TATHAM ENGINEERING

115 Sandford Fleming Drive, Suite 200
Collingwood, Ontario L9Y 5A6

T 705-444-2565
E info@tathameng.com
tathameng.com

File 121036

December 19, 2025

Beckett Frisch
Community Planner
Town of Collingwood
P.O. Box 157, 97 Hurontario Street
Collingwood, Ontario L9Y 3Z5
bfrisch@collingwood.ca

Re: 140 Mountain Road, Town of Collingwood
Addendum No.3 - Functional Servicing Report Phase 1 & 2

Dear Beckett:

INTRODUCTION

We are pleased to provide the following Addendum No. 3, supplemental to Addendum No.2 dated October 24, 2024, supplemental to Addendum No. 1 dated April 23, 2024 to the Functional Servicing Report (FSR) originally prepare in December 2022 for 140 Mountain Road, in response to your Letter of Incomplete Application dated August 6, 2025. Copies of the previous FSR Addendums and the Letter of Incomplete are included in Appendix A for reference. A full size copy of the original FSR is also provided as part of this submission.

BACKGROUND

The original Site Plan submission in December 2022 included a 6,824 square metres industrial building consisting of 18 separate industrial commercial units complete with allocation for 1 parking space per 100 square metres (as per the Town's zoning by-law) as well as individual access to each unit for pedestrians and delivery vehicles. The development was divided into two separate phases in April 2024 to accommodate the anticipated non-industrial tenants for Phase 1 (3,478 square metres) as well as contemplate the potential tenants for Phase 2 (3,346 square metres).

Since acquiring conditional approval for Phase 1, additional consultation with the Town has been ongoing since July 2025 to resolve parking allocation concerns associated with the potential non-industrial tenants. A copy of the July 2025 email correspondence is also enclosed in Appendix A for reference.

After further contemplation, the developers have revised the parking allocation to adopt 3 parking spaces per 100 square metres for the non-industrial tenants (as per the Town's zoning by-law). This approach has resulted in the size of the Phase 2 portion of the building to be significantly reduced from 3,346 square metres to 2,224 square metres, in order to accommodate the potential non-industrial tenants and the appropriate parking allocation.

Therefore, the following sections below not only address the Sanitary Servicing, Water Supply & Distribution, Stormwater Management for Phase 2, but also the parking allocation concerns to satisfy the Town's Phase 2 submission requirements, as stated in the previous email correspondence and Letter of Incomplete Application in Appendix A.

SANITARY SERVICING

Existing Sanitary Sewage System

An existing 375 mm diameter sewer is located along Mountain Road across the frontage of the property and will be upsized to a 600 mm diameter approximately 125 m east of the Ex. SAN MH 10 as shown on the Mountain Road Reconstruction Plan & Profile Dwg PP-3 and PP-4 prepared by Ainley & Associates in Appendix B.

Proposed Sanitary Sewage System

The proposed development has been divided into two phases both of which will be serviced by a single 200 mm diameter sanitary service connected to the existing 375 mm sanitary sewer on Mountain Road trunk sewer located between EX. SAN MH 9 and EX. SAN MH 10. The proposed sanitary servicing is illustrated on the Phase 2 Site Servicing Plan (drawing SS-2) included in the Site Plan application package.

Sewage Demands and Capacity

To determine the sewage design flows from the development area, an average daily demand rate for light industrial/commercial land use of 28.0 m^3/ha/day is estimated based on the Ministry of Environment, Conservation and Parks (MECP), *Design Criteria for Sanitary Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval (V.1.1, dated July 28, 2022)*. Based on our experience with similar developments of this nature this is an overly conservative considering the small scale of the development and the light industrial/commercial use being proposed.

Using Town flow rates, the average day and maximum day flows for Phase 1 and Phase 2 of the development area were calculated as follows:

PHASE	AVERAGE DAY (L/s)	MAXIMUM DAY (L/s)
1	0.56	1.59
1 & 2	1.12	3.11

Detailed sewage design flow calculations for the subject property are included in Appendix C.

Although the sanitary flows have not changed since the previous submission, we understand the Town maintains its own up to date sanitary flow conveyance model of this area and note the model has already confirmed reserve capacity is available in the downstream system through the previous development review process.

WATER SUPPLY & DISTRIBUTION

Existing Water Servicing

An existing 300 mm diameter watermain is located along the south side of Mountain Road, complete with one accessible fire hydrant located at the northwest property corner of the proposed development as shown on the Mountain Road Reconstruction Plan & Profile Dwg PP-3 and PP-4 prepared by Ainley & Associates in Appendix B.

Proposed Water Servicing

A 200 mm diameter watermain has been connected to the existing 300 mm diameter watermain on Mountain Road to service the site for both domestic and fire flows. A 50 mm diameter water service has been connected to the existing 200 mm diameter service immediately inside the development property and installed to enter the building mechanical / electrical room where a backflow prevention device and water meter will be installed prior to any occupancy per Town standards. The proposed water servicing is illustrated on the Site Servicing Plan (Drawing SS-2) included in the Site Plan application package.

Water Demands

To determine the water demands for the subject property, a conservative average daily demand rate for light industrial land use of 35.0 m^3/ha/day is estimated based on the expected uses of the building. The proposed building has been divided into two (2) phases. Both phases of the building will be constructed of non-combustible material and will be sprinklered. Fire Underwriters Survey (FUS) fire flow calculations determined the maximum required fire flow for Phase 1 and Phase 2 of the development to be 83 L/s and 119 L/s, however, the minimum fire flow required by the Town's Development Standards for an industrial/commercial subdivision is 136 L/s. Therefore, the water demands are as follows:

PHASE	AVERAGE DAY (L/s)	MAXIMUM DAY PLUS FIRE (L/s)
1	0.41	136
1 & 2	0.82	136

Detailed demand calculations for both phases are included in Appendix D for reference

The Average Day and Maximum Day Plus Fire Demands calculation have not changed since the previous submission and were added to the Town-wide model for confirmation of flows and demands. A copy of the report prepared by CIMA dated June 20, 2024 is included in Appendix A of Addendum No. 2 along with previous correspondence with the Town regarding fire protection. We note that Section 3.1.1 advises the Town's existing water distribution system can provide a fire flow of 135 L/s, which satisfies the FUS requirement of 133 L/s, but not the Town's fire flow requirement of 136 L/s, resulting in a 1 L/s deficiency.

Therefore, in order to compensate for the 1 L/s lack of available fire flow, which requires a 2 hour duration as outlined on the demand calculations in Appendix D of Addendum No. 3, a 7,500 Litre (2,000 gallon) water storage tank (2 hours = 7,200 seconds x 1 L/second = 7,200 L < 7,500 L) has been installed and connected to the 200 mm diameter water service within the site prior to entering the mechanical

/ electrical room. The storage tank will act as a backup to meet the Town's fire flow requirements of 136 L/s. Details of the water storage tank can be found on the Phase 2 Site Servicing Plan, SS-2, which has been enclosed as part of this submission.

STORMWATER MANAGEMENT

A stand-alone Stormwater Management (SWM) Report was prepared in December 2022 and revised in August 2023 which summarized the existing and proposed stormwater management conditions for the overall development and surrounding drainage system. A copy of the original SWM Report is also provided as part of this submission.

Although Phase 2 of the site plan has been revised since the preparation of the SWM Report, the overall impervious area of the previous phase 2 portion of the building has been replaced with asphalt parking. Therefore, the proposed stormwater drainage design and storm sewer system design will remain relevant and valid, and should be reviewed in the original SWM Report in conjunction with this submission.

Stormwater runoff from Phase 2 will continue to be directed to the previously designed internal storm sewer conveyance system which will continue to discharge to the two respective SWM ponds, providing both quantity and quality control, and are located at the front of the development property before out letting to the Town's storm drainage system consisting of a road-side ditch along the south side of Mountain Road. These two pond outlets will need to be incorporated in the Mountain Road Reconstruction Plan and Profile PP-3 prepared by Ainley & Associates included in Appendix B of this Addendum No.3.

Copies of the Phase 2 Proposed Conditions Drainage Plan drawing DP-2A and the Phase 2 Storm Sewer Drainage Plan drawing STM-1A showing the revised layout and catchment areas are enclosed in Appendix E of this Addendum No. 3. The detailed phase 2 grading design is provided on the Phase 2 Site Grading Plan drawing SG-2.

TRAFFIC & PARKING

A stand-alone Traffic Impact Brief was prepared in December 2022 for the total property which summarized the existing and proposed traffic conditions associated with the overall development and surrounding road system. A copy of the original Traffic Brief is provided as part of this submission.

Although the site plan has been revised since the preparation of the traffic brief, the analysis in terms of traffic volumes, operations, access, circulation and turning lanes remains relevant and valid, and should be reviewed in conjunction with this document.

In terms of parking, the Town has raised concerns associated with the proposed tenants and the associated parking requirements as outlined in an email dated July 16, 2025 which is included in Appendix A. Pursuant to the Town's *Zoning By-law*, the following parking requirements apply:

- Warehouse: 1 space per 100 m^2 gross floor area (GFA); and
- All other non-residential uses not specified: 3 spaces per 100 m^2 GFA.

Recognizing the majority of the Phase 1 tenants are anticipated to be non-warehouse and/or non-residential uses not specified (also referred to as Recreational), we have re-visited the Phase 1 and Phase 2 parking calculations as follows.

PHASE 1 TENANTS	AREA (M2)	PARKING CRITERIA (PER 100 SQ.M)	PARKING SPOTS REQUIRED
Turbo GFA inc. mezzanine	1,457.72	3	44
Trounce*	869.83	3	26
Cheer	686.48	3	21
Glass Doctor*	202.06	1	2
TOTAL	**3,216.09**		**93**

*Build-out Area (reception, washrooms, storage areas including mezzanine not finalized).

Layout areas for the phase 1 tenants have advance however have not been finalized. Copies of the Phase 1 layout including reception, washrooms, storage and mezzanine areas are included in Appendix F.

Based on the latest tenant plans available for Phase 1, a minimum of 93 parking spaces are required while 94 parking spaces are provided.

Subsequently, the parking requirements for Phase 2 have been based on the same parking ratio requirements of the Phase 1 tenants. With that in mind, we estimate the Phase 2 parking requirements as follows:

Required = 61

Provided = 100 (therefore 39 extra parking spaces in Phase 2)

Overall Phase 1&2 Parking Requirements = 154

Overall Phase 1&2 Parking Provided = 194 (therefore 40 total extra spaces)

Detailed parking calculations and allocations are provided on the Phase 2 Site Plan, Drawing SP-2.

We have also incorporated pedestrian islands and extended the sidewalk to the rear parking area (as required by the Town Urban Design Manual) and required at both 120 and 180 Mountain Road sites. We have also reduced the two concrete amenity areas at the rear of the property to provide additional parking. Details of the revised building, parking and access, are also provided on the Phase 2 Site Plan, Drawing SP-2.

CLOSING

We trust this Addendum No. 3 is sufficient for the Town's review of the Phase 2 submission. If there are any questions or if additional information is required, please do not hesitate to contact the undersigned.

Yours truly,
Tatham Engineering Limited

Kevin Sansom, B.A.Sc., P.Eng.
Senior Engineer
KRS:rlh

copy:	Chirs Millsap	MVP Holdings	chrismillsap@mvpholdings.ca
	Adam Garbutt	MVP Holdings	Agdesigns.reclaimed@gmail.com
	Kristine Loft	Loft Planning	kristine@loftplanning.com

O:\Collingwood\2021 Projects\121036 - 140 Mountain Road\Documents\Reports\Reports\FSR\Addendum 3 Dec 16 2025\L - Frisch - Phase 2 FSR Addendum No 3 Dec 2025.docx

Appendix A: Previous FSR Addendums, Email Correspondence & Letter of Incomplete Application

Town of Collingwood
Beckett Frisch, Community Planner
Planning Services
55 Ste. Marie Street, Unit 302
Collingwood, ON, L9Y 0W6
Phone: 705-445-1030 ext. 3288
bfrisch@collingwood.ca

Sent via E-mail: kristine@loftplanning.com

August 6, 2025

Loft Planning Inc.
25 Maple Street
Collingwood, ON L9Y 2P7

Attention: Kristine Loft

Re: Letter of Incomplete Application
PLASMJ2025254 (140 Mountain Road)

Planning Services for the Town of Collingwood is in receipt of the subject application and submittal materials for the project located at the lands municipally addressed as 140 Mountain Road.

Be advised that the Town has deemed this application “incomplete” pursuant to Section 41 of the *Planning Act*, R.S.O. 1990, c.P.13, as amended.

The application has been deemed incomplete as the prescribed information and materials under Section 41(3.3) & 41(3.4) of the *Planning Act* have yet to be provided.

Further to email and phone correspondence on July 16, 2025, revised Site Plan, Engineering, and Landscape drawings are required to reflect the site plan area being considered under this application. Additionally, a Functional Servicing Report and Stormwater Management Report are required to support the application.

Once the required or revised submittal materials, as applicable, have been submitted to the Town, the application will be reviewed for completeness.

Should you have any questions on this matter, please feel free to contact the undersigned.

Sincerely,

Beckett Frisch
Community Planner
Town of Collingwood

Kevin Sansom

From: Kristine Loft <kristine@loftplanning.com>
Sent: Wednesday, July 16, 2025 3:20 PM
To: Mvp Holdings; Kevin Sansom
Subject: FW: PLASMJ2025254 - 140 Mountain Road (Phase 2)

Please review email from Beckett.

Kristine Loft, MCIP RPP

From: Beckett Frisch <bfrisch@collingwood.ca>
Sent: July 16, 2025 2:59 PM
To: Kristine Loft <kristine@loftplanning.com>
Subject: RE: PLASMJ2025254 - 140 Mountain Road (Phase 2)

Hi Kristine,

Thanks for the chat about 140 Mountain Road. This is the Collingwood Today article I'm referring to: https://www.collingwoodtoday.ca/local-news/couple-partners-up-on-new-community-centric-collingwood-sports-facility-10909934

As mentioned, for multiple tenancy buildings such as 140 Mountain Road, a Zoning Certificate will be required for **each tenant** to assess zoning conformity with respect to permitted uses and parking. Based on the approved Site Plan for Phase 1, and the recently submitted application for Phase 2, parking was calculated for the contemplated uses of Office (Mezzanine)/Other Uses (935m^2 Phase 1, 900m^2 Phase 2) at 3/100m^2 and Warehouse (3058m^2 Phase 1, 2986m^2 Phase 2) at 1/100m^2. The above-mentioned sports facility is proposed to be approximately 1850m^2, over and above the 1835m^2 indicated for Office/Other Uses with the increased parking ratio of 3/100m^2. If this facility is proposed for Phase 1, it will require approximately 56 of the 66 parking spaces approved for Phase 1. Assuming the remaining units (2140m^2 GFA) in Phase 1 require a parking ratio of 1/100m^2, there could be a parking shortfall of 12 spaces (this is rough math, noting the GFA of the sports facility has not been confirmed). Should this be the case, a planning application would be required to seek a reduction of the parking requirements, or the remaining units would remain vacant.

While the parking constraint may reduce should Phase 2 be approved in the future, there would remain a risk of parking shortfall should any other proposed tenancy require a parking ratio over 1/100m^2. As such, staff are challenged to assess zoning conformity for Phase 2, particularly with respect to parking, as there may not be adequate parking for the future uses proposed. I'm seeking the following clarification from your client, if possible:

- Known uses proposed for Phase 1, and the GFA for each

- Known uses proposed for Phase 2, and the GFA for each

Please don't hesitate to give me a call if you wish to discuss further.

Best,
Beckett

Beckett Frisch (he/him)
Community Planner
705-445-1030 Ext. 3288
www.collingwood.ca

From: Kristine Loft <kristine@loftplanning.com>
Sent: Wednesday, July 16, 2025 12:33 PM
To: Beckett Frisch <bfrisch@collingwood.ca>
Subject: RE: PLASMJ2025254 - 140 Mountain Road (Phase 2)

Chat then.

Kristine Loft, MCIP RPP

From: Beckett Frisch <bfrisch@collingwood.ca>
Sent: July 16, 2025 12:31 PM
To: Kristine Loft <kristine@loftplanning.com>
Subject: RE: PLASMJ2025254 - 140 Mountain Road (Phase 2)

1pm works, I'll give you a call then.

Cheers,
Beckett

From: Kristine Loft <kristine@loftplanning.com>
Sent: Wednesday, July 16, 2025 12:08 PM
To: Beckett Frisch <bfrisch@collingwood.ca>
Subject: RE: PLASMJ2025254 - 140 Mountain Road (Phase 2)

Beckett,
Sure does 1pm today work?

Kristine Loft, MCIP RPP

From: Beckett Frisch <bfrisch@collingwood.ca>
Sent: July 16, 2025 11:41 AM
To: Kristine Loft <kristine@loftplanning.com>
Subject: PLASMJ2025254 - 140 Mountain Road (Phase 2)

Good morning Kristine,

It was good to catch up with you on the weekend!

I'd like to set up a call with you regarding the Phase 2 application for 140 Mountain Road to discuss the proposed uses and potential challenges for this site prior to circulating it for review. I'm not sure when you're heading to Paris, but this week I'm free today until 4:30, tomorrow anytime between 9 and 4:30, and Friday between 1 and 4:30. Let me know if there's a good time to touch base.

In the meantime, I've reviewed the Phase 2 submission and require the following before the application can be circulated:

- The site plan/engineering and landscape drawing sets are from the final Phase 1 submission and have the Phase 2 area greyed out. These will need to be updated to note the Phase 2 area under review, show the works that are included in Phase 2, and grey out the Phase 1 area with a note that it has been previously approved.
- Acknowledging the FSR and SWM were submitted for the entire site for File PLSPMA2023002, could you please upload those to CityView in support of this application as well, with applicable amendments (if any)?

Thanks and talk soon,
Beckett

Beckett Frisch (he/him)
Community Planner
705-445-1030 Ext. 3288
www.collingwood.ca

The information contained in and/or attached to this transmission is intended solely for the intended recipient. If you are not the intended recipient, you are hereby notified that any disclosure, photocopying, distribution, or dissemination of the contents, in whole or in part, is unauthorized and prohibited. If you have received this transmission in error, please notify the sender immediately and destroy all copies.

Service Collingwood: Some Town services are available 24/7, please visit service.collingwood.ca to learn more.

Stay Connected! Follow us on social media, sign up for our e-newsletters and agendas to stay informed about municipal matters: www.collingwood.ca/stay-connected

Disclaimer: This transmission may contain information that is subject to or exempt from disclosure pursuant to the Municipal Freedom of Information and Protection of Privacy Act and other applicable law. The information contained in and/or attached to this transmission is intended solely for the intended recipient. If you are not the intended recipient, you are hereby notified that any disclosure, photocopying, distribution, or dissemination of the contents, in whole or in part, is unauthorized and prohibited. If you have received this transmission in error, please notify the sender immediately and destroy all copies.

Service Collingwood: Some Town services are available 24/7, please visit service.collingwood.ca to learn more.

Stay Connected! Follow us on social media, sign up for our e-newsletters and agendas to stay informed about municipal matters: www.collingwood.ca/stay-connected

Disclaimer: This transmission may contain information that is subject to or exempt from disclosure pursuant to the Municipal Freedom of Information and Protection of Privacy Act and other applicable law. The information contained in and/or attached to this transmission is intended solely for the intended recipient. If you are not the intended recipient, you are hereby notified that any disclosure, photocopying, distribution, or dissemination of the contents, in whole or in part, is unauthorized and prohibited. If you have received this transmission in error, please notify the sender immediately and destroy all copies.

TATHAM ENGINEERING

115 Sandford Fleming Drive, Suite 200
Collingwood, Ontario L9Y 5A6

T 705-444-2565
E info@tathameng.com
tathameng.com

File 121036

April 23, 2024

Beckett Frisch
Community Planner
Town of Collingwood
P.O. Box 157, 97 Hurontario Street
Collingwood, Ontario L9Y 3Z5
bfrisch@collingwood.ca

Re: 140 Mountain Road, Manorwood Commercial, Town of Collingwood
Addendum No.1 - Functional Servicing Report Phase 1 Water Demands

Dear Beckett:

We are pleased to provide the following Addendum No. 1 to the Functional Servicing Report (FSR) dated October 17, 2023 for 140 Mountain Road in response to your emails dated April 19 and 22, 2024 as follows:

3 SANITARY SERVICING

3.1 Existing Sanitary Sewage System

The existing sanitary sewer system was confirmed through the review the *Town of Collingwood MSP*, 2019, by Cole Engineering and the *Preliminary Servicing Report for Mair Mills Estates*, 1999, the *Preliminary Servicing Report for Mair Mills Village*, 2006, and *the Functional Servicing Report for Side Launch Brewery*, 2012 all of which were prepared by Tatham. The sanitary sewer design sheets prepared by Tatham for the above-mentioned studies have been used as the basis for assessing the available sewer capacity.

An existing 375 mm diameter sewer is located along Mountain Road across the frontage of the property and is upsized to 500 mm diameter approximately 360m east of the site at Ex. SAN MH 7 as shown in Appendix A on the Mair Mills Sanitary Servicing Plan. Tatham has completed depth measurements at the various maintenance holes accessible along Mountain Road and confirmed it is at sufficient depth for the proposed development.

The proposed development will connect between Ex. SAN MH 6 and Ex. SAN MH 7 located at the northeast property corner in front of the site on Mountain Road, as shown on the Site Servicing Plan (SS-1) in the Engineering Drawings submitted for Site Plan Approval. The 375 mm diameter section of trunk sewer along Mountain Road between SAN MH 6 an SAN MH 7 has a length of 123.9 m, a slope of 0.59% and a full flow capacity 134.66 L/s. The average flow in this section, including flow from the proposed development, has been determined to be 39.00 L/s with a peak flow of 67.28 L/s.

The composite slope in the 500 mm diameter sanitary trunk sewer located approximately 70 m downstream of the proposed connection point along Mountain Road between Ex. SAN MH 8 and Ex. SAN MH H26N-31 (shown in Appendix A, Mair Mills Sanitary Servicing Plan) at the intersection of Mountain Road & Highway 26, is 0.14 %, the full flow capacity of this section is 141.29 L/s.

3.2 Proposed Sanitary Sewage System

The proposed development **will be divided into two phases both of which** will be serviced by a single 200 mm diameter sanitary service connected to the existing 375 mm sanitary sewer on Mountain Road trunk sewer located between EX. SAN MH 5 and EX. SAN MH 6. The proposed sanitary servicing is illustrated on the Site Servicing Plan (drawing SS-1) included in the Site Plan application package.

3.3 Sewage Demands and Capacity

To determine the sewage design flows from the development area, an average daily demand rate for light industrial/commercial land use of 28.0 m^3/ha/day is estimated based on the Ministry of Environment, Conservation and Parks (MECP), *Design Criteria for Sanitary Sewers and Forcemains for Alterations Authorized under Environmental Compliance Approval (V.1.1, dated July 28, 2022).* Based on our experience with similar developments of this nature this is an overly conservative considering the small scale of the development and the light industrial/commercial use being proposed.

Using Town flow rates, the average day and maximum day flows for Phase 1 and Phase 2 of the development area were calculated as follows:

Phase	Average Day (L/s)	Maximum Day (L/s)
1	0.56	1.59
1 & 2	1.12	3.11

Detailed sewage design flow calculations for the subject property are included in Appendix A.

It is our understanding that the Town maintains its own up to date sanitary flow conveyance model of this area, we expect this model will confirm reserve capacity is available in the downstream system through the development review process.

4 WATER SUPPLY & DISTRIBUTION

4.1 Existing Water Servicing

An existing 300 mm diameter watermain is located along the south side of Mountain Road, complete with one accessible fire hydrant located at the northwest property corner of the proposed development.

4.2 Proposed Water Servicing

A 200 mm diameter watermain will be connected to the existing 300 mm diameter watermain on Mountain Road to service the site for both domestic and fire flows. The proposed water main will enter the buildings mechanical / electrical room where a backflow prevention device and water meter will be installed prior to any service connections per Town standards.

The proposed watermain size will be verified following detailed building designs by the architect and mechanical engineer. A fire hydrant is located at the northwest property corner on Mountain Road and building will be sprinkled throughout to provide sufficient fire protection per Town standards.

4.3 Water Demands

To determine the water demands for the subject property, a conservative average daily demand rate for light industrial land use of 35.0 m^3/ha/day is estimated based on the expected uses of the building. **The proposed building will be divided into two (2) phases both of which will consist of 18 units for a total of 36 units. Both phases of the building will be constructed of non-combustible material and will be sprinklered. Fire Underwriters Survey (FUS) fire flow calculations (included in Appendix B) determined the maximum required fire flow for Phase 1 and Phase 2 of the development to be 83 L/s and 119 L/s, however, the minimum fire flow required by the Town's Development Standards for an industrial/commercial subdivision is 136 L/s. Therefore, the water demands are as follows:**

Phase	Average Day (L/s)	Maximum Day plus Fire (L/s)
1	0.41	136
1 & 2	0.82	136

Detailed demand calculations for both phases are included in Appendix B for reference. We understand the proposed watermain system will be added to the Town-wide model for confirmation of watermain sizes.

The subject property is located in Pressure Zone 1 and therefore no external upgrades are anticipated as peak water use for the development is relatively low.

Yours truly,
Tatham Engineering Limited

Kevin Sansom, B.A.Sc., P.Eng.
Senior Engineer
KRS:rlh

copy:	Chirs Millsap	MVP Holdings	chrismillsap@mvpholdings.ca
	Adam Garbutt	MVP Holdings	Agdesigns.reclaimed@gmail.com
	Kristine Loft	Loft Planning	kristine@loftplanning.com

O:\Collingwood\2021 Projects\121036 - 140 Mountain Road\Submissions\4. Fourth Submission\L - Frisch - Interim Phase 1 Water Demands - Response to Email April 22 2024.docx

Appendix A:
Sanitary Servicing Analysis

TATHAM ENGINEERING

PROJECT	140 Mountain Road	FILE	121036
		DATE	**April 23 2024**
SUBJECT	**Phase 1** Sewage Design Flow Calculations	NAME	K.Sansom
		PAGE	1 OF 1

Demand Rate - Light Industrial = 28.0 m^3/ha/day (**Phase 1** Gross ha site area = 1.01 ha)
= 0.32 L/ha/s

Infiltration Flow (I) = Infiltration Flow x Drainage Area
= 0.23 L/s/ha x **1.01** ha 0.23 L/s/ha Town Standard
= 0.23 L/s

Average Day Flow (ADF) = Site Area x Demand Rate + I
= **1.01** ha x 0.32 L/ha/s + 0.23 L/s
= 0.33 L/s + 0.23 L/s
= 0.56 L/s

Equivalent Population (P) = ADF - I / Avg Flow per Capita
= 0.56 L/s / 0.00301 L/cap/s 260 L/cap/d as per Town Standards August 2022 Update
= 186 cap

Harmon Peaking Factor (PF) = $1 + \frac{14}{4 + (P/1000)^{0.5}}$
= 4.16

Maximum Day Flow (MDF) = (ADF - I) x PF + I
= 0.33 x 4.16 + 0.23
= 1.59 L/s

TATHAM ENGINEERING

PROJECT	140 Mountain Road	FILE	121036
		DATE	November 22, 2022
SUBJECT	**Phase 1 & 2** Sewage Design Flow Calculations	NAME	M. Ray
		PAGE	1 OF 1

Demand Rate - Light Industrial = 28.0 m^3/ha/day (Gross ha site area)
= 0.32 L/ha/s

Infiltration Flow (I) = Infiltration Flow x Drainage Area
= 0.23 L/s/ha x 2.02 ha 0.23 L/s/ha Town Standard
= 0.46 L/s

Average Day Flow (ADF) = Site Area x Demand Rate + I
= 2.02 ha x 0.32 L/ha/s + 0.46 L/s
= 0.65 L/s + 0.46 L/s
= 1.12 L/s

Equivalent Population (P) = ADF - I / Avg Flow per Capita
= 1.12 L/s / 0.00301 L/cap/s 260 L/cap/d as per Town Standards August 2022 Update
= 372 cap

Harmon Peaking Factor (PF) = $1 + \frac{14}{4 + (P/1000)^{0.5}}$
= 4.04

Maximum Day Flow (MDF) = (ADF - I) x PF + I
= 0.65 x 4.04 + 0.46
= 3.11 L/s

Appendix B:
Water Demand Calculations

TATHAM ENGINEERING

Project:	140 Mountain Road	Date:	November 2, 2022
File No.:	121036	Designed:	MR
Subject:	**Phase 1** Fire Flow Demand Calculations	Checked	KRS
Revisions:	**April 23, 2024**		

Calculation Based on 2020 Publication "Water Supply for Public Fire Protection" by Fire Underwriters Survey (FUS).

Step	Description	Term	Options	Multiplier Associated with Option	Choose	Value used	Unit	Total Fire Flow (L/min)	
		Framing Material							
1	Frame Use for Construction of Unit	Coefficient related to type of construction (C)	Wood Frame	1.5	Non-combustible construction	**0.8**	-	N/A	
			Ordinary Construction	1					
			Non-combustible construction	0.8					
			Fire resistive construction (< 2 hrs)	0.7					
			Fire resistive construction (> 2 hrs)	0.6					
		Floor Space Area							
2	Type of Housing (if Townhouse, enter number of units per TH block)	Type of Housing	Single Family	1		**0**	Units	N/A	
			Townhouse / Apartment- inform # of units	1		**0**			
			Other (Comm, Ind., etc.)	1		**1**			
			2 hour Fire Separation Between Units	1	No	**0**			
2.1	Number of Storeys	Number of Floors / Storeys in the unit (do not include basement)				**1**	Storeys	N/A	
3	Floor Area (exclude basements, per unit for townhouses, per single family dwelling or per building for apartments, commercial or institutional)	Ground Floor Area (assume fire stop separation is being provided per unit)				**0**	Square Metres (m2)	N/A	
		Total Floor Area - One Storey of Townhouse/Apartment Block				**0**			
		Total Floor Area - All Storeys				**3237**			
		Does the building have fire-resistive design?			No	**3237**			
		Are vertical openings/communications properly protected (1 hour rating)?			No	**3237**			
		Total Floor Area (A) - for all storeys excluding basement - Single Family				**3237**			
		Measurement Unis	Square Feet (ft^2)	0.093		**3237**	m^2		
			Square Metres (m^2)	1					
			Hectares (ha)	10000					
4	Required Fire Flow without Reductions or Increases	Required Fire Flows without Reductions or Increases per FUS): ($FF = 220 \times C \times A^{0.5}$)					L/min		10,000
5	Factors Affecting Burning	**Reductions / Increases Due to Factors Affecting Burning**							
5.1	Combustibility of Building Contents	Occupancy content hazard reduction or surcharge	Non-combustible	-0.25	Non-combustible	-0.25	N/A	(2,500)	7,500
			Limited combustible	-0.15					
			Combustible	0.00					
			Free burning	0.15					
			Rapid burning	0.25					
5.2	Reduction Due to Presence of Sprinklers	Sprinkler reduction	Fully supervised system	-0.5	Automatic sprinkler protection	-0.3	N/A	(2,250)	5,250
			Water supply system/hose connections	-0.4					
			Automatic sprinkler protection	-0.3					
			None	0					
5.3	Separation Distance Between Units (Use 10% for 2 hour Fire Separation between adjacent units)	Exposure distance between units	North Side	30.1 to 45.0 m	0.00	0	%	-	5,250
			East Side	30.1 to 45.0 m	0.00				
			South Side	Greater than 45.0 m	0.00				
			West Side	30.1 to 45.0 m	0.00				
		Total Required Fire Flow, rounded to nearest 1000 L/min, with max/min limits applied:							5,000
6	Required Fire Flow, Duration and Volume	Total Required Fire Flow (above) in L/s:							83
		Required Duration of Fire Flow of 5,000 L/min (hrs):							2
		Required volume for Fire Flow of 5,000 L/min (m^3):							600

TATHAM ENGINEERING

PROJECT	140 Mountain Road	FILE	121036
		DATE	**April 22, 2024**
SUBJECT	**Phase 1** Water Demand Calculations	NAME	K. Latter
		PAGE	1 OF 1

Demand Rate - Light Industrial 35.0 m^3/ha/day (Gross ha site area)

Average Day Demand (ADD)

= Site Area x Demand Rate
= **1.01** ha x 35.0 m^3/ha/day
= 35.35 m^3/day
= 35350 L/day
= 0.41 L/s

Peak Factors

Maximum Day = 2 (as per Town Standards, Aug 2022)
Peak Hour = 2.70 (as per Town Standards, Aug 2022)

Fire Flow (Calculated by FUS) = 83 L/s
Fire Flow (Min as per Town Standards) = 136 L/s (Minimum per Town Development Standards)

Maximum Day Demand (MDD)

= ADD x Maximum Day Peak Factor
= 0.41 x 2.00
= 0.82 L/s*

Peak Hour Demand (PHD)

= ADD x Peak Hour Peak Factor
= 0.41 x 2.7
= 1.10 L/s

MDD + Fire Demand

= MDD + Fire Flow
= 0.82 + 83.0
= 83.82 L/s

TATHAM ENGINEERING

Project:	140 Mountain Road	Date:	November 2, 2022
File No.:	121036	Designed:	MR
Subject:	Fire Flow Demand Calculations	Checked	KRS
Revisions:			

Calculation Based on 2020 Publication "Water Supply for Public Fire Protection" by Fire Underwriters Survey (FUS).

Step	Description	Term	Options	Multiplier Associated with Option	Choose	Value used	Unit	Total Fire Flow (L/min)	
		Framing Material							
1	Frame Use for Construction of Unit	Coefficient related to type of construction (C)	Wood Frame	1.5	Non-combustible construction	**0.8**	-	N/A	
			Ordinary Construction	1					
			Non-combustible construction	0.8					
			Fire resistive construction (< 2 hrs)	0.7					
			Fire resistive construction (> 2 hrs)	0.6					
		Floor Space Area							
2	Type of Housing (if Townhouse, enter number of units per TH block)	Type of Housing	Single Family	1		**0**	Units	N/A	
			Townhouse / Apartment- inform # of units	1		**0**			
			Other (Comm., Ind., etc.)	1		**1**			
			2 hour Fire Separation Between Units	1	No	**0**			
2.1	Number of Storeys	Number of Floors / Storeys in the unit (do not include basement)				**1**	Storeys	N/A	
3	Floor Area (exclude basements, per unit for townhouses, per single family dwelling or per building for apartments, commercial or institutional)	Ground Floor Area (assume fire stop separation is being provided per unit)				**0**	Square Metres (m2)	N/A	
		Total Floor Area - One Storey of Townhouse/Apartment Block				**0**			
		Total Floor Area - All Storeys				**6474**			
		Does the building have fire-resistive design?			No	**6474**			
		Are vertical openings/communications properly protected (1 hour rating)?			No	**6474**			
		Total Floor Area (A) - for all storeys excluding basement - Single Family				**6474**			
		Measurement Unis	Square Feet (ft^2)	0.093		**6474**	m^2		
			Square Metres (m^2)	1					
			Hectares (ha)	10000					
4	Required Fire Flow without Reductions or Increases	Required Fire Flows without Reductions or Increases per FUS): (FF= 220 x C x $A^{0.5}$)					L/min	14,000	
5	Factors Affecting Burning	**Reductions / Increases Due to Factors Affecting Burning**							
5.1	Combustibility of Building Contents	Occupancy content hazard reduction or surcharge	Non-combustible	-0.25	Non-combustible	-0.25	N/A	(3,500)	10,500
			Limited combustible	-0.15					
			Combustible	0.00					
			Free burning	0.15					
			Rapid burning	0.25					
5.2	Reduction Due to Presence of Sprinklers	Sprinkler reduction	Fully supervised system	-0.5	Automatic sprinkler protection	-0.3	N/A	(3,150)	7,350
			Water supply system/hose connections	-0.4					
			Automatic sprinkler protection	-0.3					
			None	0					
5.3	Separation Distance Between Units (Use 10% for 2 hour Fire Separation between adjacent units)	Exposure distance between units	North Side	30.1 to 45.0 m	0.00	0	%	-	7,350
			East Side	30.1 to 45.0 m	0.00				
			South Side	Greater than 45.0 m	0.00				
			West Side	30.1 to 45.0 m	0.00				
		Total Required Fire Flow, rounded to nearest 1000 L/min, with max/min limits applied:							7,000
6	Required Fire Flow, Duration and Volume	Total Required Fire Flow (above) in L/s:							117
		Required Duration of Fire Flow of 7,000 L/min (hrs):							2
		Required volume for Fire Flow of 7,000 L/min (m^3):							840

TATHAM ENGINEERING

PROJECT	140 Mountain Road	FILE	121036
		DATE	July 5, 2023
SUBJECT	**Phase 1 & 2** Water Demand Calculations	NAME	K. Latter
		PAGE	1 OF 1

Demand Rate - Light Industrial 35.0 m^3/ha/day (Gross ha site area)

Average Day Demand (ADD)
= Site Area x Demand Rate
= 2.02 ha x 35.0 m^3/ha/day
= 70.7 m^3/day
= 70700 L/day
= 0.82 L/s

Peak Factors
Maximum Day = 2 (as per Town Standards, Aug 2022)
Peak Hour = 2.70 (as per Town Standards, Aug 2022)

Fire Flow (Calculated by FUS) = 117 L/s
Fire Flow (Min as per Town Standards) = 136 L/s (Minimum per Town Development Standards)

Maximum Day Demand (MDD)
= ADD x Maximum Day Peak Factor
= 0.82 x 2.00
= 1.64 L/s*

Peak Hour Demand (PHD)
= ADD x Peak Hour Peak Factor
= 0.82 x 2.7
= 2.21 L/s

MDD + Fire Demand
= MDD + Fire Flow
= 1.64 + 117.0
= 118.64 L/s

TATHAM ENGINEERING

115 Sandford Fleming Drive, Suite 200
Collingwood, Ontario L9Y 5A6

T 705-444-2565
E info@tathameng.com
tathameng.com

File 121036

October 24, 2024

Beckett Frisch
Community Planner
Town of Collingwood
P.O. Box 157, 97 Hurontario Street
Collingwood, Ontario L9Y 3Z5
bfrisch@collingwood.ca

Re: 140 Mountain Road, Manorwood Commercial, Town of Collingwood
Addendum No.2 - Functional Servicing Report Fire Flows

Dear Beckett:

We are pleased to provide the following Addendum No. 2 to the Functional Servicing Report (FSR) dated October 17, 2023 for 140 Mountain Road in response to your email dated October 18, 2024 as follows:

Town Comment:

Since the revised comment regarding insufficient fire flows was issued on October 4, 2024, we have had further internal conversations regarding how this will be reviewed. Please see the below revised comment from the Town regarding insufficient fire flows:

The Town acknowledges receipt of the draft water modelling report dated Thursday, June 20, 2024. Upon review of this report, the Town's fire flow standard of 136 L/s for Industrial/Commercial Subdivisions was not attained. Given this, the current proposed works do not meet the Town's development standards for fire flow. However, the Town is allowing the proposed works to proceed subject to the developer and developer's engineer ensuring all requirements set out in the OBC for supplemental fire systems for the proposed works are met and completed. This will be reviewed by the Town's Building Department through the building permit process. Please be advised that should any revisions be required to the stamped site plan approved drawings to accommodate the design of the required fire protection water supply, a Site Plan Amendment, or other Planning Act applications, may be required.

As a supplemental fire system has not been contemplated thus far for the proposed development, Planning Services requests an addendum to the Fourth Submission which includes a supplemental fire system that your client is satisfied would be compliant with the Ontario Building Code (OBC) prior to progressing a staff report to the Director, Planning, Building and Economic Development for consideration. I note the supplemental fire system will not be reviewed for compliance with the OBC by Building Services until such time as a Building Permit application is submitted. However, should the inclusion of a supplemental fire system have implications on the Site Plan drawings or technical reports that have been reviewed to date (e.g. building footprint, parking/landscaping layout to accommodate water storage, SDUs for servicing capacity, etc.), the revisions to the proposed development will need to be further reviewed against the Town's Zoning By-law, Urban Design Manual, and other applicable policies, as necessary. Should the applicant wish to proceed without providing the requested addendum, the applicant would be doing so at their own risk and the development may be subject to additional future Planning Act applications.

With respect to your question re: inclusion in the major development batch for servicing allocation, Planning Services is targeting advancing a staff report to the November 18/December 2 Committee of the Whole/Council cycle. As such, this servicing allocation report will need to be finalized no later than the week of November 4. The proposed development would require conditional site plan approval prior to being considered for servicing allocation.

I'd like to reiterate that should the subject development not comply with the OBC at any time during the building permit process, and revisions to any approved/stamped site plan drawings are required to accommodate a solution, a Site Plan Amendment or other Planning Act application(s) may be required.

Please let me know how your client would like to proceed.

Tatham Response:

Further to our review of the Town's Hydraulic Analysis of 140 Mountain Road Development (DRAFT) Report dated June 20, 2024, and the subsequent correspondence and with the Town's Water and Planning Departments (Appendix A), we note that Section 3.1.1 advises the Town's existing water distribution system can provide a fire flow of 135 L/s, which satisfies the FUS requirement of 133 L/s, but not the Town's fire flow requirement of 136 L/s (1 L/s deficiency).

Thereforer, in order to compensate for the lack of available fire flow, Tatham propose a 7,500 Litre (2,000 gallon) water storage tank (size to be verified during Building Permit Approval process) be installed and connected to the proposed 200 mm diameter water service within the site prior to entering the mechanical / electrical room. The storage tank will act as a backup to meet the Town's fire flow requirements of 136 L/s. Details of the water storage tank can be found on the revised Site Servicing Plan SS-1 dated October 23, 2023, which has been enclosed as part of this submission.

Furthermore, the developer acknowledges the proposed supplemental fire suppression system will not be reviewed for compliance with the OBC by Building Services until such time as a Building Permit Application is submitted and should the inclusion of a supplemental fire system have implications on the Site Plan drawings or technical reports that have been reviewed to date (e.g. building footprint, parking/landscaping layout to accommodate water storage, SDUs for servicing capacity, etc.), the revisions to the proposed development will need to be further reviewed against the Town's Zoning By-law, Urban Design Manual, and other applicable policies, as necessary.

We trust this Addendum No.2 addresses the Town's most recent comments as they relate to fire flows and look forward to the Town's conditional approval followed by servicing allocation in November 2024.

Yours truly,
Tatham Engineering Limited

Kevin Sansom, B.A.Sc., P.Eng.
Senior Engineer
KRS:

copy:	Chirs Millsap	MVP Holdings	chrismillsap@mvpholdings.ca
	Kristine Loft	Loft Planning	kristine@loftplanning.com

O:\Collingwood\2021 Projects\121036 - 140 Mountain Road\Submissions\9. Subsequent Submission for Fire Flow Oct 18 2024\L - Frisch - Interim Phase 1 Water Demands - Response to Email October 4 2024.docx

Appendix A:

Kevin Sansom

From: Beckett Frisch <bfrisch@collingwood.ca>
Sent: Friday, October 18, 2024 3:06 PM
To: Kristine Loft; Kevin Sansom
Cc: Matt Cameron; Sheldon Hancock; Tammy Hogg
Subject: RE: 140 Mountain Road - Fire Flows Addendum

Good afternoon Kristine & Kevin,

Since the revised comment regarding insufficient fire flows was issued on October 4, 2024, we have had further internal conversations regarding how this will be reviewed. Please see the below revised comment from the Town regarding insufficient fire flows:

The Town acknowledges receipt of the draft water modelling report dated Thursday, June 20, 2024. Upon review of this report, the Town's fire flow standard of 136 L/s for Industrial/Commercial Subdivisions was not attained. Given this, the current proposed works do not meet the Town's development standards for fire flow. However, the Town is allowing the proposed works to proceed subject to the developer and developer's engineer ensuring all requirements set out in the OBC for supplemental fire systems for the proposed works are met and completed. This will be reviewed by the Town's Building Department through the building permit process. Please be advised that should any revisions be required to the stamped site plan approved drawings to accommodate the design of the required fire protection water supply, a Site Plan Amendment, or other *Planning Act* applications, may be required.

As a supplemental fire system has not been contemplated thus far for the proposed development, Planning Services requests an addendum to the Fourth Submission which includes a supplemental fire system that your client is satisfied would be compliant with the Ontario Building Code (OBC) prior to progressing a staff report to the Director, Planning, Building and Economic Development for consideration. I note the supplemental fire system will not be reviewed for compliance with the OBC by Building Services until such time as a Building Permit application is submitted. However, should the inclusion of a supplemental fire system have implications on the Site Plan drawings or technical reports that have been reviewed to date (e.g. building footprint, parking/landscaping layout to accommodate water storage, SDUs for servicing capacity, etc.), the revisions to the proposed development will need to be further reviewed against the Town's Zoning By-law, Urban Design Manual, and other applicable policies, as necessary. Should the applicant wish to proceed without providing the requested addendum, the applicant would be doing so at their own risk and the development may be subject to additional future Planning Act applications.

With respect to your question re: inclusion in the major development batch for servicing allocation, Planning Services is targeting advancing a staff report to the November 18/December 2 Committee of the Whole/Council cycle. As such, this servicing allocation report will need to be finalized no later than the week of November 4. The

proposed development would require conditional site plan approval prior to being considered for servicing allocation.

I'd like to reiterate that should the subject development not comply with the OBC at any time during the building permit process, and revisions to any approved/stamped site plan drawings are required to accommodate a solution, a Site Plan Amendment or other *Planning Act* application(s) may be required.

Please let me know how your client would like to proceed.

Best,
Beckett

Beckett Frisch (he/him)
Community Planner
705-445-1030 Ext. 3288
www.collingwood.ca

From: Kristine Loft <kristine@loftplanning.com>
Sent: October 15, 2024 10:41 AM
To: Beckett Frisch <bfrisch@collingwood.ca>
Cc: Matt Cameron <mcameron@collingwood.ca>; Kevin Sansom <ksansom@tathameng.com>
Subject: RE: 140 Mountain Road - Fire Flows Addendum

Beckett,
I just wanted to piggy back on this email string.
Is this file good for moving forward for approvals with the next batch of allocation?

Is there anything you are waiting on from Kevin or I?

Kristine Loft, MCIP RPP

From: Kevin Sansom <ksansom@tathameng.com>
Sent: October 4, 2024 10:37 AM
To: Beckett Frisch <bfrisch@collingwood.ca>
Cc: Kristine Loft <kristine@loftplanning.com>; Matt Cameron <mcameron@collingwood.ca>
Subject: RE: 140 Mountain Road - Fire Flows Addendum

Thanks Beckett. I'll discuss with my client and see how they want to address this and get back to you and Matt.

Matt, I trust I can reach out to you with inquiries to get the water dept. initial reaction to any detailed solutions. Thank you for that in advance.

Have a nice weekend.

Kevin

Kevin Sansom P.Eng.
Senior Engineer

ksansom@tathameng.com **T** 705-444-2565 x2075 **C** 705-443-0801
115 Sandford Fleming Drive, Suite 200, Collingwood, Ontario L9Y 5A6

tathameng.com

From: Beckett Frisch <bfrisch@collingwood.ca>
Sent: Friday, October 4, 2024 8:49 AM
To: Kevin Sansom <ksansom@tathameng.com>
Cc: Kristine Loft <kristine@loftplanning.com>; Matt Cameron <mcameron@collingwood.ca>
Subject: 140 Mountain Road - Fire Flows Addendum

Good morning Kevin,

Thank you for meeting with the Town last week to discuss potential ways forward for the subject application. As there is no active submission for 140 Mountain Road at this time, please accept the below as an addendum to the fourth submission comments.

The Town acknowledges receipt of the draft water modelling report dated Thursday, June 20, 2024. Upon review of this report, the Town's fire flow standard of 136 L/s for Industrial/Commercial Subdivisions was not attained. Given this, the Town is willing to review alternatives from the developer to make up the shortfall of fire flow, with some factor of safety. Please note that private on-site storage ponds are not acceptable for this purpose, as communicated to the developers engineer. Reasons being reliability of water supply (evaporation, freezing and pump obstruction issues). Until a solution is agreed upon, the proposed development will not be given permission to proceed. Developer to submit alternative solutions for the Towns review.

Please let me know if you have any questions regarding the next steps.

Best,
Beckett

Beckett Frisch (he/him)
Community Planner
705-445-1030 Ext. 3288
www.collingwood.ca

Service Collingwood: Some Town services are available 24/7, please visit service.collingwood.ca to learn more.

Stay Connected! Follow us on social media, sign up for our e-newsletters and agendas to stay informed about municipal matters: ////www.collingwood.ca/stay-connected

Service Collingwood: Some Town services are available 24/7, please visit service.collingwood.ca to learn more.

Stay Connected! Follow us on social media, sign up for our e-newsletters and agendas to stay informed about municipal matters: //www.collingwood.ca/stay-connected

Disclaimer: This transmission may contain information that is subject to or exempt from disclosure pursuant to the Municipal Freedom of Information and Protection of Privacy Act and other applicable law. The information contained in and/or attached to this transmission is intended solely for the intended recipient. If you are not the intended recipient, you are hereby notified that any disclosure, photocopying, distribution, or dissemination of the contents, in whole or in part, is unauthorized and prohibited. If you have received this transmission in error, please notify the sender immediately and destroy all copies.

Town of Collingwood

Hydraulic Analysis of the 140 Mountain Road Development (DRAFT)

Collingwood Misc. Water Modeling

Thursday, June 20, 2024

C3W-171235

CIMA+

900-101 Frederick Street
Kitchener, ON N2H 6R2
T 519 772-2299 **F** 519 772-2298
cima.ca

Contact

Sam Ziemann, P.Eng.
samuel.ziemann@cima.ca
M 519 404-4529

Engineering for **people**

Hydraulic Analysis of the 140 Mountain Road Development (DRAFT)

Collingwood Misc. Water Modeling

Project no C3W-171235 | File no 75

Prepared by:

Maria Rincon, EIT

Emma Bliss, P.Eng.

Verified by:

Sam Ziemann, P.Eng.

Table of Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

CIMA Canada Inc. (CIMA+) has been requested to conduct a hydraulic assessment of the 140 Mountain Road development and its impact on the existing distribution system. The proposed development is located in pressure Zone 1 in the Town of Collingwood (Town). The development includes the construction of a proposed multi-unit industrial/commercial building and associated parking areas and on-site amenity areas. It will consist of one multi-unit building potentially containing 36 individual units with a total floor area of 6,475 m^2.

There is an existing 300 mm watermain on Mountain Road. A 200 mm service connection will be connected to the existing 300 mm watermain to service the site. An existing fire hydrant is located near the northwest property corner on Mountain Road and the building will have sprinklers to provide fire protection. Figure 1-1 illustrates the site and a concept plan is available in Appendix A.

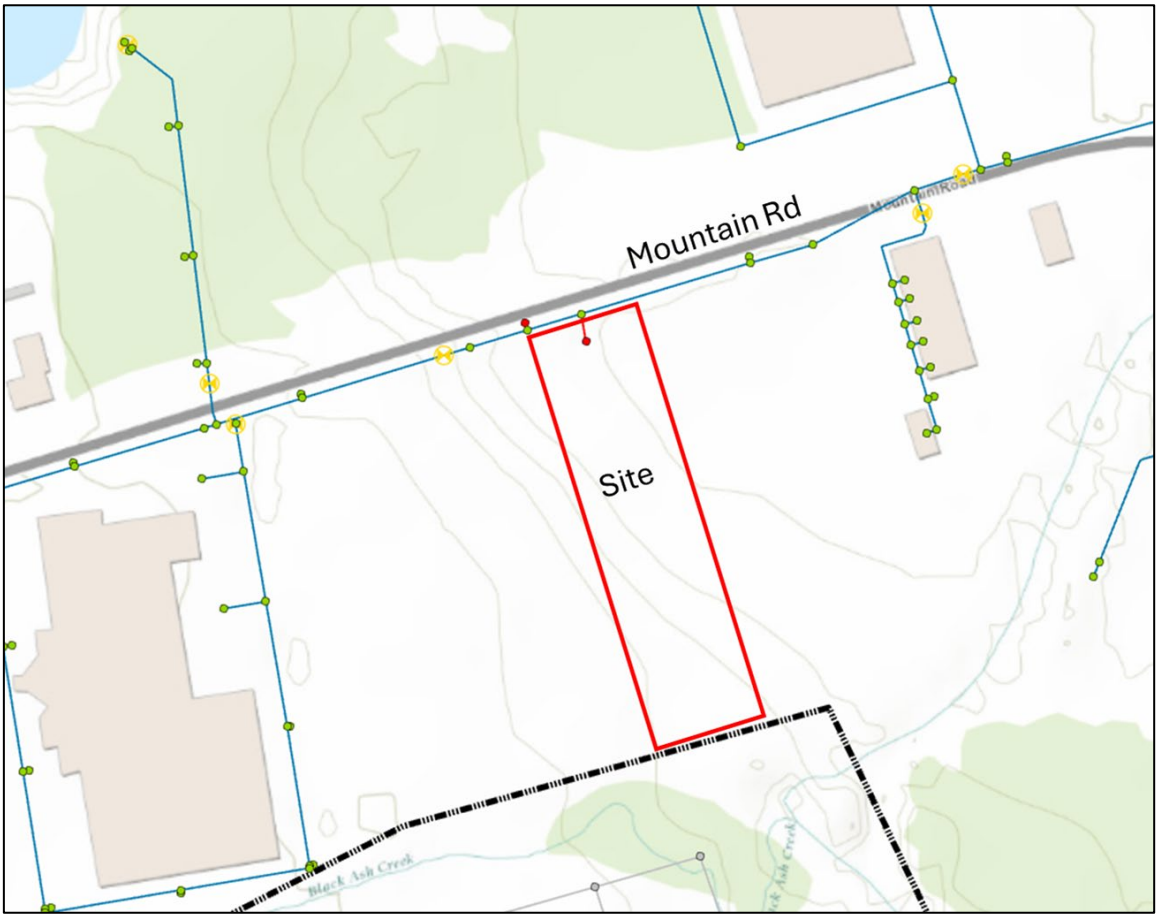


Figure 1-1: Proposed Development Area (Approximate)

The proposed development area was assessed with the Town's InfoWater model using the existing (2020) scenario. In the near future, the Carmichael Pumping Station (PS) is expected to be upgraded with variable frequency drives (VFDs) on the pumps and a new inlet configuration that allows water to be pumped to only the west part of Zone 1 under normal conditions, creating a new Zone 1 West. The proposed development will remain in pressure Zone 1 West once the Carmichael PS upgrades have been completed. The design for this station is currently underway. This upgrade is expected to improve fire flow and pressure conditions, so the existing 2020 scenario was used a baseline, and future scenario modelling was completed to demonstrate changes to fire flow results.

A pressure control valve has also been proposed at the future connection of Tenth Line and Mountain Rd as part of the Panorama development and as identified in the Master Plan. This upgrade would improve fire flow to Zone 1 Mountain Rd under high demand conditions. It was also included in the near future scenario modelling.

1.1 Limitations

This TM is intended to provide servicing results for the proposed development based on the Town's hydraulic water model. This water model was updated and validated by C3 Water Inc. (now CIMA+) in 2021. As with any modelling assignment, limitations related to the state of the model, the software capabilities, and theoretical data inputs should be considered. The model software also has inherent limitations and assumptions related to the calculation engine and inputs.

2 Criteria

2.1 Town Standards

The Town of Collingwood Development Standards (Town Standards) provide design criteria for assessing the impact of proposed developments. The Town Standards recommend that watermains be designed to provide maximum day demands plus fire flows according to the land use type. The Town Standards also outline minimum pressure requirements, as shown in Table 2-1.

Table 2-1: Town of Collingwood Design Standards

Pressure Requirement	Minimum	Maximum
Fire Flow Requirements		
Single-Family Residential	57 L/s	76 L/s
Institutional / Convenience / Commercial / Multi-Unit Residential	91 L/s	114 L/s
Industrial/Commercial Subdivisions	136 L/s	154 L/s
Downtown Commercial	136 L/s	189 L/s
Pressure Requirements		
Maximum Day Demands + Fire Flows	20 psi	
Standard Operating Conditions	40 psi (Peak Hour)	50 - 80 psi

2.2 Domestic Demand

Demands were provided by Tatham Engineering and are available in the FSR. The population density was determined from the Amendment to Town of Development Standards, which specifies a demand rate (light industrial) of 35 m^3/ha/day. The detailed preliminary demand calculation can be found in Appendix B. The maximum day demand (MDD) and Peak Hour Demand (PHD) were calculated using peaking factors of 2 and 2.7, respectively, as per Town Standards (August 2022). The ADD, MDD and PHD for the development are summarized in Table 2-2, and Figure 2-1 illustrates the node locations in the development in which the demands were assigned.

Table 2-2: Estimated Domestic Demands for the Proposed Development (SLA)

Development	Demand (L/s)		
	ADD	MDD	PHD
140 Mountain Rd	0.82	1.64	2.21

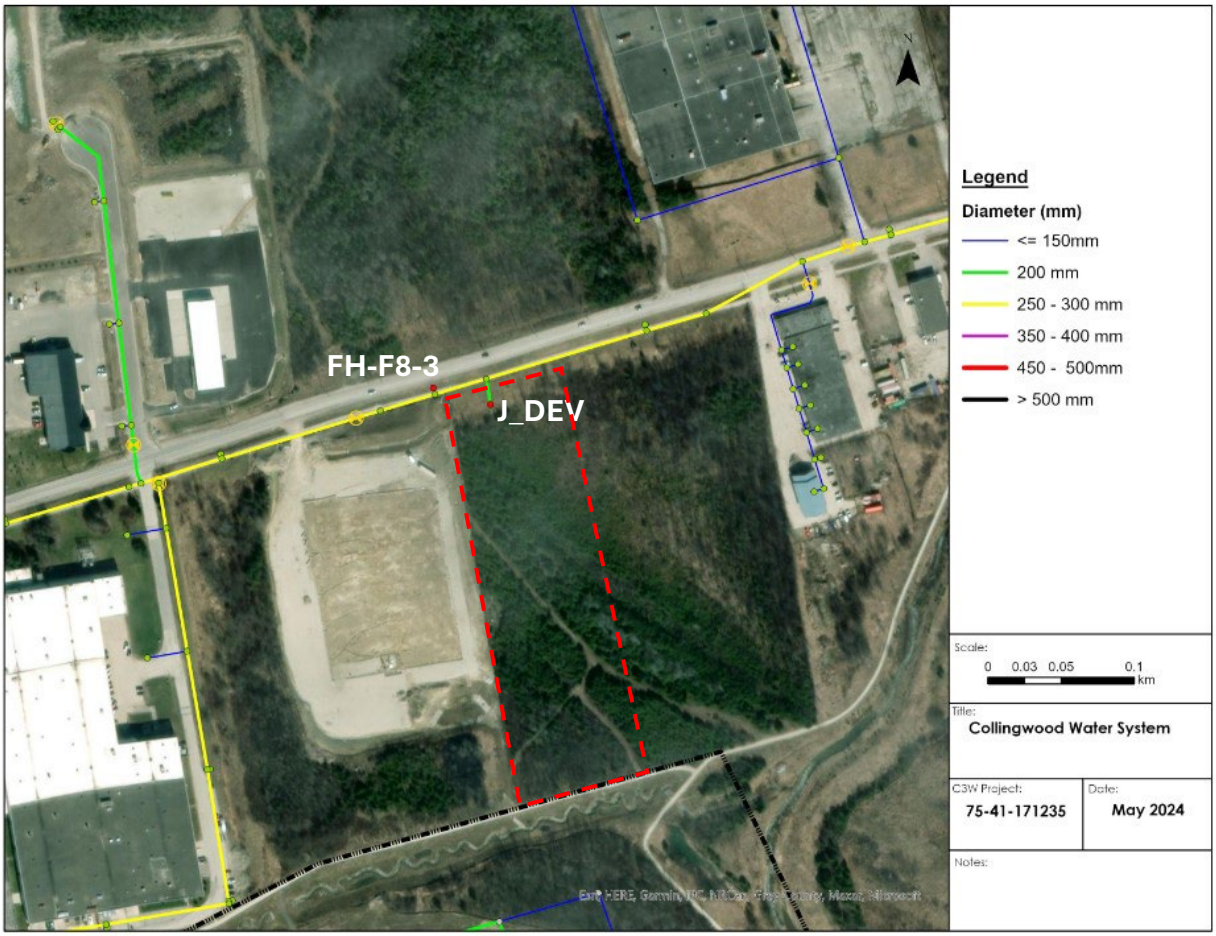


Figure 2-1: Demand Nodes in the Development

2.3 Fire Flow Demand

The fire flow requirement for the proposed development was determined by Tatham Engineering to be the maximum between the Town of Collingwood design standards (136 L/s for an industrial/commercial subdivision) and the Fire Underwriters Survey (FUS) (133 L/s) both under MDD conditions. The hydraulic water model demand calculations were completed in the FSR and are provided in Appendix B.

3 Analysis

3.1 Available Fire Flow

3.1.1 Pre-Development

Modelling was conducted to determine the available fire flows at a residual pressure of 20 psi at 12:00 PM under MDD conditions. The fire flows were modelled to last for 2 hours. The fire flow simulation was run under existing (2020) conditions with up to two pumps operating at Carmichael PS under existing conditions.

Under near future conditions the Carmichael PS has been upgraded. Up to 2 VFDs were set to run consistently, and one fire pump was turned on for the fire event. During a fire event, if pressures on the Zone 1 side of Carmichael PS drop, a control valve in the PS will open and allow water from Carmichael to flow into Zone 1.

The fire flow results predicted by the model are representative of the amount of water available in a watermain and not the extent of flows available from a hydrant. Several hydrants may need to be operated to provide desired fire flows but may not be equivalent to model results.

The theoretical flow was tested in the proposed development area based on site plan drawings shown above. The model was used to determine the available fire flow at the existing hydrant and connection node under pre-development conditions. With two pumps on at Carmichael PS, fire hydrant FH-F8-3 satisfied the FUS fire flow requirements of 133 L/s, but not the city's fire flow requirement of 136 L/s. Table 3-1 summarizes the available fire flows at the development connection.

Table 3-1: Available Fire Flow (L/s) Under Pre-Development

Node	Existing All Pumps Off	Existing 1 Pump On	Existing 2 Pumps On
FH-F8-3	67	105	135
J_DEV	68	107	141

3.1.2 Post Development

The model was used to determine the available fire flow at the existing hydrant and connection point under 2020 MDD conditions with the proposed development demands. With two pumps on, fire hydrant FH-F8-3 satisfied the FUS fire flow requirements of 133 L/s, but not the city's fire flow requirement of 136 L/s. With the upgrades to Carmichael and the potential zone boundary valve at Tenth and Mountain Rd, the fire

flow increased to 153 L/s, meeting the Town's guidelines. Table 3-2 summarizes the available fire flow at the connection and fire hydrant.

Table 3-2: Available Fire Flow (L/s) Under Post Development

Node	Existing All Pumps Off	Existing 1 Pump On	Existing 2 Pumps On	Near Future 3 Pumps On
FH-F8-3	65	103	134	153
J_DEV	68	107	141	166

3.2 System Pressures

Pressure results are summarized in Table 3 3 and Table 3 4 under pre-development and post development conditions, respectively, with all pumps off at Carmichael PS. Under each of the scenarios, the pressures ranged between 44 – 70 psi which are within the City's allowable operating pressure range of 50 – 80 psi, and minimum 40 psi at Peak Hour. The pressure results in the model are representative of pressures available in the watermain. The developer is responsible for determining if adequate pressure is available in multi-storey buildings.

Table 3-3: Pressure Results (psi) Pre-Development

Node	ADD			MDD		
	Max	Min	Avg	Max	Min	Avg
FH-F8-3	63	54	57	58	44	51
J_DEV	70	61	64	65	51	57

Table 3-4: Pressure Results (psi) Post Development

Node	ADD			MDD		
	Max	Min	Avg	Max	Min	Avg
FH-F8-3	63	54	56	57	43	50
J_DEV	70	61	63	64	50	57

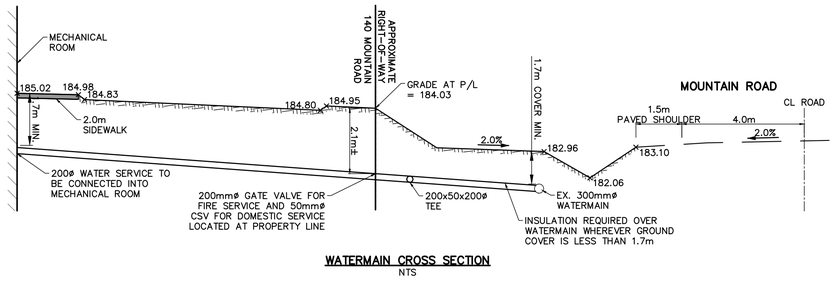
4 Conclusions

The hydraulic assessment of the proposed 140 Mountain Road development demonstrated the following:

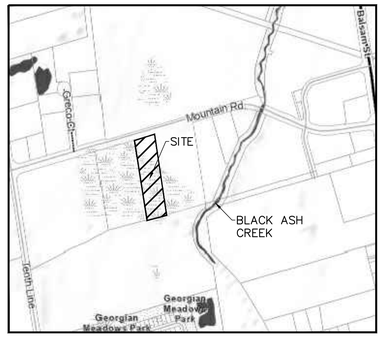
1) With two pumps on, fire hydrant FH-F8-3 satisfied the FUS fire flow requirements of 133 L/s under existing conditions, but not the Town's fire flow standard of 136 L/s. However, with the upgrades to Carmichael PS and the potential zone boundary valve at Tenth Line and Mountain Rd, the fire flow increased to 153 L/s, meeting the Town's guidelines under near future conditions.
2) The service pressures under existing conditions and ultimate build-out (currently 2020) conditions are expected to range between 44 – 70 psi, which are within the City's allowable operating pressure range of 50 – 80 psi, and minimum 40 psi at Peak Hour.

A

Appendix A: Site Plan

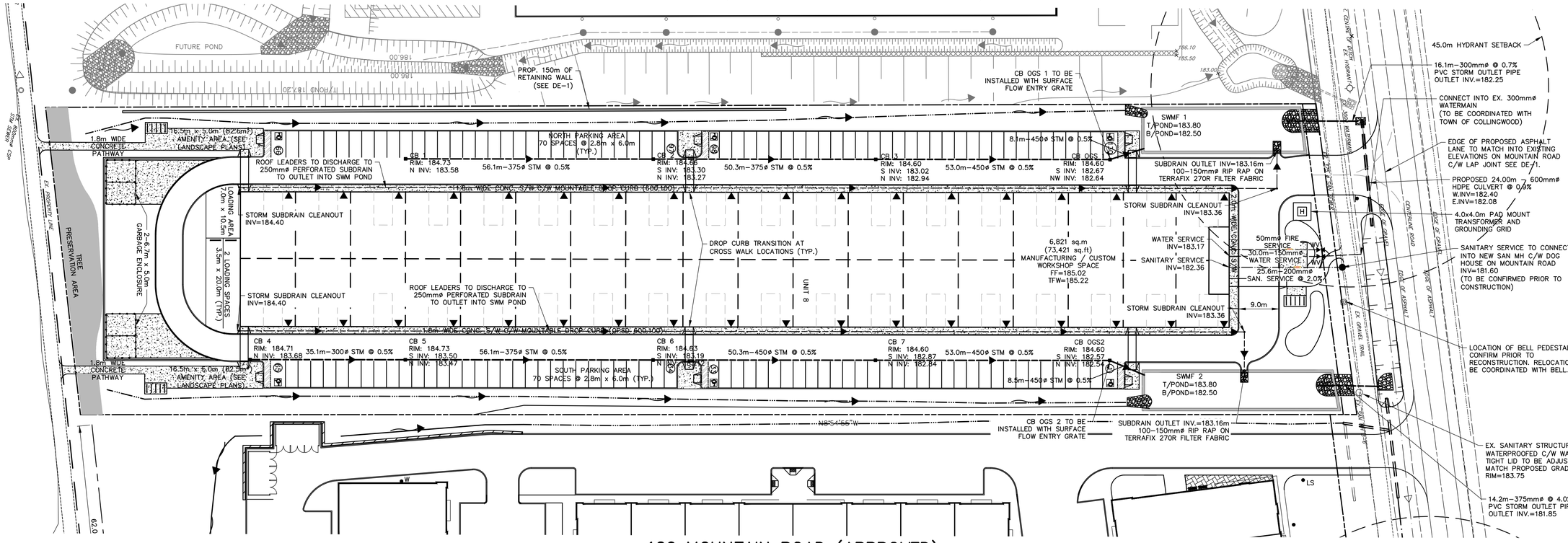


WATERMAIN CROSS SECTION
NTS



KEY PLAN

180 MOUNTAIN ROAD (CONSTRUCTION IN PROGRESS)



120 MOUNTAIN ROAD (APPROVED)

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD
PER _____
DATE: _____

DISCLAIMER AND COPYRIGHT

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

BENCHMARKS

TBM2 – ELEVATION 189.765
NAIL & WASHER ON NORTH FACE OF HYDRO POLE LOCATED ON NORTH SIDE OF MOUNTAIN ROAD JUST WEST OF EXISTING ACCESS TO SITE.

NOTES

LEGAL INFORMATION SHOWN FROM REGISTERED PLAN 51R–41847 BY ZUBEK, EMO, PATTEN & THOMSEN LIMITED, DATED NOVEMBER 16, 2018 AND SIGNED BY PAUL R. THOMSEN.

No.	REVISION DESCRIPTION	DATE
1.	FIRST SUBMISSION	DEC 20/22
2.	SECOND SUBMISSION	AUG 2023
3.	THIRD SUBMISSION	JAN 26/24
4.	FOURTH SUBMISSION	APR 4/24

ENGINEER STAMP

LICENSED PROFESSIONAL ENGINEER K. R. SANSOM Apr 4/24 PROVINCE OF ONTARIO

140 MOUNTAIN ROAD
TOWN OF COLLINGWOOD

TATHAM ENGINEERING

SITE SERVICING PLAN

DESIGN: MR/KRL	FILE: 121036	DWG: SS-1
DRAWN: MR/KRL	DATE: JUN 2022	
CHECK: KRS	SCALE: 1:500	

Drawing Name: 121036 – SS01.dwg, Plotted: Apr 09, 2024

B

Appendix B: Demand and Fire Flow Calculations

TATHAM ENGINEERING

Project:	140 Mountain Road	Date:	November 2, 2022
File No.:	121036	Designed:	MR
Subject:	Fire Flow Demand Calculations	Checked	KRS
Revisions:			

Calculation Based on 2020 Publication "Water Supply for Public Fire Protection" by Fire Underwriters Survey (FUS).

Step	Description	Term	Options		Multiplier Associated with Option	Choose	Value used	Unit	Total Fire Flow (L/min)	
1	Frame Use for Construction of Unit	**Framing Material**								
		Coefficient related to type of construction (C)	Wood Frame		1.5	Non-combustible construction	**0.8**	-	N/A	
			Ordinary Construction		1					
			Non-combustible construction		0.8					
			Fire resistive construction (< 2 hrs)		0.7					
			Fire resistive construction (> 2 hrs)		0.6					
2	Type of Housing (if Townhouse, enter number of units per TH block)	**Floor Space Area**								
		Type of Housing	Single Family		1		**0**	Units	N/A	
			Townhouse / Apartment- inform # of units		1		**0**			
			Other (Comm. Ind., etc.)		1		**1**			
			2 hour Fire Separation Between Units		1	No	**0**			
2.1	Number of Storeys	Number of Floors / Storeys in the unit (do not include basement)					**1**	Storeys	N/A	
3	Floor Area (exclude basements, per unit for townhouses, per single family dwelling or per building for apartments, commercial or institutional)	Ground Floor Area (assume fire stop separation is being provided per unit)					**0**	Square Metres (m2)	N/A	
		Total Floor Area - One Storey of Townhouse/Apartment Block					**0**			
		Total Floor Area - All Storeys					**6821**			
		Does the building have fire-resistive design?				No	**6821**			
		Are vertical openings/communications properly protected (1 hour rating)?				No	**6821**			
		Total Floor Area (A) - for all storeys excluding basement - Single Family					**6821**			
		Measurement Unis	Square Feet (ft^2)		0.093		**6821**	m^2		
			Square Metres (m^2)		1					
			Hectares (ha)		10000					
4	Required Fire Flow without Reductions or Increases	Required Fire Flows without Reductions or Increases per FUS): (FF= 220 x C x $A^{0.5}$)						L/min	15,000	
5	Factors Affecting Burning	**Reductions / Increases Due to Factors Affecting Burning**								
5.1	Combustibility of Building Contents	Occupancy content hazard reduction or surcharge	Non-combustible		-0.25	Non-combustible	-0.25	N/A	(3,750)	11,250
			Limited combustible		-0.15					
			Combustible		0.00					
			Free burning		0.15					
			Rapid burning		0.25					
5.2	Reduction Due to Presence of Sprinklers	Sprinkler reduction	Fully supervised system		-0.5	Automatic sprinkler protection	-0.3	N/A	(3,375)	7,875
			Water supply system/hose connections		-0.4					
			Automatic sprinkler protection		-0.3					
			None		0					
5.3	Separation Distance Between Units (Use 10% for 2 hour Fire Separation between adjacent units)	Exposure distance between units	North Side	30.1 to 45.0 m	0.00		0	%	-	7,875
			East Side	30.1 to 45.0 m	0.00					
			South Side	Greater than 45.0 m	0.00					
			West Side	30.1 to 45.0 m	0.00					
		Total Required Fire Flow, rounded to nearest 1000 L/min, with max/min limits applied:							8,000	
6	Required Fire Flow, Duration and Volume	Total Required Fire Flow (above) in L/s:							133	
		Required Duration of Fire Flow of 8,000 L/min (hrs):							2	
		Required volume for Fire Flow of 8,000 L/min (m^3):							960	

TATHAM ENGINEERING

PROJECT	140 Mountain Road	FILE	121036
		DATE	July 5, 2023
SUBJECT	Water Demand Calculations	NAME	K. Latter
		PAGE	1 OF 1

Demand Rate - Light Industrial 35.0 m^3/ha/day (Gross ha site area)

Average Day Demand (ADD)

= Site Area x Demand Rate
= 2.02 ha x 35.0 m^3/ha/day
= 70.7 m^3/day
= 70700 L/day
= 0.82 L/s

Peak Factors

Maximum Day = 2 (as per Town Standards, Aug 2022)
Peak Hour = 2.70 (as per Town Standards, Aug 2022)

Fire Flow (Calculated by FUS) = 133 L/s
Fire Flow (Min as per Town Standards) = 136 L/s (Minimum per Town Development Standards)

Maximum Day Demand (MDD)

= ADD x Maximum Day Peak Factor
= 0.82 x 2.00
= 1.64 -/s*

Peak Hour Demand (PHD)

= ADD x Peak Hour Peak Factor
= 0.82 x 2.7
= 2.21 L/s

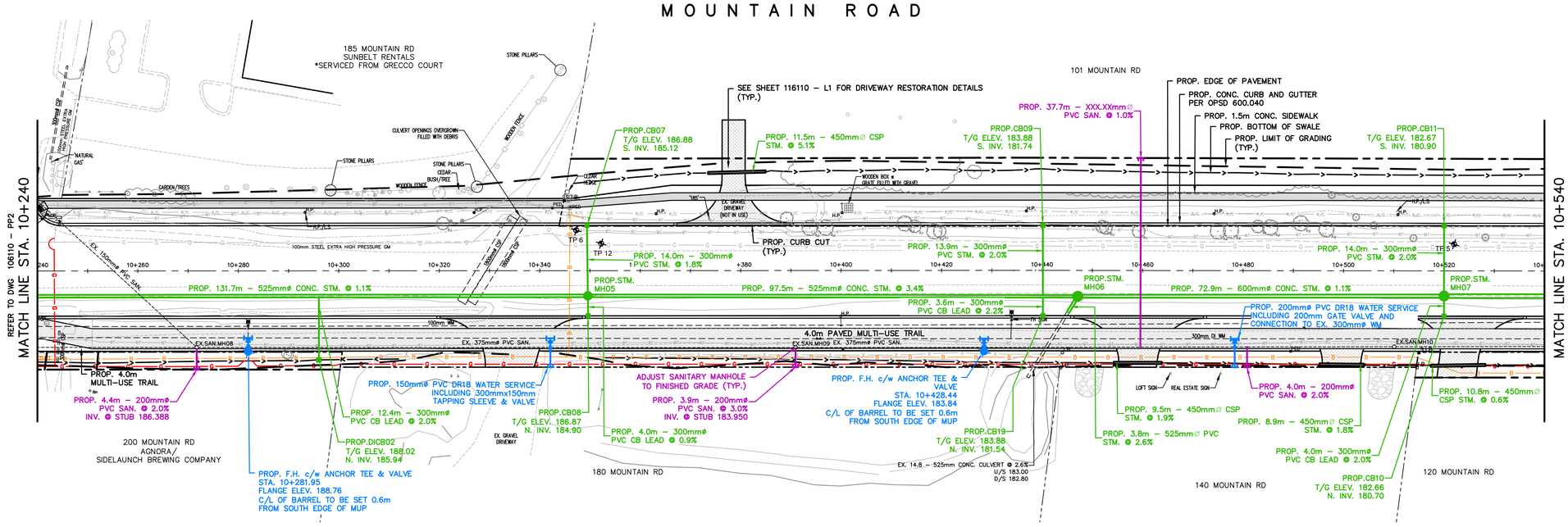
MDD + Fire Demand

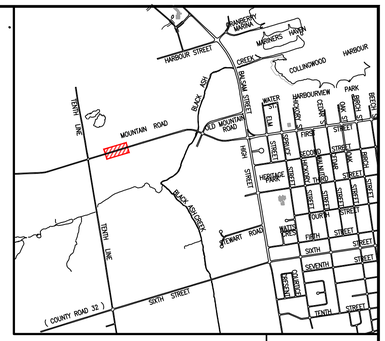
= MDD + Fire Flow
= 1.64 + 133.0
= 134.64 L/s

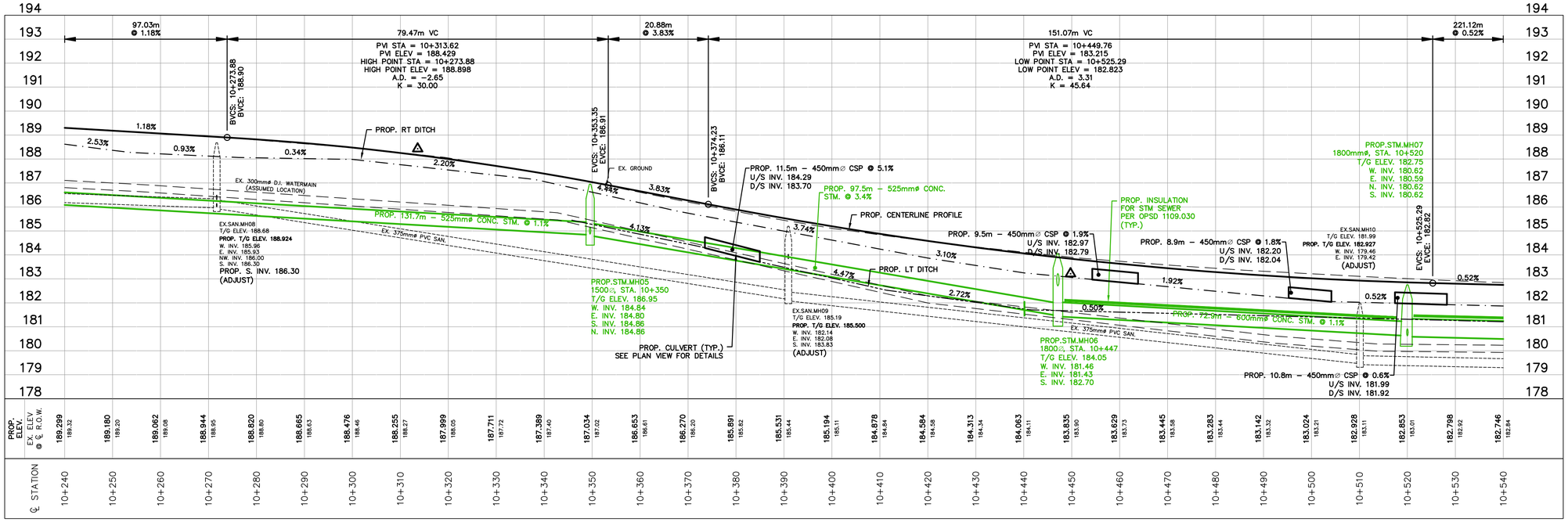
Engineering
for **people**

Appendix B:
Mountain Road Reconstruction Plan & Profile Dwg PP-3 and PP-4

MOUNTAIN ROAD







PLOT 1=1

NOT FOR CONSTRUCTION

NOTES

CONTRACT DRAWINGS:
Contractor must verify all dimensions and be responsible for same. Any discrepancies must be reported to the Engineer before commencing work. Drawings are not to be scaled. Drawings may not be used for any purpose other than that stipulated in the contract agreement between the owner/client and the Engineer without the express written consent of Ainley & Associates Limited. Use of these drawings by any party for any other purpose is subject to the following caution.

CAUTION: The information contained in this drawing is solely for the intended recipient. Any copying, distribution or use by others without the express written consent of Ainley & Associates Limited is prohibited. The recipient is responsible for confirming the accuracy and completeness of the information with the originator. The recipient assumes all risks and liabilities associated with the use of the drawings. The recipient will save and hold harmless Ainley & Associates Limited from any claims whatsoever associated with or related to the use of the drawings. The recipient will not reuse any portion of the drawings for any future project without the express written permission of Ainley & Associates Limited.

NO.	REVISIONS	DATE	INITIAL
P2	90% DESIGN SUBMISSION	NOV. 2023	TMK
P1	60% DESIGN SUBMISSION	NOV. 2019	PW

Not Valid Unless Signed And Dated

PRELIMINARY

SCALE:	H= 1:500 V= 1:100
DESIGN:	TFH
DRAWN:	MR
CHECKED:	TMK
DATE:	AUG. 2020

TOWN OF COLLINGWOOD
MOUNTAIN ROAD RECONSTRUCTION

PLAN & PROFILE
MOUNTAIN ROAD
STA. 10+240 TO STA. 10+540

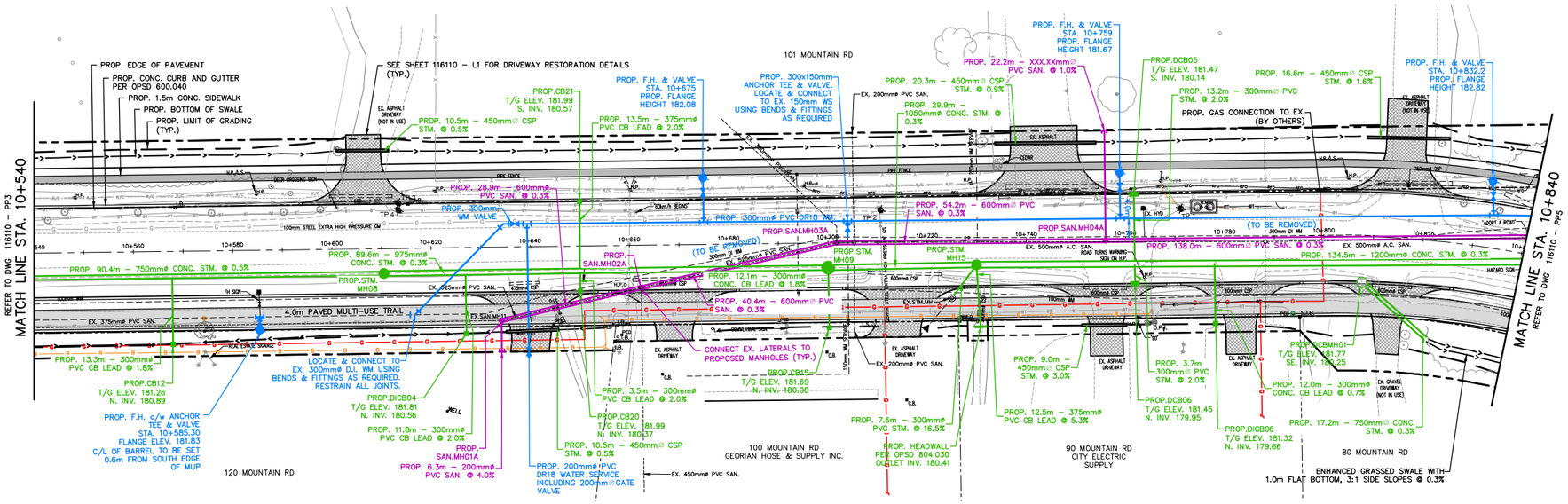
Ainley GROUP CONSULTING ENGINEERS PLANNERS

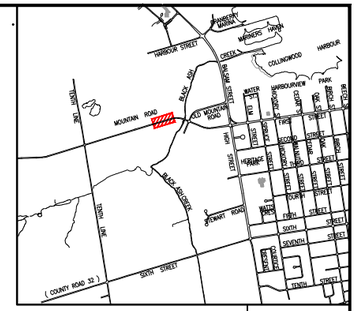
CONTRACT No.

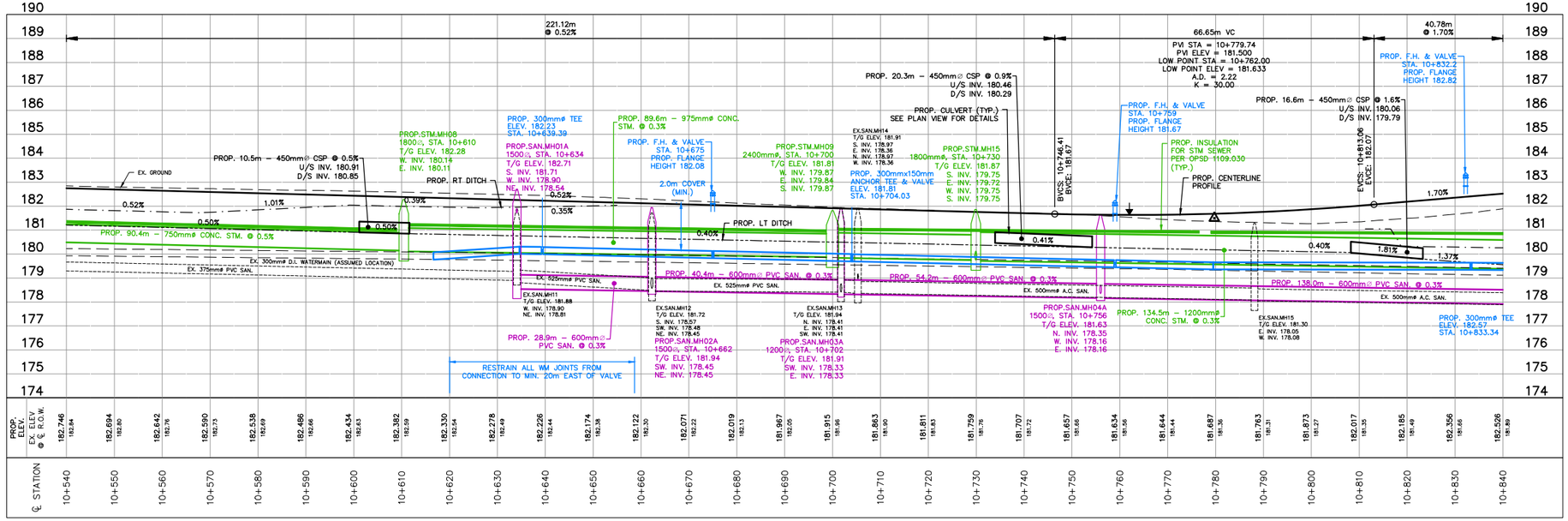
DWG. No. 116110–PP3

Plotted by: MROSEWELL on November 17, 2023 at 9:49am
File: \\og-barrie\ns1\Drafting\Collingwood\116110\DWG\116110 – Plan and Profile.dwg Layout: PP3

MOUNTAIN ROAD







PLOT 1=1

NOT FOR CONSTRUCTION

NOTES

Plotted by: MROSEWELL on November 17, 2023 at 9:49am
File: \\cg-barrie\ns1\Drafting\Collingwood\116110\DWG\116110 - Plan and Profile.dwg Layout: PP4

NO.	REVISIONS	DATE	INITIAL
P2	90% DESIGN SUBMISSION	NOV. 2023	TMK
P1	60% DESIGN SUBMISSION	NOV. 2019	PW

Not Valid Unless Signed And Dated

PRELIMINARY

SCALE:	H= 1:500 V= 1:100
DESIGN:	TFH
DRAWN:	MR
CHECKED:	TMK
DATE:	AUG. 2020

TOWN OF COLLINGWOOD
MOUNTAIN ROAD RECONSTRUCTION

PLAN & PROFILE
MOUNTAIN ROAD
STA. 10+540 TO STA. 10+840

Ainley CONSULTING ENGINEERS PLANNERS

CONTRACT No. | DWG. No. 116110-PP4

Appendix C:
Detailed Sewage Design Flow Calculations

TATHAM ENGINEERING

PROJECT	140 Mountain Road	FILE	121036
		DATE	**April 23 2024**
SUBJECT	**Phase 1** Sewage Design Flow Calculations	NAME	K.Sansom
		PAGE	1 OF 1

Demand Rate - Light Industrial = 28.0 m^3/ha/day (**Phase 1** Gross ha site area = 1.01 ha)
= 0.32 L/ha/s

Infiltration Flow (I) = Infiltration Flow x Drainage Area
= 0.23 L/s/ha x **1.01** ha 0.23 L/s/ha Town Standard
= 0.23 L/s

Average Day Flow (ADF) = Site Area x Demand Rate + I
= **1.01** ha x 0.32 L/ha/s + 0.23 L/s
= 0.33 L/s + 0.23 L/s
= 0.56 L/s

Equivalent Population (P) = ADF - I / Avg Flow per Capita
= 0.56 L/s / 0.00301 L/cap/s 260 L/cap/d as per
= 186 cap Town Standards
August 2022 Update

Harmon Peaking Factor (PF) = $1 + \frac{14}{4 + (P/1000)^{0.5}}$
= 4.16

Maximum Day Flow (MDF) = (ADF - I) x PF + I
= 0.33 x 4.16 + 0.23
= 1.59 L/s

TATHAM ENGINEERING

PROJECT	140 Mountain Road	FILE	121036
		DATE	November 22, 2022
SUBJECT	**Phase 1 & 2** Sewage Design Flow Calculations	NAME	M. Ray
		PAGE	1 OF 1

Demand Rate - Light Industrial = 28.0 m^3/ha/day (Gross ha site area)
= 0.32 L/ha/s

Infiltration Flow (I) = Infiltration Flow x Drainage Area
= 0.23 L/s/ha x 2.02 ha 0.23 L/s/ha Town Standard
= 0.46 L/s

Average Day Flow (ADF) = Site Area x Demand Rate + I
= 2.02 ha x 0.32 L/ha/s + 0.46 L/s
= 0.65 L/s + 0.46 L/s
= 1.12 L/s

Equivalent Population (P) = ADF - I / Avg Flow per Capita
= 1.12 L/s / 0.00301 L/cap/s 260 L/cap/d as per Town Standards August 2022 Update
= 372 cap

Harmon Peaking Factor (PF) = $1 + \frac{14}{4 + (P/1000)^{0.5}}$
= 4.04

Maximum Day Flow (MDF) = (ADF - I) x PF + I
= 0.65 x 4.04 + 0.46
= 3.11 L/s

Appendix D:
Detailed Water Demand Calculations

TATHAM ENGINEERING	Project: 140 Mountain Road	Date:	November 2, 2022
	File No.: 121036	Designed:	MR
	Subject: Fire Flow Demand Calculations	Checked	KRS
	Revisions: Addendum No. 3 December 2025		

Calculation Based on 2020 Publication "Water Supply for Public Fire Protection" by Fire Underwriters Survey (FUS).

Step	Description	Term	Options		Multiplier Associated with Option	Choose	Value used	Unit	Total Fire Flow (L/min)	
1	Frame Use for Construction of Unit	**Framing Material**								
		Coefficient related to type of construction (C)	Wood Frame		1.5	Non-combustible construction	**0.8**	-	N/A	
			Ordinary Construction		1					
			Non-combustible construction		0.8					
			Fire resistive construction (< 2 hrs)		0.7					
			Fire resistive construction (> 2 hrs)		0.6					
2	Type of Housing (if Townhouse, enter number of units per TH block)	**Floor Space Area**								
		Type of Housing	Single Family		1		**0**	Units	N/A	
			Townhouse / Apartment- inform # of units		1		**0**			
			Other (Comm. Ind., etc.)		1		**1**			
			2 hour Fire Separation Between Units		1	No	**0**			
2.1	Number of Storeys	Number of Floors / Storeys in the unit (do not include basement)					**1**	Storeys	N/A	
3	Floor Area (exclude basements, per unit for townhouses, per single family dwelling or per building for apartments, commercial or institutional)	Ground Floor Area (assume fire stop separation is being provided per unit)					**0**	Square Metres (m2)	N/A	
		Total Floor Area - One Storey of Townhouse/Apartment Block					**0**			
		Total Floor Area - All Storeys					**5702**			
		Does the building have fire-resistive design?				No	**5702**			
		Are vertical openings/communications properly protected (1 hour rating)?				No	**5702**			
		Total Floor Area (A) - for all storeys excluding basement - Single Family					**5702**			
		Measurement Unis	Square Feet (ft^2)		0.093		**5702**	m^2		
			Square Metres (m^2)		1					
			Hectares (ha)		10000					
4	Required Fire Flow without Reductions or Increases	Required Fire Flows without Reductions or Increases per FUS): (FF= 220 x C x $A^{0.5}$)						L/min	13,000	
5	Factors Affecting Burning	**Reductions / Increases Due to Factors Affecting Burning**								
5.1	Combustibility of Building Contents	Occupancy content hazard reduction or surcharge	Non-combustible		-0.25	Non-combustible	-0.25	N/A	(3,250)	9,750
			Limited combustible		-0.15					
			Combustible		0.00					
			Free burning		0.15					
			Rapid burning		0.25					
5.2	Reduction Due to Presence of Sprinklers	Sprinkler reduction	Fully supervised system		-0.5	Automatic sprinkler protection	-0.3	N/A	(2,925)	6,825
			Water supply system/hose connections		-0.4					
			Automatic sprinkler protection		-0.3					
			None		0					
5.3	Separation Distance Between Units (Use 10% for 2 hour Fire Separation between adjacent units)	Exposure distance between units	North Side	30.1 to 45.0 m		0.00	0	%	-	6,825
			East Side	30.1 to 45.0 m		0.00				
			South Side	Greater than 45.0 m		0.00				
			West Side	30.1 to 45.0 m		0.00				
						Total Required Fire Flow, rounded to nearest 1000 L/min, with max/min limits applied:				7,000
6	Required Fire Flow, Duration and Volume					Total Required Fire Flow (above) in L/s:				117
						Required Duration of Fire Flow of 7,000 L/min (hrs):				2
						Required volume for Fire Flow of 7,000 L/min (m^3):				840

TATHAM ENGINEERING

PROJECT	140 Mountain Road	FILE	121036
		DATE	**April 22, 2024**
SUBJECT	**Phase 1** Water Demand Calculations	NAME	K. Latter
		PAGE	1 OF 1

Demand Rate - Light Industrial 35.0 m^3/ha/day (Gross ha site area)

Average Day Demand (ADD)
= Site Area x Demand Rate
= **1.01** ha x 35.0 m^3/ha/day
= 35.35 m^3/day
= 35350 L/day
= 0.41 L/s

Peak Factors
Maximum Day = 2 (as per Town Standards, Aug 2022)
Peak Hour = 2.70 (as per Town Standards, Aug 2022)

Fire Flow (Calculated by FUS) = 83 L/s
Fire Flow (Min as per Town Standards) = 136 L/s (Minimum per Town Development Standards)

Maximum Day Demand (MDD)
= ADD x Maximum Day Peak Factor
= 0.41 x 2.00
= 0.82 L/s*

Peak Hour Demand (PHD)
= ADD x Peak Hour Peak Factor
= 0.41 x 2.7
= 1.10 L/s

MDD + Fire Demand
= MDD + Fire Flow
= 0.82 + 83.0
= 83.82 L/s

TATHAM ENGINEERING

PROJECT	140 Mountain Road	FILE	121036
		DATE	July 5, 2023
SUBJECT	**Phase 1 & 2** Water Demand Calculations	NAME	K. Latter
		PAGE	1 OF 1

Demand Rate - Light Industrial 35.0 m^3/ha/day (Gross ha site area)

Average Day Demand (ADD)
= Site Area x Demand Rate
= 2.02 ha x 35.0 m^3/ha/day
= 70.7 m^3/day
= 70700 L/day
= 0.82 L/s

Peak Factors
Maximum Day = 2 (as per Town Standards, Aug 2022)
Peak Hour = 2.70 (as per Town Standards, Aug 2022)

Fire Flow (Calculated by FUS) = 117 L/s
Fire Flow (Min as per Town Standards) = 136 L/s (Minimum per Town Development Standards)

Maximum Day Demand (MDD)
= ADD x Maximum Day Peak Factor
= 0.82 x 2.00
= 1.64 L/s*

Peak Hour Demand (PHD)
= ADD x Peak Hour Peak Factor
= 0.82 x 2.7
= 2.21 L/s

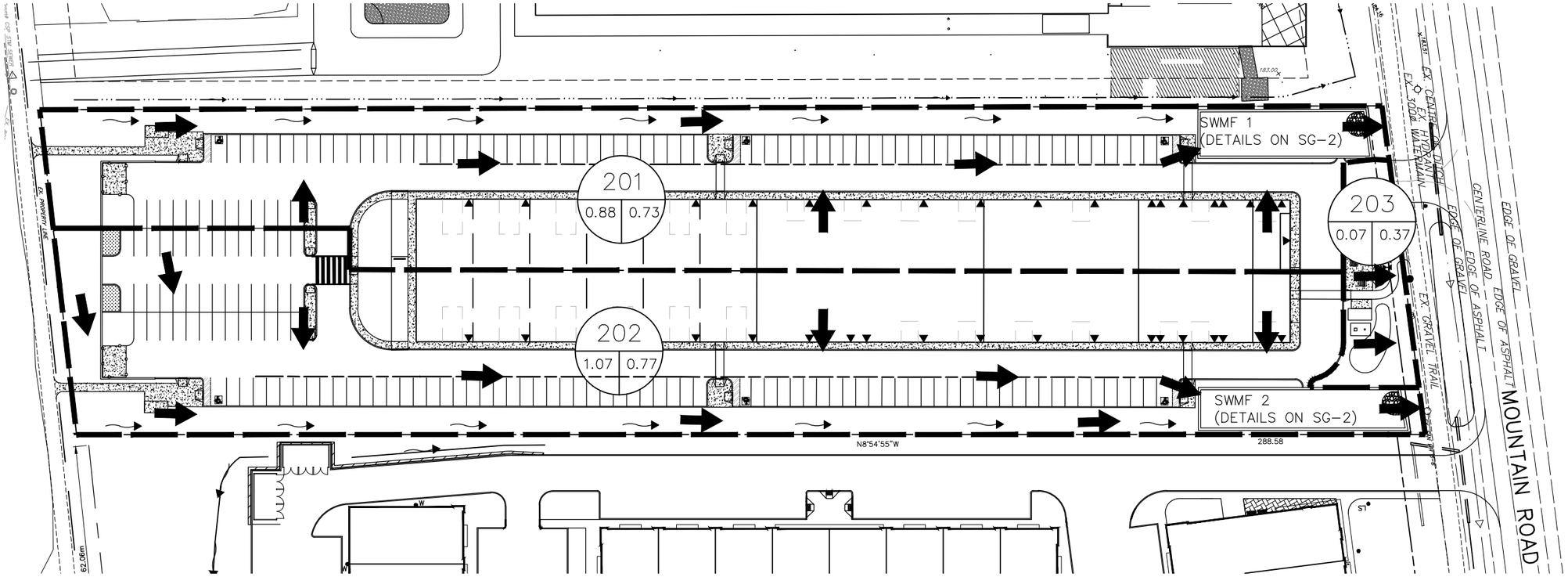
MDD + Fire Demand
= MDD + Fire Flow
= 1.64 + 117.0
= 118.64 L/s

Appendix E:
Stormwater Management Plans

LEGEND

- CATCHMENT ID — 201
- AREA IN HECTARES — 2.02
- RUNOFF COEFFICIENT — 0.67
- DRAINAGE BOUNDARY
- PROPOSED OVERLAND FLOW DIRECTION
- PROPOSED SWALE
- EXISTING OVERLAND FLOW DIRECTION
- EXISTING DITCH
- PROPOSED SUBDRAIN

180 MOUNTAIN ROAD (CONSTRUCTION IN PROGRESS)



120 MOUNTAIN ROAD (APPROVAL PENDING)

TATHAM ENGINEERING

140 MOUNTAIN ROAD
PROPOSED CONDITIONS DRAINAGE PLAN

DWG. No. **DP-2A**

SCALE: 1:1000	DRAWN: KRL	DATE: DEC 2025	JOB NO. 121036

LEGEND

CATCHMENT ID — 201

AREA IN HECTARES — 2.02

RUNOFF COEFFICIENT — 0.67

DRAINAGE BOUNDARY

PROPOSED OVERLAND FLOW DIRECTION

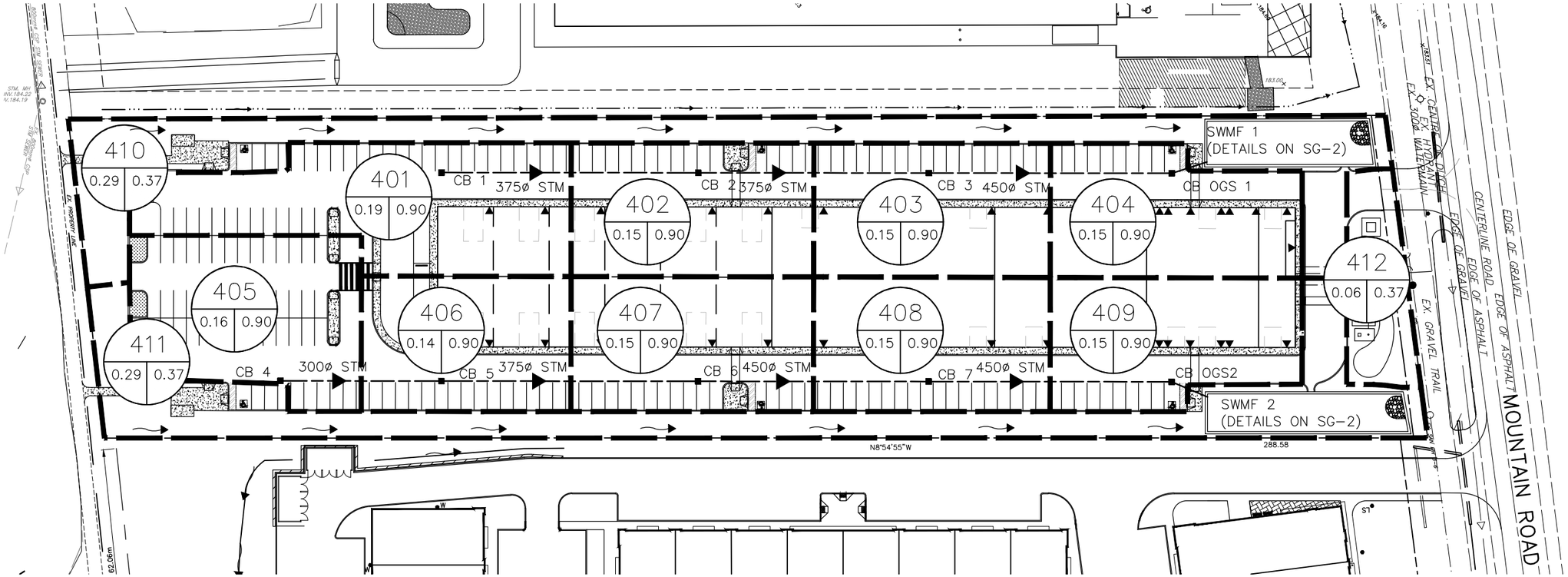
PROPOSED SWALE

EXISTING OVERLAND FLOW DIRECTION

EXISTING DITCH

PROPOSED SUBDRAIN

180 MOUNTAIN ROAD (CONSTRUCTION IN PROGRESS)



120 MOUNTAIN ROAD (APPROVED)

TATHAM ENGINEERING

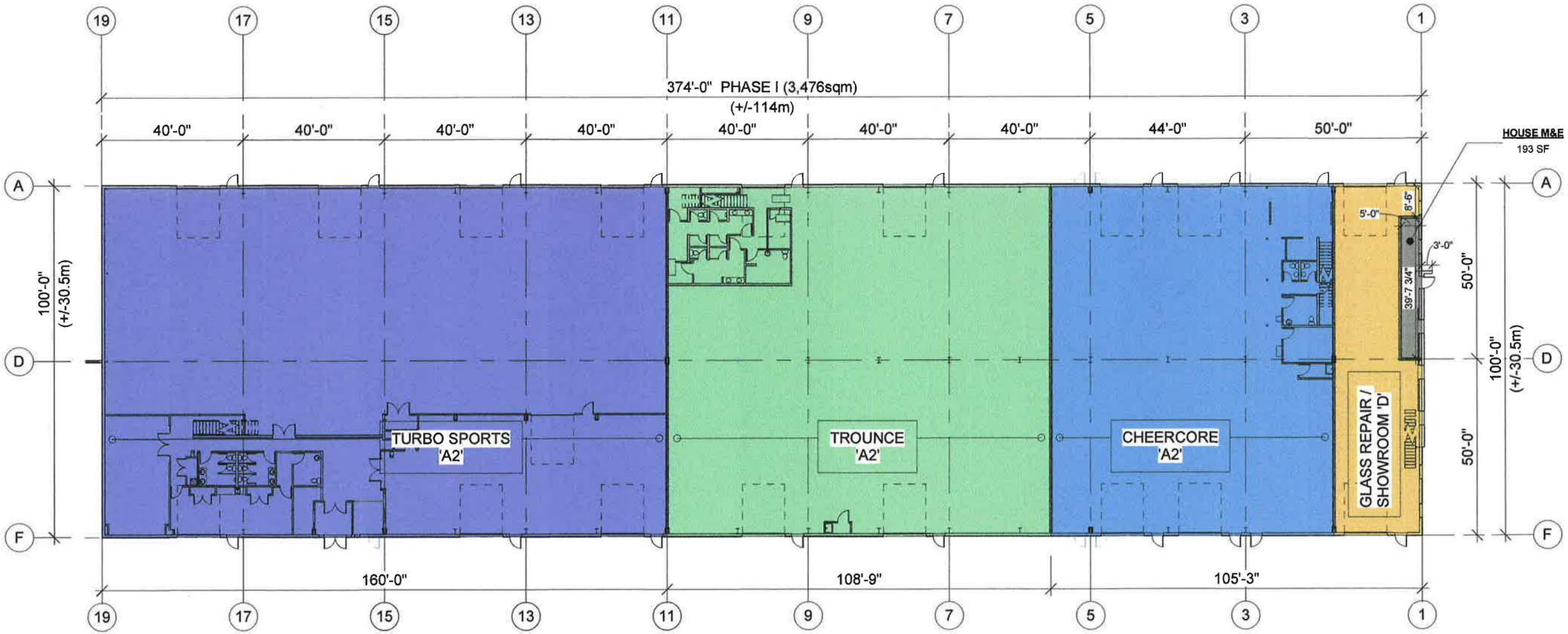
140 MOUNTAIN ROAD
PHASE 2 STORM SEWER DRAINAGE PLAN

DWG. No. **STM-1A**

SCALE: 1:1000	DRAWN: MR	DATE: 2022/12/19	JOB NO. 121036

Appendix F:
Phase 1 Tenant Layout Drawings

PROPOSED MULTI-UNIT COMPLEX
(RECREATIONAL / COMM./ RETAIL / INDUST. / INSTIT.)



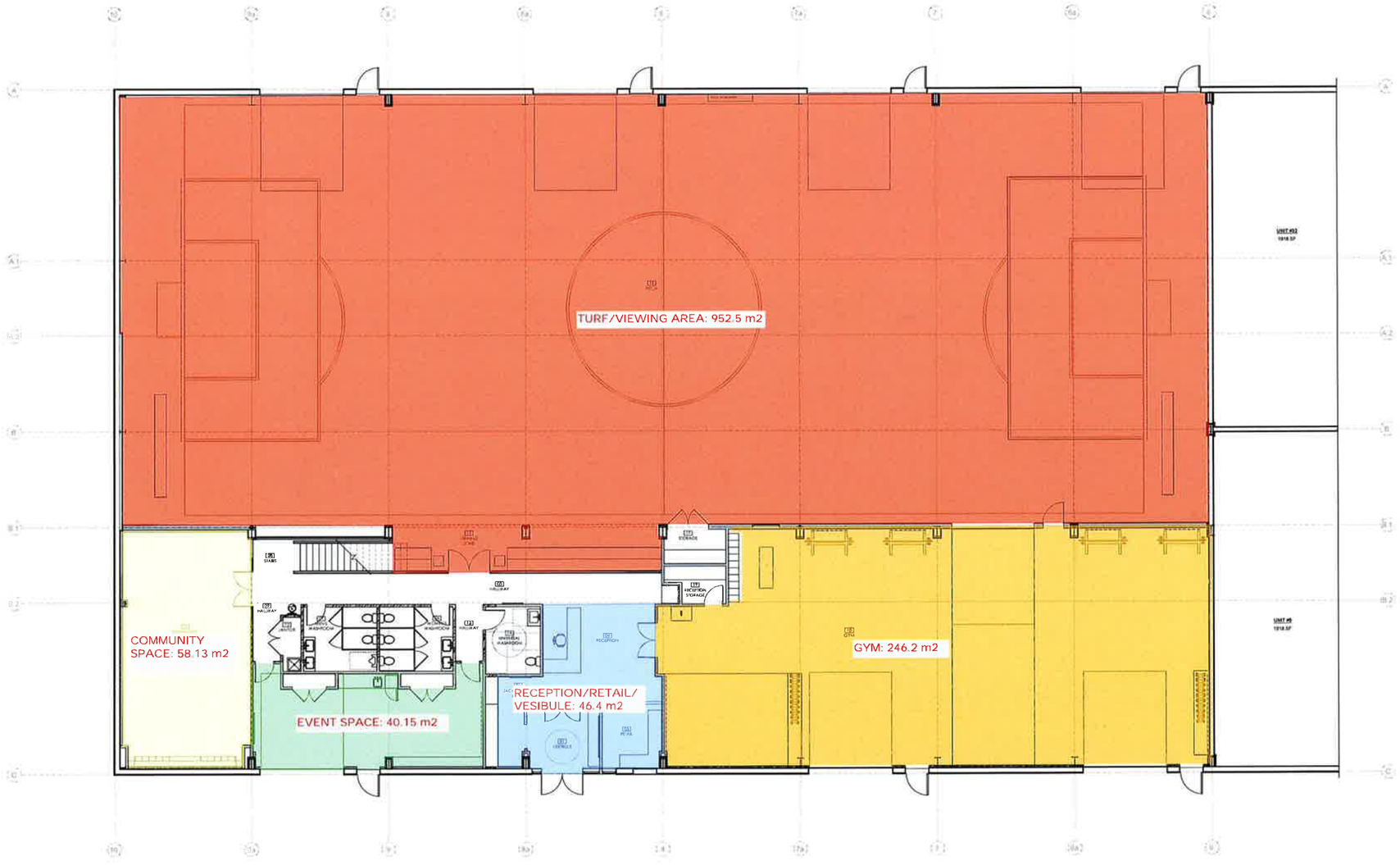
OVERALL GROUND FLOOR PLAN

1/32" = 1'-0"

PARTITION LEGEND

- ROOM TAG
- ROOM AREA
- DIMENSION LINE
- TEXT CALLOUT
- DOOR TAG
- EQUIPMENT TAG
- PLUMBING FIXTURE TAG
- MILLWORK TAG
- CENTERLINE
- BLOCKING LOCATION
- AREA NOT IN SCOPE
- ELEVATION SYMBOL
- PLAN DETAIL CALLOUT

TURBO



03	KW	PRICING PACKAGE 251027
02	BF	ISSUANCE 251008

INTERIORS BY AG

AG DESIGNS

CONSTRUCTION

TURBO SPORTS & PERFORMANCE CENTRE

MOUNTAIN ROAD
COLLINGWOOD, ON.
UNITS #6-9 & 28-31

Drawn By: KW

Job No: 00

Date: OCT. 22, 2025

Scale: 1/8" = 1'

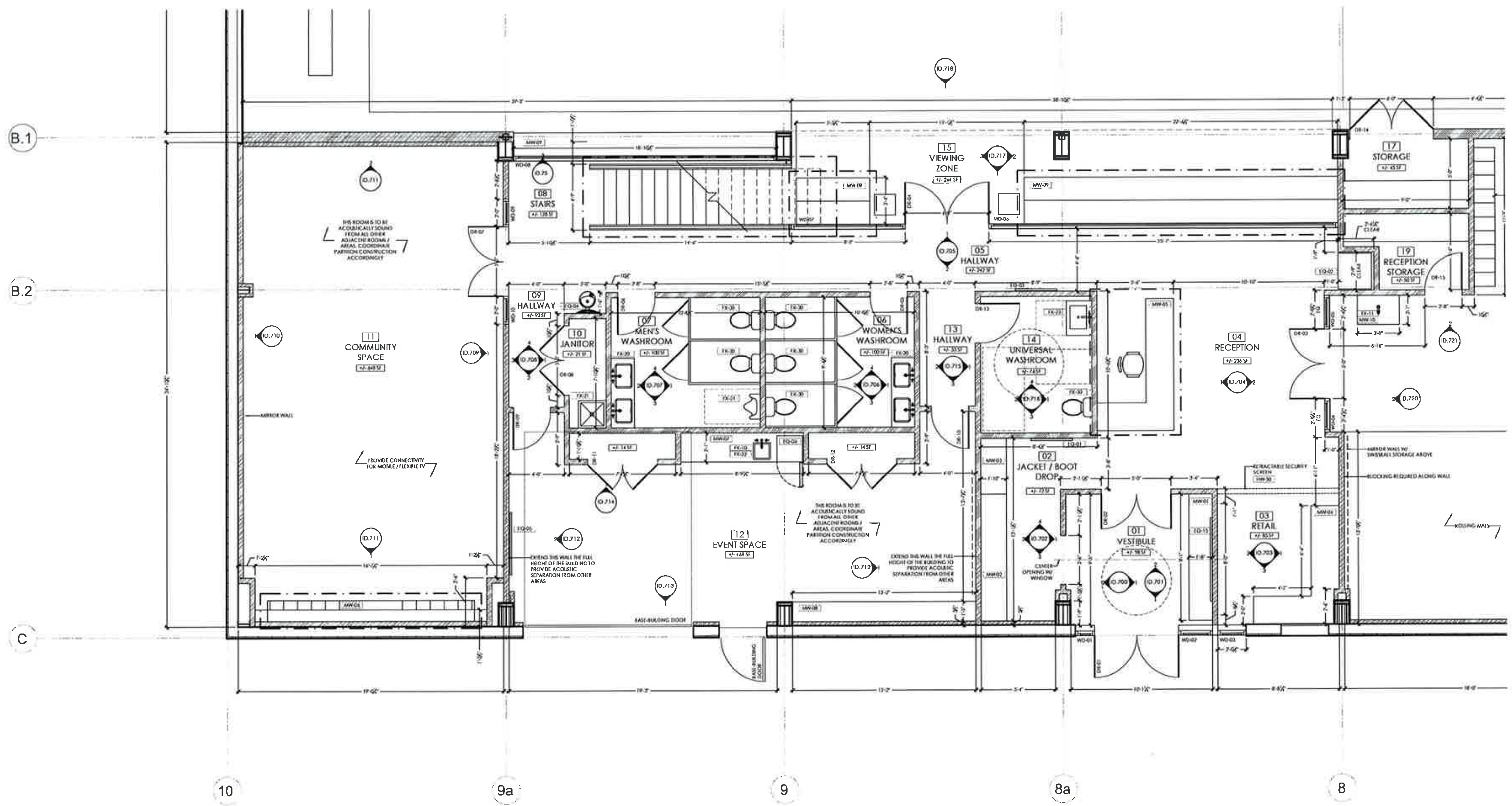
AREA PLAN - MAIN FLOOR

ID-01

PARTITION LEGEND

- 01 ENTRY — ROOM TAG
- ROOM AREA
- DIMENSION LINE
- TEXT CALLOUT
- DOOR TAG
- EQUIPMENT TAG
- PLUMBING FIXTURE TAG
- MILLWORK TAG
- CENTERLINE
- BLOCKING LOCATION
- AREA NOT IN SCOPE
- ELEVATION SYMBOL
- PLAN DETAIL CALLOUT

TURBO



INTERIORS BY AG

AG DESIGNS

CONSTRUCTION

TURBO SPORTS & PERFORMANCE CENTRE

MOUNTAIN ROAD
COLLINGWOOD, ON.
UNITS #6-9 & 28-31

KW

00

OCT. 22, 2025

1/4" = 1'

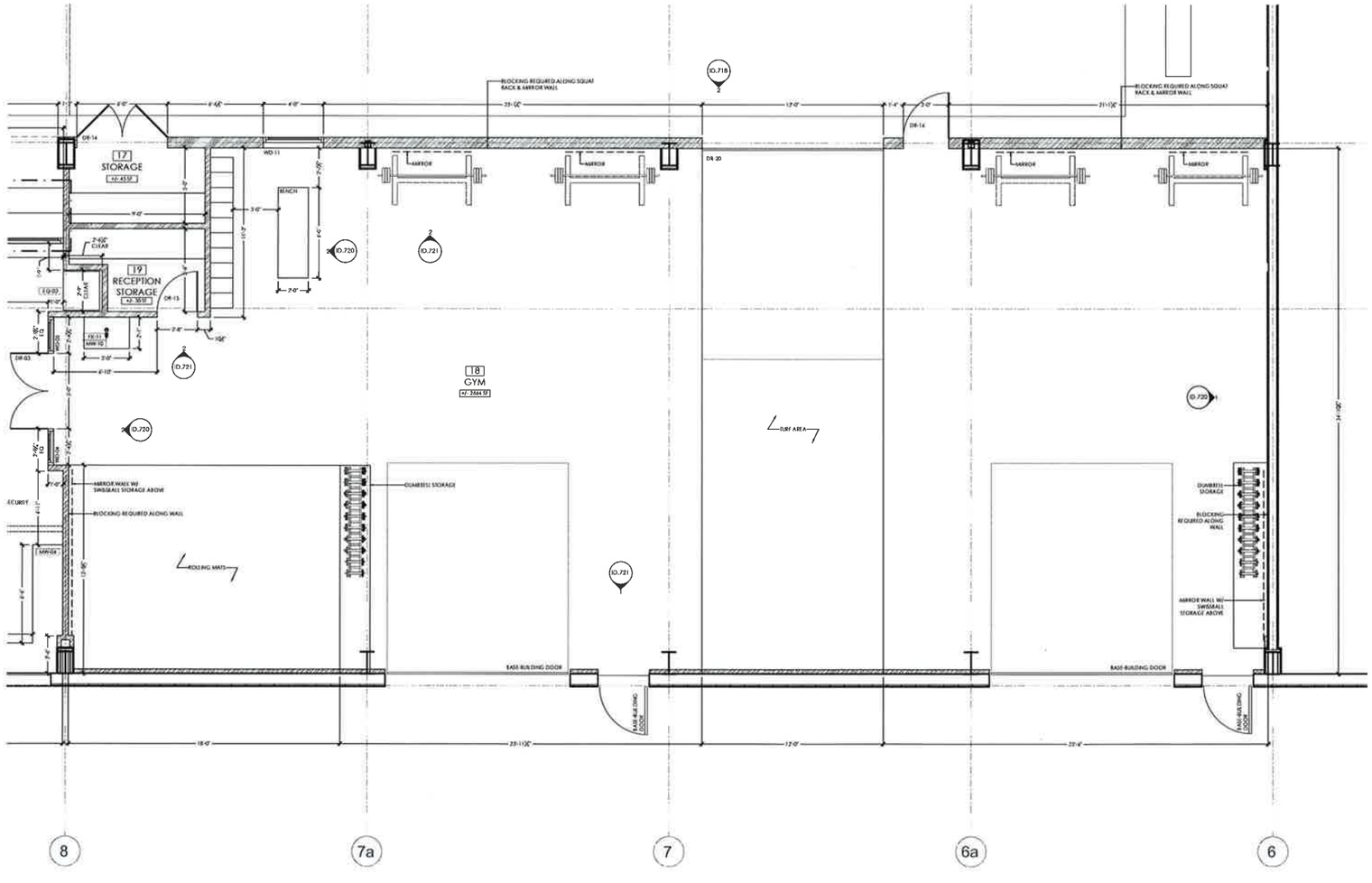
PARTITION PLAN - MAIN FLOOR, COMMON AREAS

ID- 20

PARTITION LEGEND

- 01 ENTRY — ROOM TAG
- 100 SQ FT — ROOM AREA
- DIMENSION LINE
- TEXT CALLOUT
- DR XX — DOOR TAG
- EQUIP — EQUIPMENT TAG
- PLUMBING FIXTURE TAG
- MILLWORK TAG
- CENTERLINE
- BLOCKING LOCATION
- AREA NOT IN SCOPE
- ELEVATION SYMBOL
- PLAN DETAIL CALLOUT

TURBO



01	KW	PRICING PACKAGE 251022
00	KW	ISSUANCE 251008

INTERIORS BY AG

AG DESIGNS

STATUS: CONSTRUCTION

TURBO SPORTS & PERFORMANCE CENTRE

MOUNTAIN ROAD
COLLINGWOOD, ON.
UNITS #6-9 & 28-31

DRAWN: KW

CHK'D:

REV: 00

DATE: OCT. 22, 2025

SCALE: 1/4" = 1'

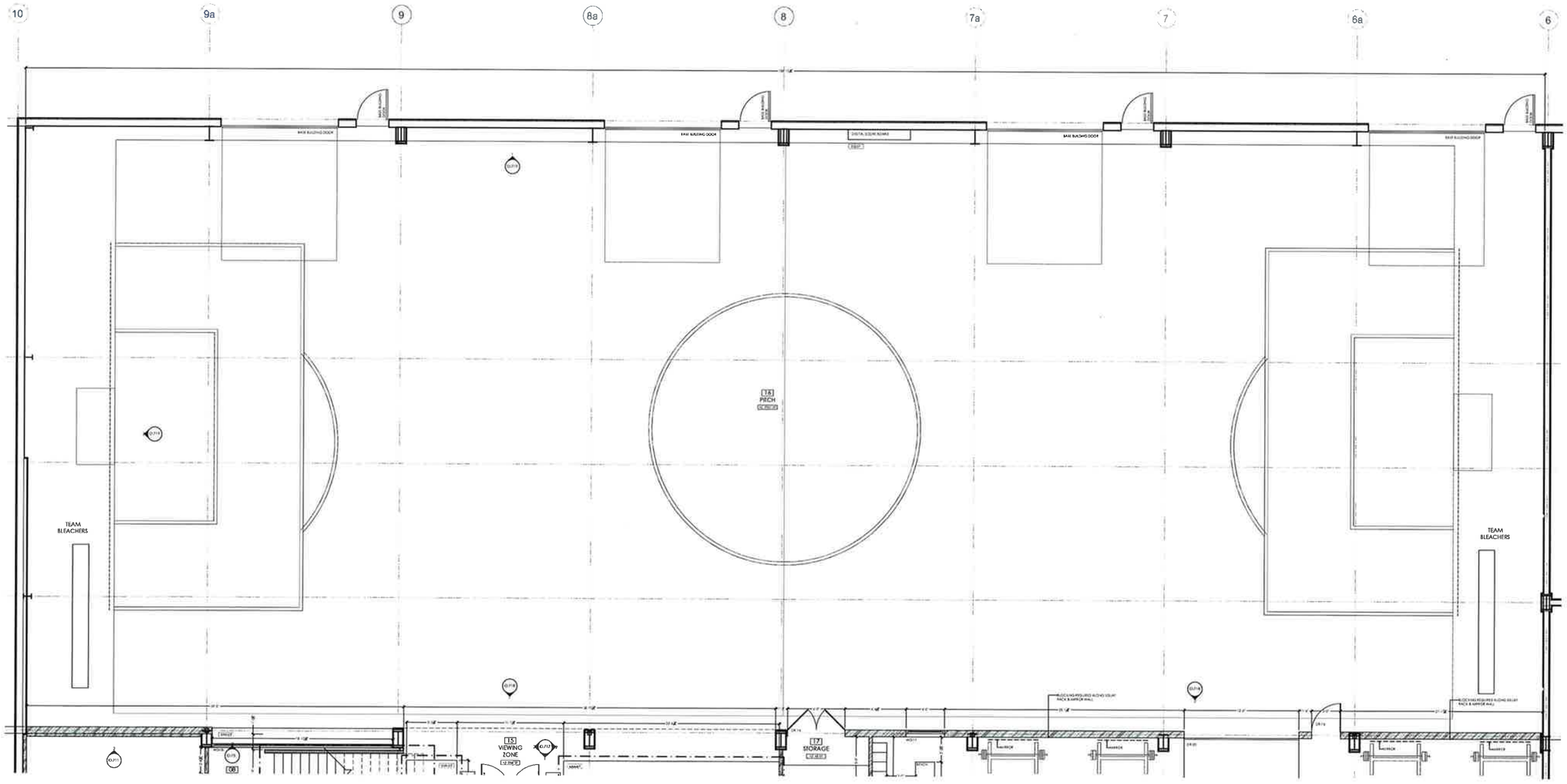
PARTITION PLAN - MAIN FLOOR: GYM

ID-21

PARTITION LEGEND

- 01 ENTRY — ROOM TAG
- ROOM AREA
- DIMENSION LINE
- TEXT CALLOUT
- DOOR TAG
- EQUIPMENT TAG
- PLUMBING FIXTURE TAG
- MILLWORK TAG
- CENTERLINE
- BLOCKING LOCATION
- AREA NOT IN SCOPE
- ELEVATION SYMBOL
- PLAN DETAIL CALLOUT

TURBO



01	KW	PRICING PACKAGE 251022
00	BT	ISSUANCE 251MMDD

INTERIORS BY AG

AG DESIGNS

CONSTRUCTION

TURBO SPORTS & PERFORMANCE CENTRE

MOUNTAIN ROAD
COLLINGWOOD, ON.
UNITS #6-9 & 29-31

DRAWN BY	KW
CHECKED BY	
ISSUE	00
DATE	OCT. 22, 2025
SCALE	3/16" = 1'

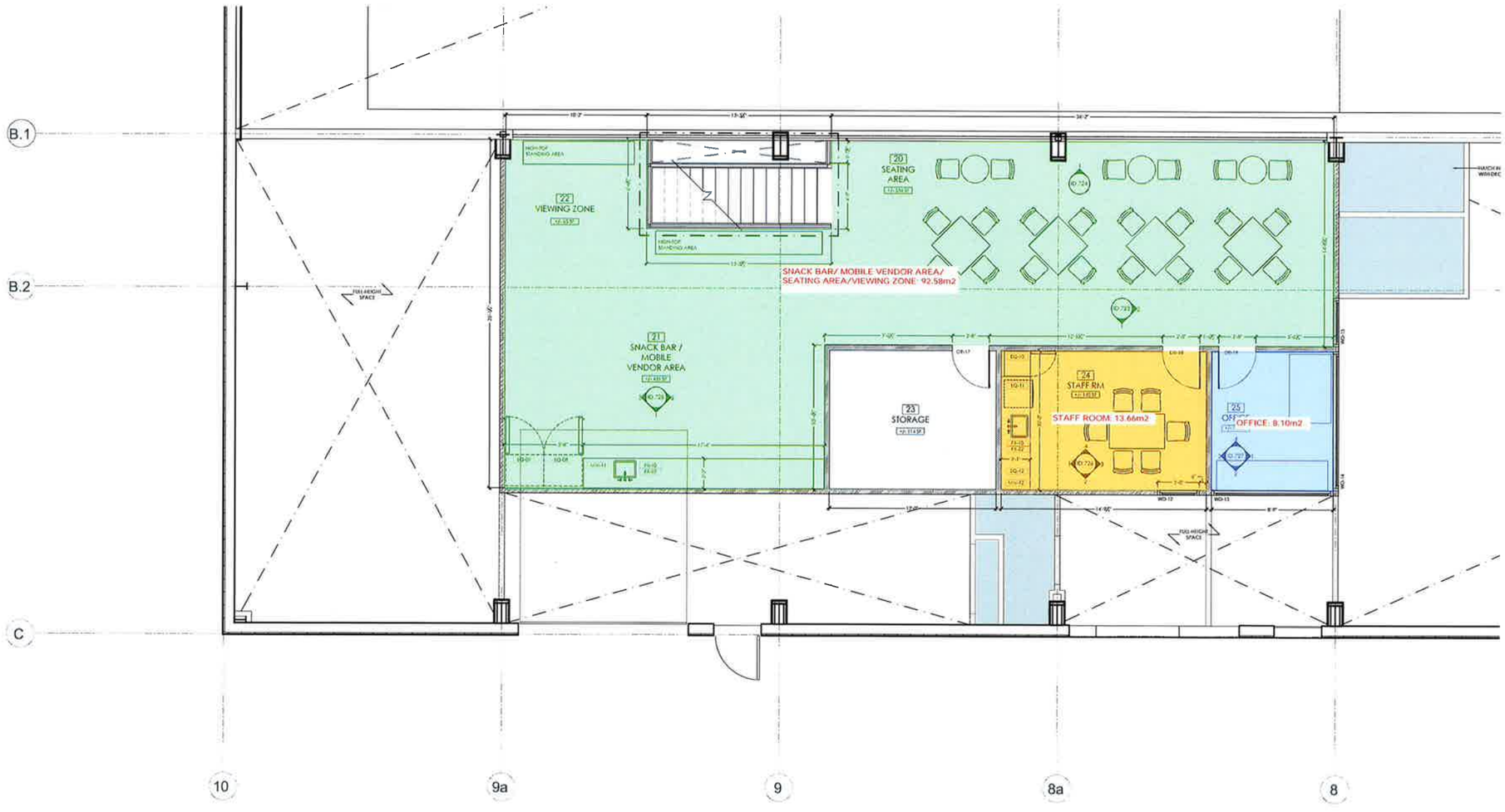
PARTITION PLAN - MAIN FLOOR, PITCH

ID-22

PARTITION LEGEND

- 01 ENTRY — ROOM TAG
- ROOM AREA
- DIMENSION LINE
- TEXT CALLOUT
- DOOR TAG
- EQUIPMENT TAG
- PLUMBING FIXTURE TAG
- MILLWORK TAG
- CENTERLINE
- BLOCKING LOCATION
- AREA NOT IN SCOPE
- ELEVATION SYMBOL
- PLAN DETAIL CALLOUT

TURBO



01	KW	PRICING PACKAGE
00	KW	ISSUANCE

INTERIORS BY AG

AG DESIGNS

CONSTRUCTION

TURBO SPORTS & PERFORMANCE CENTRE

MOUNTAIN ROAD
COLLINGWOOD, ON.
UNITS #6-9 & 28-31

KW

00

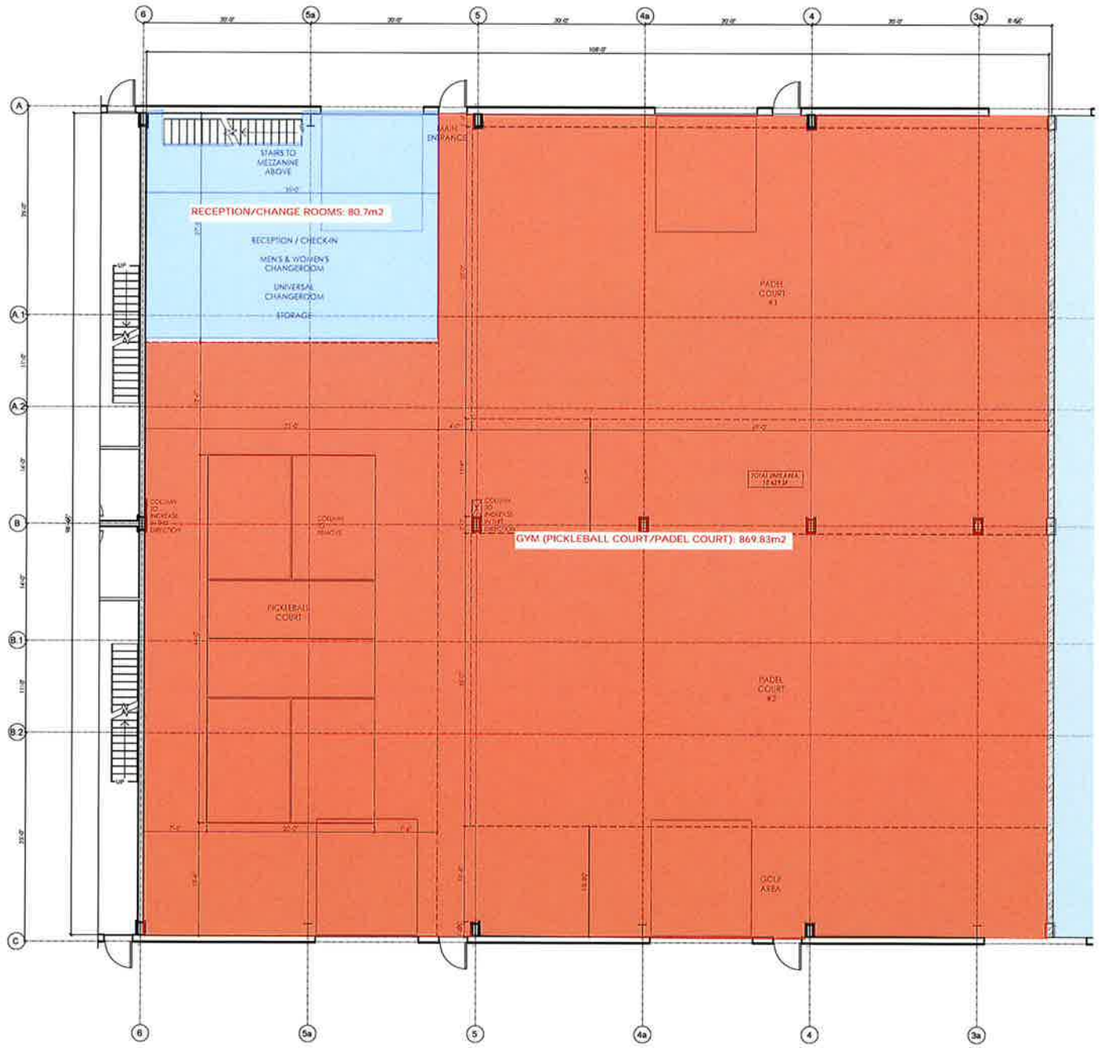
OCT. 22, 2025

3/16" = 1'

PARTITION PLAN - MEZZANINE

ID-23

TROUNCE



designer contact:
amy.agdesigns@gmail.com
1-519-835-8635

01	KW	ENG REVIEW	251105
00	KW	ISSUANCE	11/MM/DD

INTERIORS BY AG

AG DESIGNS

stage: DESIGN

140 MOUNTAIN ROAD
TENANT: TROUNCE

140 MOUNTAIN RD.
COLLINGWOOD, ON.
L9Y 3Z8

drawn by: KW

file:

revision:00

date: NOV. 5, 2025

scale: 1/8" = 1'-0"

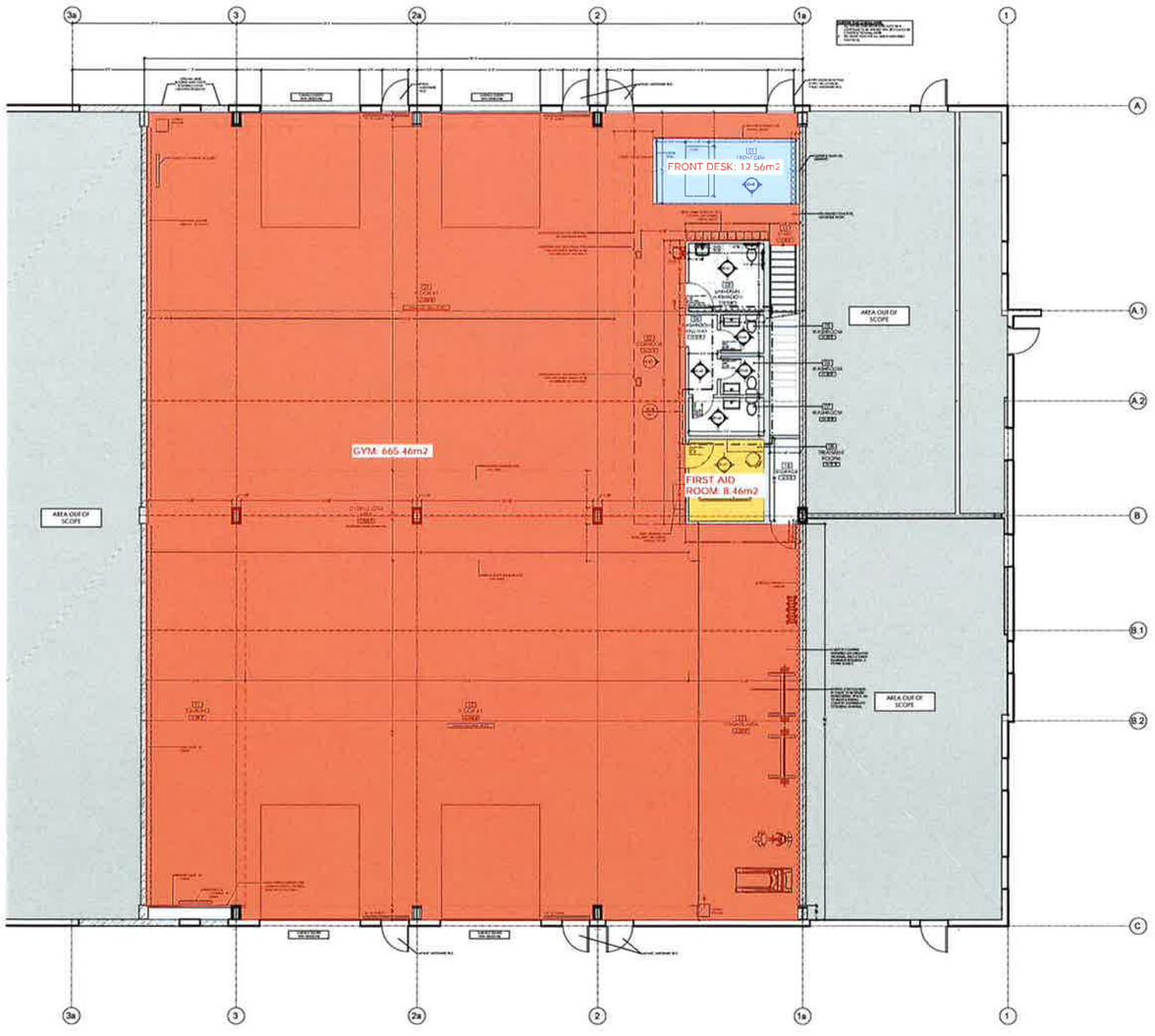
SPATIAL PLAN - MAIN FLOOR

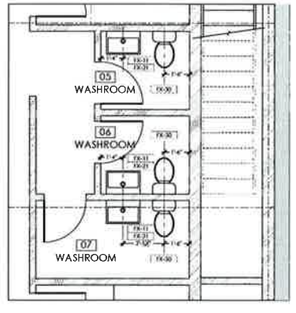
ID-10

PARTITION LEGEND

- ROOM TAG
- ROOM AREA
- DIMENSION LINE
- TEXT CALLOUT
- DOOR TAG
- EQUIPMENT TAG
- PLUMBING FIXTURE TAG
- MILLWORK TAG
- CENTERLINE
- BLOCKING LOCATION
- AREA NOT IN SCOPE
- ELEVATION SYMBOL
- PLAN DETAIL CALLOUT

CHEER





2 PLAN DETAIL - WASHROOMS

Scale: 1/4" = 1'

02	CB	MEETING UPDATES
01	CB	PRELIMINARY
00	BT	ISSUANCE

INTERIORS BY AG

AG DESIGNS

DESIGN

CHEERCORE

140 MOUNTAIN RD.
COLLINGWOOD, ON
L9Y 3Z8

CB

02

SEPTEMBER 10, 2025

1/8" = 1'-0"

PARTITION PLAN - MAIN FLOOR

ID-10