



re: Grading, Servicing and Landscape Plan Review
Proposed Commercial Building
30 Auriga Drive - Ottawa, Ontario

to: 13799484 Canada Inc. – **Mr. Sébastien Brisebois** – sbrisebois@bousadainc.com

date: May 12, 2023

file: PG6513-MEMO.01

Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to document our grading, servicing, and landscape plan reviews for the proposed commercial building to be constructed at the aforementioned site. This memo should be read in conjunction with the Geotechnical Investigation Report (Paterson Group Report PG6513-1 dated December 8, 2022).

This memo also acts as our response to Comment B8 provided by the City of Ottawa in the letter dated April 19, 2023 (File No. D07-12-23-0016).

Paterson reviewed the following drawings prepared by McIntosh Perry during the preparation of this memo:

- Site Grading, Drainage, Erosion & Sediment Control Plan – Proposed Warehouse – 30 Auriga Drive – Project No. CCO-23-0914 – Drawing No. C101 - Revision 2 dated May 17, 2023.
- Site Servicing Plan – Proposed Warehouse – 30 Auriga Drive – Project No. CCO-23-0914 – Drawing No. C102 - Revision 2 dated May 17, 2023.

Paterson also reviewed the following drawing prepared by Nvira for the aforementioned development:

- 24x36 Landscape – Auriga Entrepot – 30 Auriga Drive - Project No. 3562 – Sheet 1/1 - Revision 1 dated January 20, 2023.

Grading Plan Review

Based on our review of the above-noted Site Grading, Drainage, Erosion & Sediment Control Plan, the proposed grading at the subject site is within the recommended permissible grade raise restriction of 1.2 m provided in the Geotechnical Investigation Report, referenced above. Therefore, the proposed grading is considered acceptable, from a geotechnical perspective, and no lightweight fill or other considerations are required to accommodate the proposed grading.





Servicing Plan Review

In reviewing the Site Servicing Plan, referenced above, most of the proposed services have sufficient frost cover. However, insufficient frost protection has been provided to certain storm services, where highlighted on the attached plan. Insulation of the site servicing is recommended where insufficient frost cover has been provided. Our detailed frost protection recommendations are provided below and on the attached plan.

Geotechnical Recommendations

Any portion of the proposed sewer services installed at a depth of 2.1 m below finished grade, or deeper, is considered to have sufficient soil cover for frost protection. However, based on our review, some of the proposed storm services and their subgrades are anticipated to be founded within the frost zone. Where insufficient soil cover is present above the obvert of the pipe, the following frost protection criteria should be followed:

| Thermal Condition | Soil Cover Provided D (mm) | Insulation Dimensions (mm) | |
|-------------------|----------------------------|----------------------------|--|
| | | t (thickness) | L (extension) |
| Unheated | Less than 1,100 | Not Recommended | |
| | 1,100 to 1,400 | 75 | Extend 900 mm horizontally beyond edge face of the sewer |
| | 1,400 to 1,700 | 50 | Extend 600 mm horizontally beyond edge face of the sewer |
| | 1,700 to 2,000 | 25 | Extend 300 mm horizontally beyond edge face of the sewer |

Notes: All designs are based on a freezing index of 1000°C-days.

All rigid insulation should consist of either Dow Chemical High-Load 40 (HI-40), Styro Rail SR.P400, or equivalent approved by Paterson. The placement of all insulation within the service trenches must be reviewed and approved by Paterson personnel at the time of construction.

Provided these recommendations are followed, the Site Servicing Plan is considered acceptable, from a geotechnical perspective.



Landscape Plan Review

In reviewing the available Landscape Plan, referenced above, no trees are proposed within 7.5 m of the proposed building. Some shrubs are located within 7.5 m, however, these have shallower root structures than trees, which will not extend to the depths of the proposed foundations. In summary, the proposed Landscape Plan is considered acceptable, from a geotechnical perspective.

We trust that this information satisfies your immediate requirements.

Best Regards,

Paterson Group Inc.

Scott S. Dennis, P.Eng.



Attachment: -Site Servicing Plan mark-ups
with recommended pipe insulation

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Insulation for Site Services with Insufficient Soil Cover

| STORM STRUCTURE TABLE | | | | | |
|-----------------------|------------------------|---|----------------|---------------------------------|--|
| STRUCTURE I.D. | TOP OF GRATE ELEVATION | INVERTS | STRUCTURE SIZE | STRUCTURE TYPE | FRAME & COVER |
| CB 2 | 89.11 | SW. OUT = 87.70 | 600mm X 600mm | OPSD 705.010 | CITY STD S19 |
| CB 4 | 89.48 | N. OUT = 87.97 | 600mm X 600mm | OPSD 705.010 | CITY STD S19 |
| CB 6 | 89.26 | SE. OUT = 87.80 | 600mm X 600mm | OPSD 705.010 | CITY STD S19 |
| CBMH 3 | 88.82 | W. IN = 87.03 NE. IN = 87.41 E. OUT = 86.95 | 1200 mmØ | OPSD 701.010 | COVER CITY STD S28.1 FRAME CITY STD S25 |
| OGS 1 | 88.39 | N. IN = 86.76 W. IN = 86.80 | 1200 mmØ | STORMCEPTOR EF4 (OR EQUIVALENT) | OPSD 401.040/7A (OR MANUFACTURER EQUIVALENT) |
| STMH 1 | 88.25 | W. IN = 86.84 S. IN = 86.64 E. OUT = 86.38 | 1200 mmØ | OPSD 701.010 | COVER CITY STD S24.1 FRAME CITY STD S25 |
| STMH 5 | 89.02 | NW. IN = 87.51 E. OUT = 87.40 | 1200 mmØ | OPSD 701.010 | COVER CITY STD S24.1 FRAME CITY STD S25 |

| SANITARY STRUCTURE TABLE | | | | | |
|--------------------------|------------------------|--|----------------|----------------|--|
| STRUCTURE I.D. | TOP OF GRATE ELEVATION | INVERTS | STRUCTURE SIZE | STRUCTURE TYPE | FRAME & COVER |
| MHSA1 | 89.28 | S. IN = 87.25 W. IN = 87.25 N. OUT = 87.30 | 1200 mmØ | OPSD 701.010 | COVER CITY STD S24.1 FRAME CITY STD S25 |
| MHSA2 | 89.35 | E. OUT = 87.37 W. IN = 87.50 | 1200 mmØ | OPSD 701.010 | COVER CITY STD S24.1 FRAME CITY STD S25 |

GENERAL NOTES

- THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY, AND ARE NOT GUARANTEED FOR ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.
- THIS PLAN IS NOT A CADASTRAL SURVEY SHOWING LEGAL PROPERTY BOUNDARIES AND EASEMENTS. THE PROPERTY BOUNDARIES SHOWN HEREON HAVE BEEN DERIVED FROM INFORMATION SUPPLIED BY THE CLIENT. THE PRECISE LOCATION OF THE CURRENT PROPERTY BOUNDARIES AND EASEMENTS CAN ONLY BE DETERMINED BY AN UP-TO-DATE LAND TITLE SEARCH AND A SUBSEQUENT CADASTRAL SURVEY PERFORMED AND CERTIFIED BY AN ONTARIO LAND SURVEYOR.
- THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY BEFORE COMMENCING CONSTRUCTION.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT.
- THE CONTRACTOR IS TO DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
- RESTORE ALL TRENCHES AND SURFACES OF PUBLIC ROAD ALLOWANCES TO CONDITION EQUAL OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE CITY AUTHORITIES.
- EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL SUCH AS ASPHALT, CURBING AND DEBRIS, OFF SITE AS DIRECTED BY THE ENGINEER AND THE CITY.
- TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REHABILITATION. CLEAN FILL TO BE PLACED IN FILL AREAS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.

WATERMAIN NOTES

- CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH OPSD STANDARDS AND SPECIFICATIONS, AS WELL AS CITY STANDARDS.
- WATERMANS AND/OR WATER SERVICES ARE TO HAVE A MINIMUM COVER OF 2.4m. OTHERWISE THERMAL INSULATION IS REQUIRED AS PER CITY STANDARDS (IF AVAILABLE) OR OPSD 1109.030.
- IF THE WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS EQUAL TO OR LESS THAN THAT WHICH IS RECOMMENDED BY THE MANUFACTURER.
- THERMAL INSULATION OF WATERMANS AT OPEN STRUCTURES AS PER CITY STANDARDS (IF AVAILABLE) OR OPSD 1109.030.
- VALVES TO BE OPERATED BY CITY STAFF ONLY.
- NO CONNECTION TO EXISTING WATER NETWORK SHALL BE COMPLETED UNTIL A WATER PERMIT IS OBTAINED FROM THE CITY. CITY TO BE PRESENT FOR WATERMAIN CONNECTION, CONNECTION, EXCAVATION, BACKFILLING AND REINSTATEMENT TO BE COMPLETED BY CONTRACTOR.
- IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ANY WATERMAIN CONNECTIONS REQUIRED. THIS SHALL BE COMPLETED IN THE PRESENCE OF A DESIGNATED MUNICIPAL WATER OPERATOR AND THE SELECTED CONTRACTOR SHALL PROVIDE TO THE SATISFACTION OF THE CITY THAT THEY ARE COMPETENT TO PERFORM THE WORKS PRIOR TO INITIATING CONSTRUCTION.
- CONCRETE THRUST BLOCKS TO CONFORM TO OPSD 1103.010 AND OPSD 1103.020.
- ALL WATERMAIN TO BE CLASS 150 DR-18 OR APPROVED EQUIVALENT.
- ALL WATERMAIN TO BE EQUIPPED WITH TRACER WIRE.
- WATER SERVICES SHALL BE TO ASTM 888 TYPE "K" SOFT. PIPES SHALL BE SEAMLESS COPPER TUBING DRAWN TO SIZE AND FURNISHED WITH PROPER BENDING TEMPER. ALL PIPING TO BE COMPLETELY DEOXYGENATED COPPER, 99.9% PURE.

SEWER NOTES:

- CONSTRUCT ALL SEWERS, CATCH BASINS, MANHOLES AND APPURTENANCES IN ACCORDANCE WITH OPSD STANDARDS AND SPECIFICATIONS, AS WELL AS CITY.
- SEWER TRENCHING AND BEDDING SHALL CONFORM TO OPSD 802.010 AND 802.013 UNLESS NOTED OTHERWISE.
 - BEDDING SHALL BE A MINIMUM 150mm OF GRANULAR "A" COMPACTED TO MINIMUM 95% STANDARD PROCTOR DRY DENSITY. CLEAR STONE BEDDING SHALL NOT BE PERMITTED.
 - SUB-BEDDING, IF REQUIRED SHALL CONSIST OF 450mm OF COMPACTED GRANULAR "B" TYPE 1.
 - BACKFILL TO AT LEAST 300mm ABOVE TOP OF PIPE WITH GRANULAR "A" OR GRANULAR "B" TYPE 1.
 - TO MINIMIZE DIFFERENTIAL FROST HEAVING, TRENCH BACKFILL (FROM PAVEMENT SUBGRADE TO 2.0 METRES BELOW FINISHED GRADE) SHALL MATCH EXISTING SOIL CONDITIONS.
- SANITARY SEWERS AND CONNECTIONS 150mmØ AND SMALLER TO BE PVC SDR-26.
- SEWERS AND CONNECTIONS 200mmØ AND LARGER TO BE PVC SDR-35. BEDDING TO BE TYPE "B" EXCEPT AT RISERS, UNLESS NOTED OTHERWISE.
- INSULATE ALL STORM AND SANITARY SEWERS/SERVICES THAT HAVE LESS THAN 2.0m OF COVER WITH THERMAL INSULATION AS PER OPSD 1109.030.
- SEWER CONNECTIONS ARE TO BE MADE ABOVE THE SPRINGLINE OF THE SEWERMAIN AS PER CITY OF OTTAWA STANDARD DRAWING S11, S11.1 & S11.2.
- SUPPLY AND INSTALL ALL PIPING AND APPURTENANCES AS SHOWN AND DETAIL TO WITHIN 1.0m OF BUILDING. ALL ENDS OF SERVICES TO BE PROPERLY CAPPED AND LOCATED WITH 2"x4" LONG MARKER.
- CONTRACTOR TO TELETYPE (CCTV) ALL PROPOSED SEWERS ON SITE, OUTLET CONNECTION TO THE MAIN AND PIPES 150mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
- DYE TESTING IS TO BE COMPLETED ON SANITARY SERVICE TO CONFIRM PROPER CONNECTION TO SANITARY SEWER MAIN.

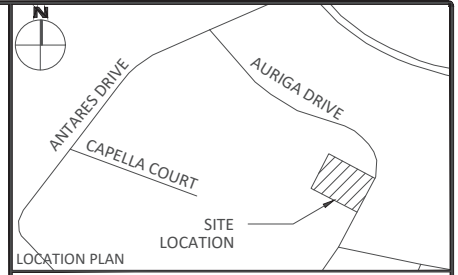
CROSSING CONFLICT TABLE

| LOCATION | DESCRIPTION | SEPARATION |
|----------|--|------------|
| 1 | EX. 300mmØ SAN SEWER INV 87.20 - 50mmØ WATER SERVICE TOP 86.67 | 0.53 |
| 2 | EX. 1350mmØ STM TOP 86.80 - 50mmØ WATER SERVICE INV = 87.3 | 0.50 |
| 3 | 200mmØ STM INV 87.60 - 50mmØ WATER SERVICE TOP 86.85 | 0.75 |
| 4 | 200mmØ STM TOP 87.72 - 200mmØ STM SERVICE TOP 88.09 | 0.37 |
| 5 | 200mmØ STM TOP 87.11 - 150mmØ SAN SERVICE INV 87.62 | 0.51 |
| 6 | 375mmØ STM TOP 87.00 - 150mmØ SAN SERVICE INV 88.16 | 1.16 |

WATER COVER TABLE

| LOCATION | STATION | FINISHED GRADE | TOP OF PIPE | COVER |
|----------------------|----------|----------------|-------------|-------|
| WATERMAIN CONNECTION | 0+100.00 | 89.25 | 86.85 | 2.40 |
| SANITARY CROSSING | 0+101.75 | 89.27 | 86.67 | 2.60 |
| STORM CROSSING | 0+104.77 | 89.25 | 87.35 | 1.90 |
| VALVE | 0+114.39 | 89.30 | 86.90 | 2.40 |
| BUILDING | 0+163.72 | 89.50 | 87.10 | 2.40 |

*NOTE: CONTRACTOR TO ENSURE A MINIMUM OF 0.3m OF VERTICAL SEPARATION BETWEEN EXISTING UTILITIES, SEWERS, AND PROPOSED SERVICES
 **NOTE: CONTRACTOR TO VERIFY ALL EXISTING SEWER AND UTILITY ELEVATIONS AND IMMEDIATELY ADVISE THE ENGINEER OF ANY DISCREPANCIES



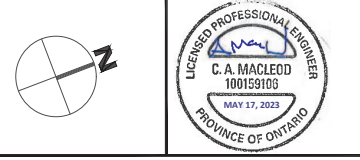
| LEGEND | |
|-------------------------|--|
| CONCRETE BARRIER CURB | LIMIT OF CONSTRUCTION |
| CONCRETE WALKWAY | DRAINAGE SWALE |
| PROPOSED ASPHALT | DRAINAGE DITCH |
| SCMBH T/G | LANDSCAPING CATCHBASIN |
| CBH T/G | CATCHBASIN MANHOLE |
| MHRA T/G | SANITARY SEWER MANHOLE |
| HYD B/F | FIRE HYDRANT |
| WATER VALVE | WATER VALVE |
| WATER METER | WATER METER |
| REMOTE WATER METER | REMOTE WATER METER |
| SEDIMENT CONTROL DEVICE | SEDIMENT CONTROL DEVICE |
| 95.50 | SURFACE ELEVATION |
| 95.50 (S) | SWALE ELEVATION |
| 7/95.50 2/94.25 | TOP OF WALL ELEVATION BOTTOM OF WALL ELEVATION |
| ← | OVERLAND FLOW ROUTE |
| ~ | SILT FENCE BARRIER |
| ⊗ | STRAW BALE CHECK DAM |
| ⊗ | MUD MAT |

FOR REVIEW ONLY
NOT FOR CONSTRUCTION

| No. | Revisions | Date |
|-----|----------------------------------|------------|
| 2 | REVISED PER CITY COMMENTS | 2023-05-17 |
| 1 | ISSUED FOR SITE PLAN APPLICATION | 2022-12-22 |

Check and verify all dimensions before proceeding with the work. Do not scale drawings.
 SCALE 1:250
 0 5 10 15 20 25 Metres

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Client: **ROSSMANN ARCHITECTURE**
 86 BOUL. ST-JOSEPH
 GATINEAU, QC J8Y 3W5

Project: **PROPOSED WAREHOUSE**
 30 AURIGA DRIVE

| DRAWING TITLE | |
|---------------------|-----------------------------|
| SITE SERVICING PLAN | |
| Scale: 1:250 | Project Number: CCO-23-0914 |
| Drawn By: M.R. | Drawing Number: C102 |
| Checked By: AM | |
| Designed By: CJM | |

Place a 50 mm thickness of rigid insulation over the top of these pipes, with the insulation extending 600 mm horizontally beyond the edge face of the sewer.

Place a 75 mm thickness of rigid insulation over the top of these pipes, with the insulation extending 900 mm horizontally beyond the edge face of the sewer.

FILENAME: U:\Ottawa\01 Project - Proposed 2023\01\CCO-23-0914-Rossman Architecture Warehouse_30 Auriga Drive\12 - Drawings\CCO-23-0914_Presentation.dwg
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