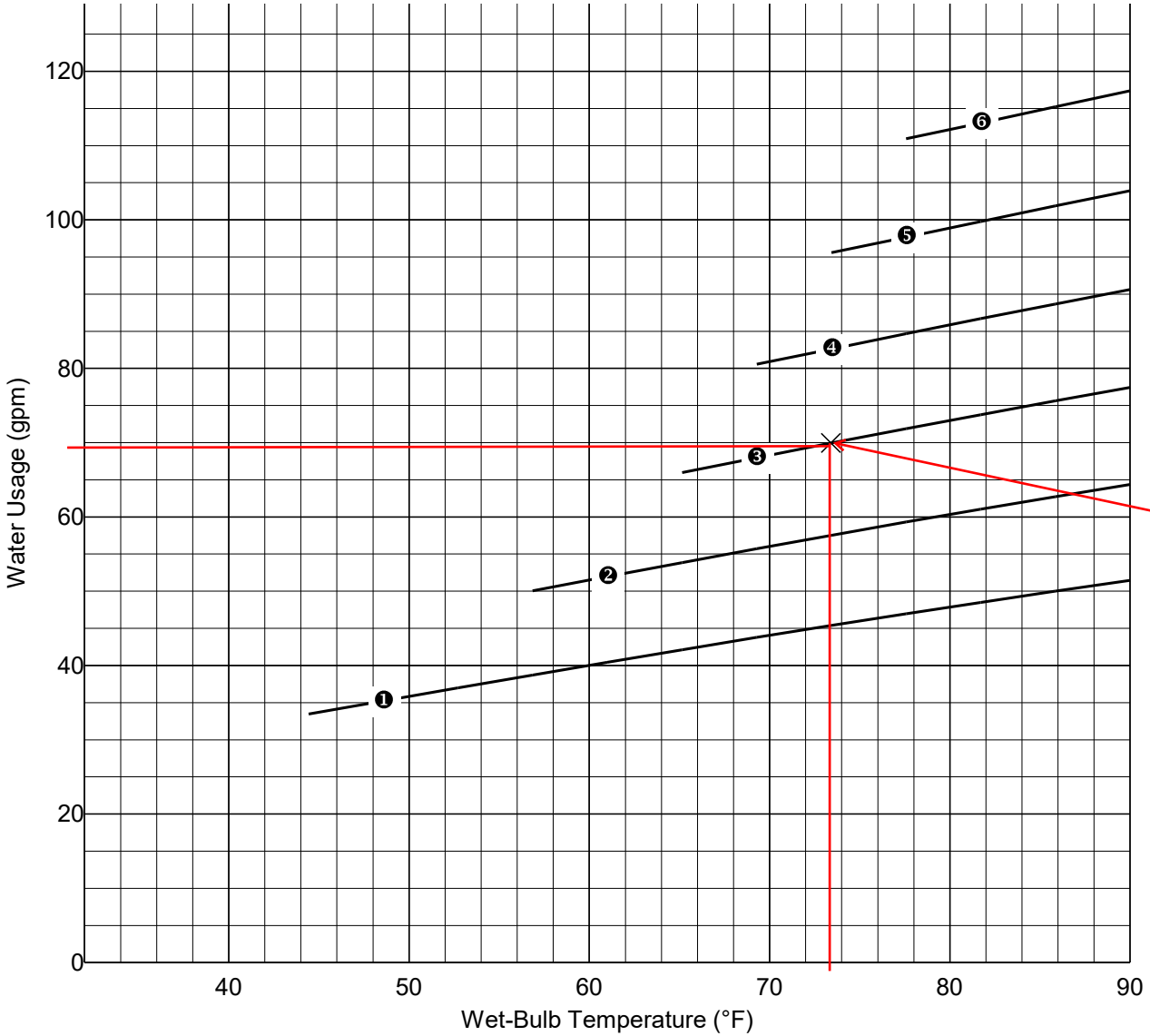
UPDATE™ Version 1.2.5

© 2025 SPX Cooling Technologies, Inc.
11/13/2025 1:14:12 PM

OTT01 CT makeup water demand

Estimated Cooling Tower Water Usage

Includes evaporation, drift, and blow down



Design Conditions

Tower Water Flow	6522 gpm
Hot Water Temperature	100.00 °F
Cold Water Temperature	90.00 °F
Wet-Bulb Temperature	73.40 °F
Drift Rate	0.005 %
Concentrations	6

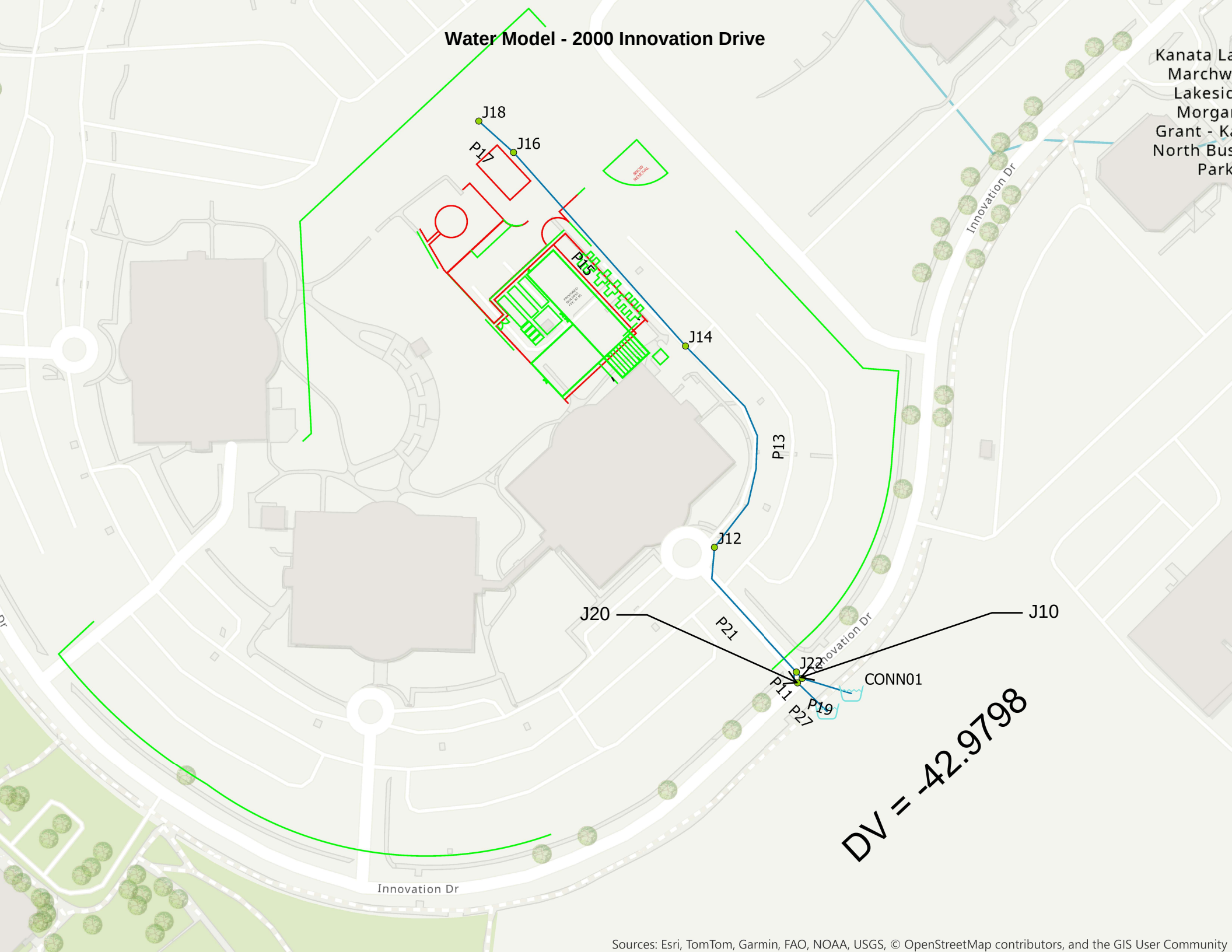
OTT01 Cooling Towers (at 100% capacity) makeup water: 70gpm (4200gph, 381M3 per day)

Legend

- ❶ 6 °F Range
- ❷ 8 °F Range
- ❸ 10 °F Range
- ❹ 12 °F Range
- ❺ 14 °F Range
- ❻ 16 °F Range
- × Design Point

Water usage rates are provided as an estimate only and for educational purposes. Consult your local representative or sales person to determine the actual water usage requirements for your application.

Water Model - 2000 Innovation Drive



Average Day

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (m)
1	☐	J10	0.00	87.20	130.30	43.10
2	☐	J12	0.00	87.10	130.30	43.20
3	☐	J14	5.68	86.90	130.29	43.39
4	☐	J16	0.00	87.00	130.29	43.29
5	☐	J18	0.00	87.20	130.29	43.09
6	☐	J20	0.00	87.20	130.30	43.10
7	☐	J22	0.00	87.20	130.30	43.10

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (m)
1	☐	J10	0.00	87.20	125.70	38.50
2	☐	J12	0.00	87.10	125.69	38.59
3	☐	J14	7.84	86.90	125.69	38.79
4	☐	J16	0.00	87.00	125.69	38.69
5	☐	J18	0.00	87.20	125.69	38.49
6	☐	J20	0.00	87.20	125.70	38.50
7	☐	J22	0.00	87.20	125.70	38.50

Peak Hour Pipe

		ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
1		P11	J10	J22	3.80	297.00	120.00	6.02	0.09	0.00	0.04	Open	0
2		P13	J12	J14	105.75	297.00	120.00	7.84	0.11	0.01	0.08	Open	0
3		P15	J14	J16	113.77	297.00	120.00	0.00	0.00	0.00	0.00	Open	0
4		P17	J16	J18	20.58	297.00	120.00	0.00	0.00	0.00	0.00	Open	0
5		P19	CONN01	J10	1.00	297.00	120.00	6.02	0.09	0.00	0.05	Open	0
6		P21	J22	J12	69.39	297.00	120.00	7.84	0.11	0.01	0.08	Open	0
7		P23	J20	J22	5.80	297.00	120.00	1.82	0.03	0.00	0.02	Open	0
8		P27	CONN02	J20	1.00	297.00	120.00	1.82	0.03	0.00	0.07	Open	0

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (m)
1	☐	J10	0.00	87.20	121.48	34.28
2	☐	J12	100.00	87.10	118.69	31.59
3	☐	J14	6.32	86.90	117.55	30.65
4	☐	J16	100.00	87.00	116.60	29.60
5	☐	J18	0.00	87.20	116.60	29.40
6	☐	J20	0.00	87.20	121.46	34.26
7	☐	J22	0.00	87.20	121.40	34.20

Appendix C

Sanitary Sewer Design Sheet

Sanitary Demands from Mechanical Engineer

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
arcadis.com

SANITARY SEWER DESIGN SHEET

Mechanical Auxiliary Building | Cisco
30298433

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW (L/s)*		TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA	UNIT TYPES				AREA	POPULATION		RES	PEAK	AREA (Ha)						ICI	PEAK	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH	w/ Units (Ha)	SF	TH/SD	1 Bed APT	2 Bed APT	w/o Units (Ha)	IND	CUM	PEAK FACTOR	FLOW (L/s)	INSTITUTIONAL IND	INSTITUTIONAL CUM	COMMERCIAL IND	COMMERCIAL CUM	INDUSTRIAL IND	INDUSTRIAL CUM	PEAK FACTOR	FLOW (L/s)	IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(full) (m/s)	L/s	(%)
		MAB	San MH04A							0.0	0.0	3.80	0.00	0.00	0.0	0.00	0.0	0.00	0.0	1.00	0.00	0.00	0.0	0.00	6.04	6.0	6.04	15.89	17.35	150	1.00	0.871	9.85	61.98%
		San MH04A	Ex. San MH101							0.0	0.0	3.80	0.00	1.00	1.0	1.00	1.0	1.00	1.0	1.50	1.58	3.00	3.0	0.99	0.00	6.0	8.61	42.74	55.20	200	1.56	1.318	34.13	79.85%
		Ex. San MH101	Ex. San MH 100							0.0	0.0	3.80	0.00	3.13	3.1	0.00	0.0	0.00	0.0	1.50	1.52	3.13	3.1	1.03	0.00	6.0	8.59	27.59	82.50	200	0.65	0.851	18.99	68.85%
		Ex. San MH 100	Ex. 250mm Sewer							0.0	0.0	3.80	0.00	0.00	3.1	0.00	0.0	0.00	0.0	1.50	1.52	0.00	3.1	1.03	0.00	6.0	8.59	34.22	15.00	200	1.00	1.055	25.62	74.88%

Design Parameters:

Residential			ICI Areas			
SF	3.4	p/p/u				
TH/SD	2.7	p/p/u	INST	28,000	L/Ha/day	
1 Bed	1.4	p/p/u	COM	28,000	L/Ha/day	
2 Bed	2.1	p/p/u	IND	35,000	L/Ha/day	MOE Chart
Other	60	p/p/Ha		17000	L/Ha/day	

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 200 L/day
3. Infiltraton allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
Harmon Formula = 1+(14/(4+(P/1000)^0.5))0.8
where K = 0.8 Correction Factor
5. Commercial and Institutional Peak Factors based on total area, 1.5 if greater than 20%, otherwise 1.0

Designed: RRR
Checked: RM
Dwg. Reference: 30298433-C001

No.	Revision	Date
1.	Issued for Site Plan Control	2025-11-19

File Reference: 30298433.00
Date: 2025-11-19
Sheet No: 1 of 1

From: Lillian Yang <lillian.yang@arup.com>
Sent: December 1, 2025 11:32 AM
To: Robineau, Ryan <ryan.robineau@arcadis.com>
Cc: Bilbeisi, Yazan <yazan.bilbeisi@arcadis.com>
Subject: RE: Cisco OTT Campus - MAB

Arcadis Warning: Exercise caution with email messages from external sources such as this message. Always verify the sender and avoid clicking on links or scanning QR codes unless certain of their authenticity.

Hi Ryan,

Since we have not designed the MAB, the sanitary load calculation is not available. We can estimate it based on the main functionality of the building as below:

1. Cooling towers blowdown: 11.33gpm (continuous)
2. Sprinkler drainage for electrical room (fire condition): 50gpm
3. Others (mop sink, equipment drain): 5gpm (semi-continuous)

The attached is a calculation of the cooling towers blowdown.

Please let us know if you have any questions.

Thanks.

Lillian Yang P.Eng. (AB, BC, ON)
Senior Engineer | Mechanical Engineering
P.Eng, LEED AP, HFDP

Arup
Suite 1670, 685 Centre Street SW
Calgary, AB T2G 1S5 Canada
d +1 403 537 3919
arup.com

Water Calculator

Click in one of the form fields below and change one of the Operating Conditions to match your scenario. Then **press your tab key** to see how your Water Usage data changes.

Operating Conditions

Tower Water Flow	6522	*gpm*	1481	*m^3/h*
Hot Water Temperature	100.00	*°F*	37.78	*°C*
Cold Water Temperature	90.00	*°F*	32.22	*°C*
Wet-Bulb Temperature	73.40	*°F*	23.00	*°C*
Drift Rate	0.005	*%*		
Concentrations	6			

Water Usage

Evaporation	58.28	*gpm*	13.24	*m^3/h*
Drift	0.33	*gpm*	0.07	*m^3/h*
Blow down	11.33	*gpm*	2.57	*m^3/h*
Total Usage	69.93	*gpm*	15.88	*m^3/h*

Generate Curves*	IP Units	SI Units

* Please note that any pop up blockers your browser may employ will interfere with the ability to “Generate Curves”. For assistance in disabling a blocker, click here.

Reset Data

SPX Cooling Tech, LLC is a leading global manufacturer of cooling towers, evaporative fluid coolers, evaporative condensers and air cooled heat exchangers. For a century, we have provided exceptional quality equipment and service to the HVAC, process cooling, industrial, and refrigeration markets.

7401 W. 129th St., Overland Park, KS 66213 | 1-800-4-MARLEY

Appendix D

Storm Water Management Sheet

Storm Drainage Area Plan 30298433-C-500

Storm Sewer Design Sheet

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
arcadis.com

Formulas and Descriptions

i_{2yr} = 1:2 year Intensity = $732.951 / (T_c+6.199)^{0.810}$
i_{5yr} = 1:5 year Intensity = $998.071 / (T_c+6.053)^{0.814}$
i_{100yr} = 1:100 year Intensity = $1735.688 / (T_c+6.014)^{0.820}$
T_c = Time of Concentration (min)
C = Average Runoff Coefficient
A = Area (Ha)
Q = Flow = 2.78CiA (L/s)

No additional on-site controls are proposed as part of the development. Runoff from the development area is not to exceed existing condtions.

Sample Calculation Existing 5-Year Release Rate (Area A1)

Q= 2.78*C*i_{5yr}*A_{Dev} based on C_{Ex}, Tc=10min)

C_{A1} =	0.63	
T_c =	10	min
i_{5yr} =	104.19	mm/hr
A_{A1} =	0.57	Ha
$Q_{A1\ 5\text{-}year}$ =	**104.02**	**L/s**

Sample Calcualtion 100-Year Release Rate (Area A1)

$Q_{Allowable}$ = 2.78*C*1.25*$i100_{yr}$*A_{Dev} based on C_{Ex}, Tc=10min)

C_{Ex}*1.25 =	0.79	
T_c =	10	min
i_{100yr} =	178.56	mm/hr
A_{A1} =	0.57	Ha
$Q_{A1\ 100\text{-}year}$ =	**278.52**	**L/s**

SWM Statistics of Existing Site Areas

Drainage Area	Area (ha)	C	AC	Q (L/s)	
				5-Year	100-Year
A1	0.57	0.63	0.36	104.02	278.05
A2	0.08	0.28	0.02	6.49	17.34
A3A	0.14	0.35	0.05	14.19	37.94
A3B	0.02	0.73	0.013	3.64	9.72
Total	**0.81**			**128.33**	**343.06**

SWM Statistics of Modified Site Areas

Drainage Area	Area (ha)	C	AC	Q (L/s)	
				5-Year	100-Year
B1	0.60	0.59	0.35	102.54	274.10
B2	0.04	0.26	0.01	3.01	8.05
B3A	0.15	0.31	0.05	13.47	36.00
B3B	0.02	0.38	0.007	1.89	5.06
Total	**0.81**			**120.91**	**323.22**

PART 15 PLAN 4R–21581

PIN 04518 – 0122

PART 14 PLAN 4R – 28982

Bottom of SRW 1.0 North

SRW

SSIB(AOG)

Bottom of SRW 56.84 (P3)&Meas.

Bottom of SRW ±to Line

80.53 (P3)&Meas.

137.36 (P3)&Meas.

N47°02'40"E

Bottom of SRW 0.2 South

PART 12 PLAN 4R – 21581
subject to easement inst.'s OC677520 & oc677521

WOODED AREA

Top of Slope

Grass

Concrete Sidewalk

Concrete Curb

Asphalt

Shrub

PART 13 PLAN 4R–21581

Concrete

VOLLEYBALL COURT

LS

Bottom of Slope

Gazebo

PART 36 PLAN 4R–21581

EX DICB
T/G 85.05

Concrete Pad

Meta Building

subject to PART 37 Easement PLAN 4R–21581 inst.'s OC677520 & OC677521

PART 38 PLAN 4R–21581

ICV

WOODED AREA

CB
T/G=86.61

Valve Box

Planter

Concrete Sidewalk

Concrete Curb

PART 11 PLAN 4R–21581
subject to easement inst.'s OC677520 & oc677521

PART 14 PLAN 4R–21581

MH
T\G=87.37

MH
T\G=87.33

VC
T\G=87.07

Shrub

Gazebo

A1
0.57 | 0.63
A1 PRE-DEVELOPMENT
IMPERVIOUS AREA = 3499 m²
PERVIOUS AREA = 2,200 m²
AC = 0.36

A3A
0.14 | 0.35

A3B
0.02 | 0.73
A3B PRE-DEVELOPMENT
IMPERVIOUS AREA = 129 m²
PERVIOUS AREA = 43 m²
AC = 0.013

A3A PRE-DEVELOPMENT
IMPERVIOUS AREA = 275 m²
PERVIOUS AREA = 1,112 m²
AC = 0.05

A2
0.08 | 0.28
A2 PRE-DEVELOPMENT
IMPERVIOUS AREA = 90 m²
PERVIOUS AREA = 710 m²
AC = 0.02

SRW

86.78* 87.06*

Hydro Transformer on Concrete Pad

Grate

Wall

Grass

MH
T\G=86.67

MH
T\G=86.63

Asphalt

C/A Gravel Swale

PIN 04518 – 0077

BLOCK 3

No. 2000
2 STOREY
PRECAST CONCRETE & GLASS BUILDING
(Concrete Noted)

PRE DEVELOPMENT
STORM DRAINAGE AREA PLAN

LEGEND:

- PERMEABLE SURFACE
- SEMI PERMEABLE SURFACE
- HARD SURFACE
- B1 0.60 | 0.59 — AREA NUMBER / RUN OFF COEFFICIENT / AREA IN HECTARES

B1
0.60 | 0.59
B1
IMPERVIOUS = 2,534 m²
SEMI-PERVIOUS AREA = 1,502 m²
PERVIOUS AREA = 1,985m²
AC = 0.35

PROPOSED EASEMENT

DC

DICB01

375mmØ

G3 G2 G1

MAB-ELEC
GROUP F3,
PRE-ACTION
SPRINKLER
GROSS FLOOR AREA
(GFA) = 800 m²
HEIGHT 5.45 m
FFE:87.55
PROPOSED
BUILDING
FFE: 87.55

OUTDOOR
MECHANICAL & ELECTRICAL
YARD

MAB-MECH
GROUP F3,UNSPRINKLERED
GROSS FLOOR AREA
(GFA) = 275 m²
HEIGHT 5.45 m
FFE: 87.55

B3A
0.15 | 0.31
B3A
IMPERVIOUS AREA = 223 m²
SEMI-PERVIOUS AREA = 48 m²
PERVIOUS AREA = 1,218 m²
AC = 0.05

B3B
0.02 | 0.38
B3B
IMPERVIOUS AREA = 43 m²
PERVIOUS AREA = 129 m²
AC = 0.007

B2
0.04 | 0.26
B2
SEMI-PERVIOUS AREA = 62 m²
PERVIOUS AREA = 340 m²
AC = 0.01

EXMH202
INV OUT:85.230SE

EXMH202

MUSTER POINT

SNOW STORAGE (15MX15M)

MH01

EX.375mmØ
STM @ 0.68%

EX.200Ø WATERMAIN

EX.300Ø WATERMAIN

FIRE ACCESS ROUTE

EXMH201
INV IN:84.450NW
INV IN:84.490SW
INV OUT:84.390E

300mmØ

MH201

Scale 1:250

POST DEVELOPMENT
STORM DRAINAGE AREA PLAN

CLIENT

cisco

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Arcadis Architects (Canada) Inc.

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SITEPLAN CONTROL	2025.12.12
2	ISSUED FOR SITEPLAN CONTROL	2026.05.08

CONSULTANTS

NOT FOR CONSTRUCTION

SEAL

LICENSED PROFESSIONAL ENGINEER
R. R. ROBINEAU
100611774
2026/05/08
PROVINCE OF ONTARIO

PRIME CONSULTANT

ARCADIS
333 Preston Street - Suite 500
Ottawa ON K1S 5N4 Canada
tel 613 225 1311
www.arcadis.com

PROJECT
Cisco Ottawa Campus
OTT01
2000 Innovation Drive,
Kanata, ON K2K 3E8

PROJECT NO:
OTT01 MAB 30298433

DRAWN BY:	CHECKED BY:
CC	RR
PROJECT MGR:	APPROVED BY:
RM	RR/RM

SHEET TITLE
STORM DRAINAGE AREA PLAN

SHEET NUMBER
C-500

ISSUE
2

Autodesk Docs://Cisco - Ottawa Campus/14879-CSCO-A-MAB-R24.rvt

D07-12-25-0168

XXXXX

ARCADIS PROFESSIONAL SERVICES (CANADA) INC.
500-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
arcadis.com

Formulas and Descriptions

i_{2yr} = 1:2 year Intensity = $732.951 / (T_c+6.199)^{0.810}$
i_{5yr} = 1:5 year Intensity = $998.071 / (T_c+6.053)^{0.814}$
i_{100yr} = 1:100 year Intensity = $1735.688 / (T_c+6.014)^{0.820}$
T_c = Time of Concentration (min)
C = Average Runoff Coefficient
A = Area (Ha)
Q = Flow = 2.78CiA (L/s)

No additional on-site controls are proposed as part of the development. Runoff from the development area is not to exceed existing condtions.

Sample Calculation Existing 5-Year Release Rate (Area A1)

Q= 2.78*C*i $_{5yr}$ *A $_{Dev}$ based on C $_{Ex}$, Tc=10min)

C_{A1} =	0.63	
T_c =	10	min
i_{5yr} =	104.19	mm/hr
A_{A1} =	0.57	Ha
$Q_{A1\ 5\text{-}year}$ =	**104.02**	**L/s**

Sample Calcualtion 100-Year Release Rate (Area A1)

$Q_{Allowable}$ = 2.78*C*1.25*i100 $_{yr}$ *A $_{Dev}$ based on C $_{Ex}$, Tc=10min)

C_{Ex} *1.25 =	0.79	
T_c =	10	min
i_{100yr} =	178.56	mm/hr
A_{A1} =	0.57	Ha
$Q_{A1\ 100\text{-}year}$ =	**278.52**	**L/s**

SWM Statistics of Existing Site Areas

Drainage Area	Area (ha)	C	AC	Q (L/s)	
				5-Year	100-Year
A1	0.57	0.63	0.36	104.02	278.05
A2	0.08	0.28	0.02	6.49	17.34
A3A	0.14	0.35	0.05	14.19	37.94
A3B	0.01	0.90	0.01	3.36	8.99
Total	**0.79**			**128.06**	**342.32**

SWM Statistics of Modified Site Areas

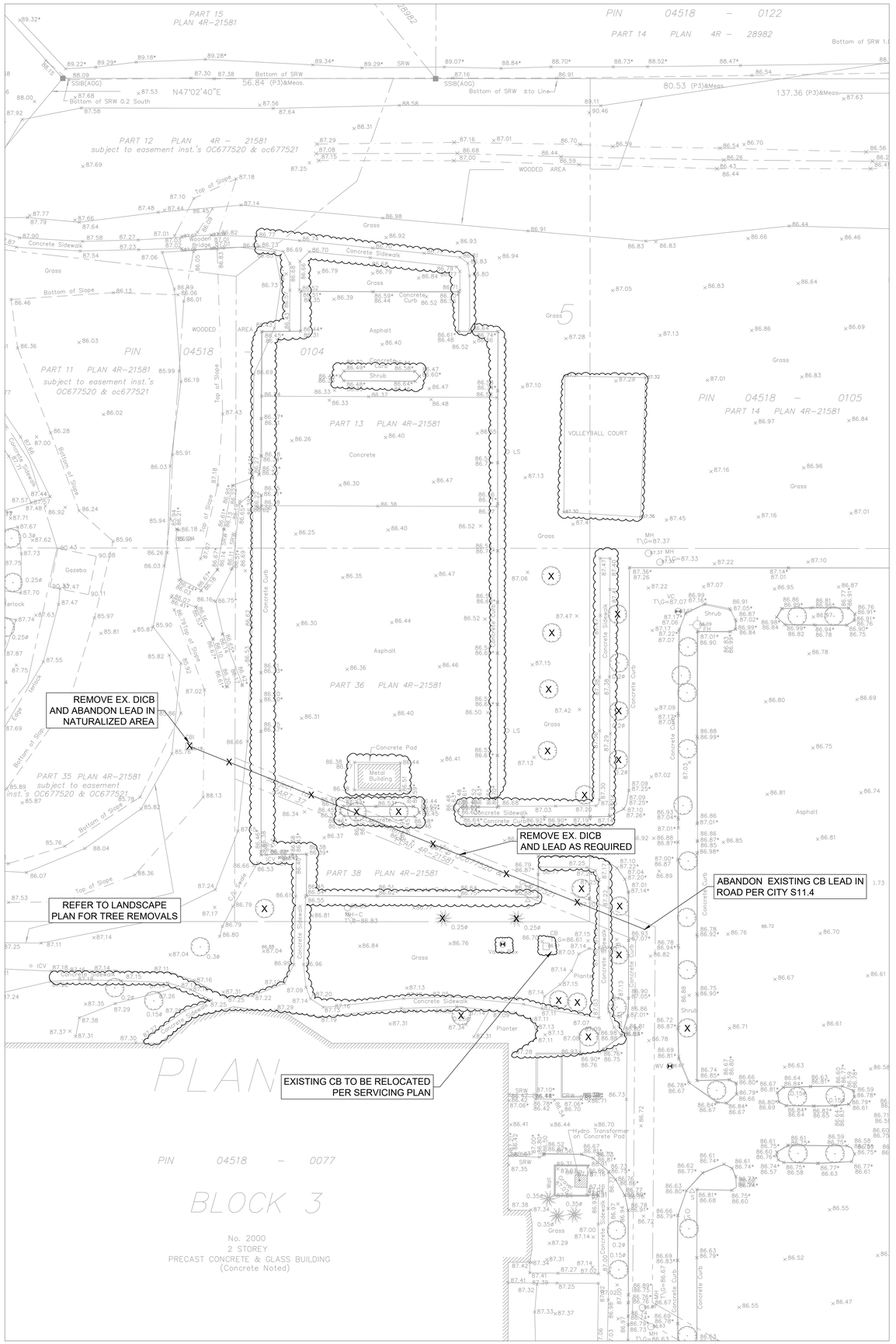
Drainage Area	Area (ha)	C	AC	Q (L/s)	
				5-Year	100-Year
B1	0.60	0.59	0.35	102.54	274.10
B2	0.04	0.26	0.01	3.01	8.05
B3A	0.15	0.31	0.05	13.47	36.00
B3B	0.01	0.20	0.003	0.75	2.00
Total	**0.79**			**119.77**	**320.16**

Appendix E

Existing Conditions & Removals Plan 30298433-C-005

Grading Plan 30298433-C-200

Erosion and Sediment Control Plan 30298433-C-900



- REMOVAL
- ADJUST MANHOLE, VALVES
- ADJUST CATCH BASIN
- ADJUSTMENT BY BELL OR HYDRO APPROVED CONTRACTOR
- REMOVE OR ABANDON SEWER, WATERMAIN, UTILITY, CURB RETURNS
- PLUG
- DRY GRIND EXISTING ASPHALT, AVERAGE DEPTH 50mm.
- FULL DEPTH ASPHALT REMOVAL
- AREA TO BE CLEARED AND GRUBBED
- REMOVAL OF BUILDINGS, FOUNDATIONS, SEPTIC SYSTEM AND WELL
- REMOVALS OF CONCRETE/ ASPHALT SIDEWALK

0 5 10 20 m

Scale 1:250

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ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SITEPLAN CONTROL	2025.12.12
2	ISSUED FOR SITEPLAN CONTROL	2026.05.08

CONSULTANTS

NOT FOR CONSTRUCTION

SEAL

LICENSED PROFESSIONAL ENGINEER
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100611774
2026/05/08
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OTT01 MAB 30298433

DRAWN BY:	CHECKED BY:
CC	RR
PROJECT MGR:	APPROVED BY:
RM	RR/RM

SHEET TITLE
EXISTING CONDITIONS & REMOVALS PLAN

SHEET NUMBER C-005

ISSUE 2

Autodesk Docs://Cisco - Ottawa Campus/14879-CISCO-A-MAB-R24.rvt

D07-12-25-0168

Design by: XXXXX

SCALE CHECK: 1in

LEGEND:

MAJOR OVERLAND FLOW

TIE INTO EXISTING ELEVATIONS AT EDGE OF WOODED AREA ENSURING POSITIVE DRAINAGE EAST TOWARDS PATHWAY

FULLY DEPRESSED CURB PER CITY SC1.1

HEAVY VEHICLE RATED PAVER REFER TO GEOTECHNICAL

DICB01 T/G 86.05

RE-GRADE EXISTING PATHWAY ENSURING POSITIVE DRAINAGE FROM CURB CUT TO EX. STORMWATER STORAGE AREA

FULLY DEPRESSED CURB PER CITY SC1.1 CONTRACTOR TO ENSURE T/C SLOPES AWAY FROM PAVED SURFACES TO ENSURE POSITIVE DRAINAGE TOWARDS THE WEST

ENSURE POSITIVE DRAINAGE AWAY FROM BASE OF CONCRETE PADS

RAISED CONCRETE PADS ENSURE POSITIVE DRAINAGE AWAY FROM BASE OF PAD

PROVIDE SWALE ENSURING POSITIVE DRAINAGE NORTH

RAISED LANDSCAPE FEATURE ENSURE POSITIVE DRAINAGE TO SW

RAISED LANDSCAPE FEATURE ENSURE POSITIVE DRAINAGE TO SW

VEHICLE RATED PAVER (REFER TO GEOTECHINCAL)

PROPOSED EASEMENT

ADJUST EXISTING STM AND SAN T/G AS REQUIRED

SNOW STORAGE (15MX15M)

DOME LANDSCAPED AREA TO ENSURE POSITIVE DRAINAGE TOWARDS DRIVE AISLE

ADJUST T/F AS REQUIRED

MH01 T/G 87.15

PROPOSED CURBS PER SC1.1 WITH LANDSCAPED ISLANDS. ENSURE POSITIVE DRAINAGE NE AT B/C

DEPRESSED CURB

PROPOSED CURB PER SC1.1

DEPRESSED CURB

TIE WALKWAY INTO EXISTING T/C

MAB-ELEC
GROUP F3, PRE-ACTION SPRINKLER
GROSS FLOOR AREA (GFA) = 800 m²
HEIGHT 5.45 m
FFE:87.55
PROPOSED BUILDING FFE: 87.55

OUTDOOR MECHANICAL & ELECTRICAL YARD

MAB-MECH
GROUP F3,UNSPRINKLERED
GROSS FLOOR AREA (GFA) = 275 m²
HEIGHT 5.45 m
FFE: 87.55

CB01 T/G 86.85

EXMH201 T/G 85.49

PIN 04518 – 0077

BLOCK 3

No. 2000
2 STOREY
PRECAST CONCRETE & GLASS BUILDING
(Concrete Noted)

PART 12 PLAN 4R – 21581 subject to easement inst.'s OC677520 & oc677521

PART 11 PLAN 4R-21581 subject to easement inst.'s OC677520 & oc677521

PART 10

PART 14 PLAN 4R-21581

PART 26 PLAN 4R – 15561

PART 20 PLAN 4R – 15561

PART 19 PLAN 4R – 15561

PART 17 PLAN 4R – 15561

PART 16 PLAN 4R – 15561

PIN 04518 – 0105

PIN

0 5 10 20 m

Scale 1:250

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DRAWN BY:	CHECKED BY:
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PROJECT MGR:	APPROVED BY:
RM	RR/RM

SHEET TITLE
GRADING PLAN

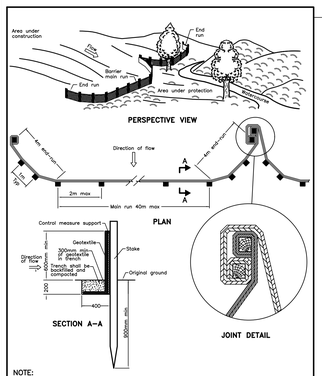
SHEET NUMBER
C-200

ISSUE
2

D07-12-25-0168

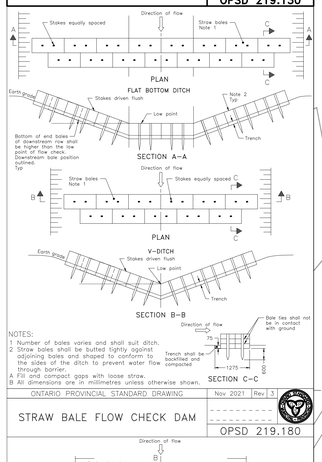
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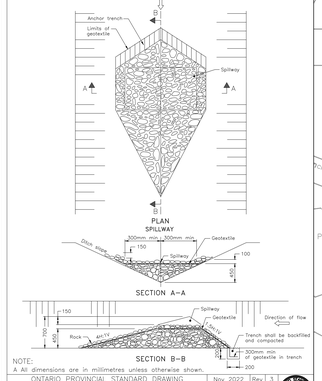
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
HEAVY-DUTY SILT FENCE BARRIER	OPSD 219.130	



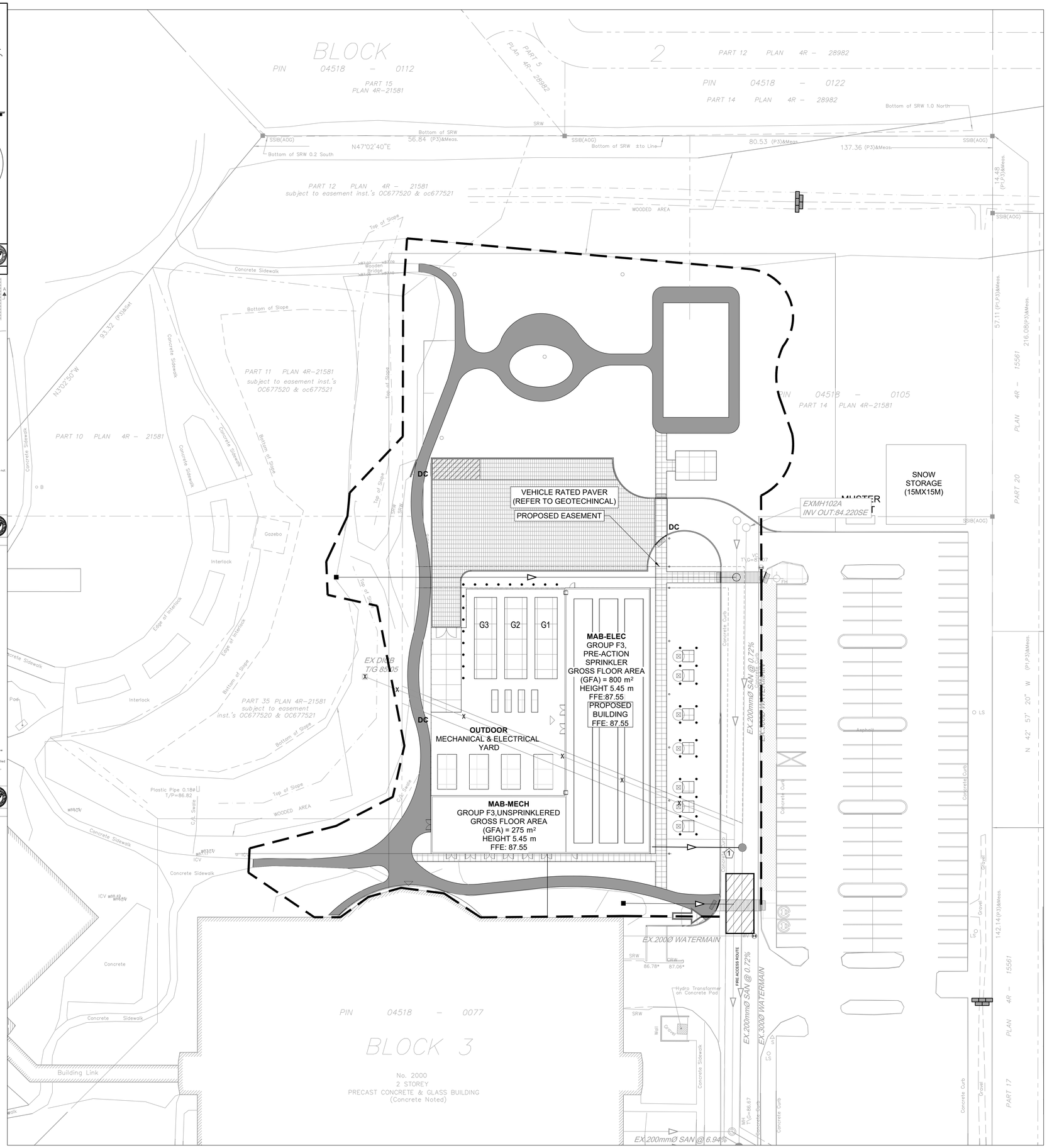
NOTES:
1 Number of bales varies and shall suit ditch.
2 Straw bales shall be butted tightly against adjoining bales and shaped to conform to the sides of the ditch to prevent water flow through barrier.
A Fill and compact gaps with loose straw.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
STRAW BALE FLOW CHECK DAM	OPSD 219.180	



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2022	Rev 3
TEMPORARY ROCK FLOW CHECK DAM V-DITCH	OPSD 219.210	



NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. SILT FENCE TO BE ERECTED PRIOR TO EARTH WORKS BEING COMMENCED. SILT FENCE TO BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL START OF SUBSEQUENT PHASE.
3. STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
4. FILTER CLOTH TO BE PLACED AND MAINTAINED UNDER COVER OF ALL PROPOSED CATCHBASINS AFTER BASE COURSE, AND EXISTING CATHBASINS IDENTIFIED OUTSIDE OF CONSTRUCTION LIMIT. FILTER CLOTH IN STREET CB'S TO REMAIN UNTIL ALL CURBS ARE CONSTRUCTED. FILTER CLOTH IN RYCB'S TO REMAIN UNTIL VEGETATION IS ESTABLISHED. ALL CATHCBASINS TO BE REGULARLY INSPECTED AND CLEANED AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.
5. CONTRACTOR TO PROVIDE DETAILS ON LOCATION(S) AND DESIGN OF DEWATERING TRAP(S) PRIOR TO COMMENCING WORK. CONTRACTOR ALSO RESPONSIBLE FOR MAINTAINING TRAP(S) AND ADJUSTING SIZE(S) IF DEEMED REQUIRED BY THE ENGINEER DURING CONSTRUCTION.
6. WORKS NOTED ABOVE ARE TO BE INSTALLED, INSPECTED, MAINTAINED AND ULTIMATELY REMOVED BY SERVICING CONTRACTOR.
7. THIS IS A "LIVING DOCUMENT" AND MAY BE MODIFIED IN THE EVENT THE PROPOSED CONTROL MEASURES ARE INSUFFICIENT.

LEGEND:

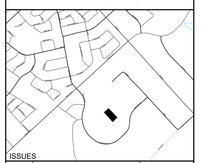
- HEAVY DUTY SILT FENCE AS PER OPSD-219.130
- SNOW FENCE
- STRAW BALE CHECK DAM AS PER OPSD-219.180
- ROCK CHECK DAM AS PER OPSD-219.210
- FILTER CLOTH PLACED UNDER EXISTING CB COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH (15.0m)

0 5 10 20 m
Scale 1:250

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OTT01 MAB 30298433

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RM	RR/RM

SHEET TITLE
SEDIMENT - EROSION PLAN

SHEET NUMBER	ISSUE
C-900	2

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