



re: Grading and Site Servicing Plans Review
Proposed Residential Building
230-232 Lisgar Street – Ottawa, Ontario
to: 230 Lisgar Street Inc. – Mr. Albert Falsetto – a.falsetto@rogers.com
to: Fotenn – Ms. Jillian Simpson – simpson@fotenn.com
date: May 23, 2023
file: PG6401-MEMO.02 Revision 1

Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to provide a review from a geotechnical perspective for the grading and site servicing plans for the proposed residential building at the aforementioned site. This memorandum should be read in conjunction with Paterson Geotechnical Report PG6401 -1 Revision 1 dated November 8, 2022.

1.0 Grading Plan Review

Paterson reviewed the following grading plans prepared by Novatech, regarding the aforementioned residential building:

- Grading and Erosion and Sediment Control Plan – 230-232 Lisgar Street - Project No. 122160 – Drawing No. 122160-GR - Revision 2, dated May 19, 2023.
- Existing Condition and Removals Plan – 230-232 Lisgar Street - Project No. 122160 – Drawing No. 122160-REM - Revision 2, dated May 19, 2023.

Based on our review of the above noted grading plans, the proposed grade raises within the aforementioned site are within the recommended permissible grade raise of **2.0 m**. No exceedances were noted for any area within the subject site. Therefore, the proposed grade raises are generally acceptable from a geotechnical perspective and will not require the use of lightweight fill at this time.

2.0 Site Servicing Plan Review

Paterson reviewed the following site servicing drawings prepared by Novatech for the aforementioned development:

- General Plan of Services – 230-232 Lisgar Street - Project No. 122160 – Drawing No. 122160-GP - Revision 2, dated May 19, 2023.
- Pre-development Storm Drainage Plan – 230-232 Lisgar Street - Project No. 122160 – Drawing No. 122160-STM1 - Revision 2, dated May 19, 2023.
- Post-development Stormwater Management Plan – 230-232 Lisgar Street - Project No. 122160 – Drawing No. 122160-STM1 - Revision 2, dated May 19, 2023.





Based on our review of the above noted site service plans, The services were found to be outside of the lateral support zone of the proposed footing and be considered to be acceptable from a geotechnical perspective. However, insufficient frost protection has been provided for the storm and sanitary sewer services. At these locations, the storm sewer services are located within the frost zone, approximately 2.1 m below the finished grade.

Refer to Figure 1, attached to the current memorandum, which demonstrates these approximate locations. In the following section, frost protection of the site servicing is recommended where insufficient frost cover has been provided.

3.0 Geotechnical Recommendations

Any portion of the services where the invert level is installed at a depth of 1.8 m below the finished grade or deeper is considered to have sufficient soil cover for frost protection. Where insufficient soil cover is present above the invert of storm and sanitary sewer pipes, the following frost protection criteria should be followed:

Table 1 - Rigid Insulation Recommendations for Storm and Sanitary Sewer Pipes with Reduced Soil Cover			
Thermal Condition	Soil Cover Provided (mm)	Insulation Dimensions	
		Thickness (mm)	Extension (mm)
Unheated	600 to 900	125	Extend 1200 mm horizontally beyond edge face of the sewer
	900 to 1200	100	Extend 1200 mm horizontally beyond edge face of the sewer
	1200 to 1500	75	Extend 900 mm horizontally beyond edge face of the sewer
	1500 to <1800	50	Extend 600 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.



We trust that the current submission meets your immediate requirements.

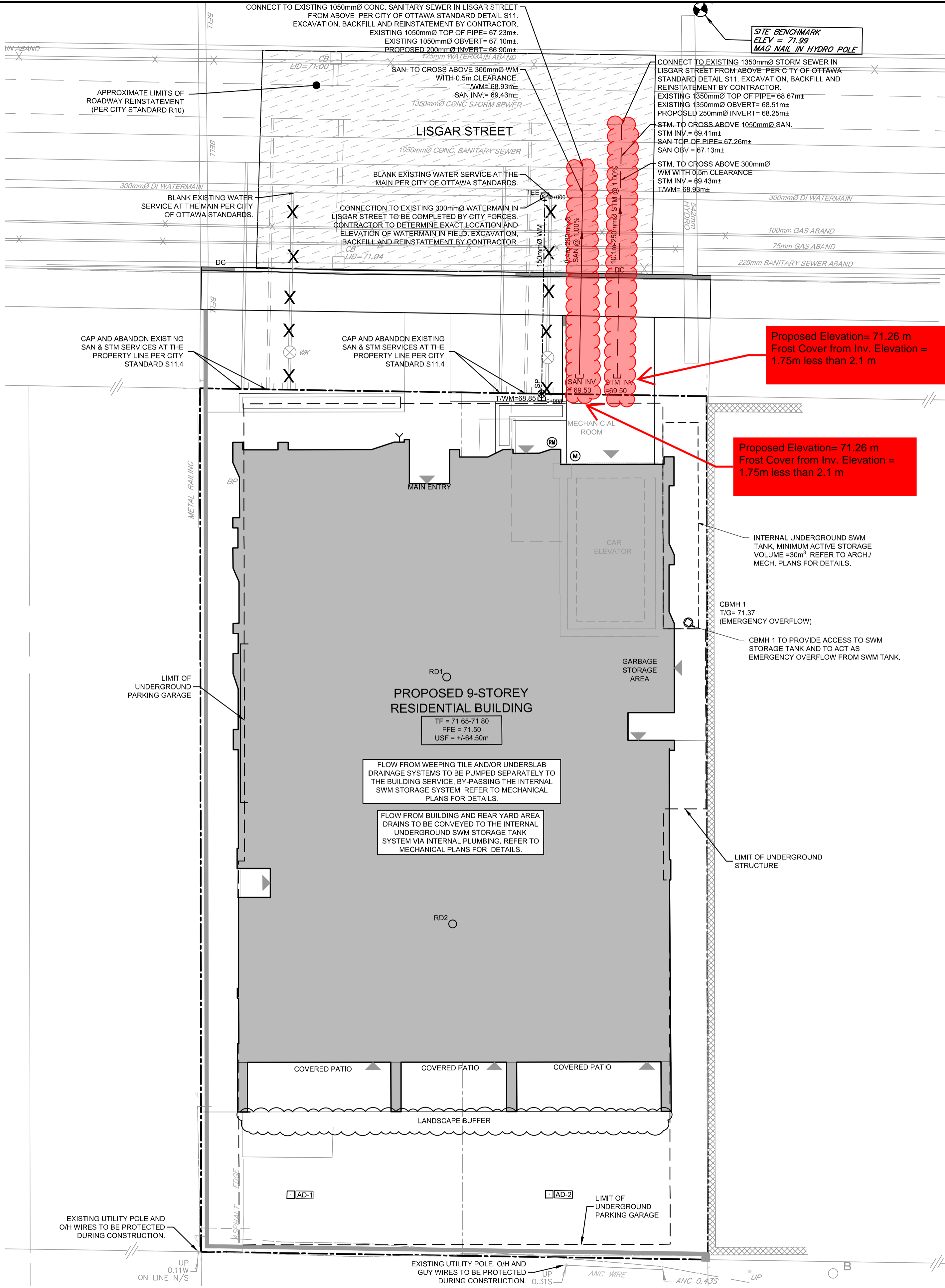
Best Regards,

Paterson Group Inc.

Maha K. Saleh, P.Eng



Faisal I. Abou-Seido, P.Eng.

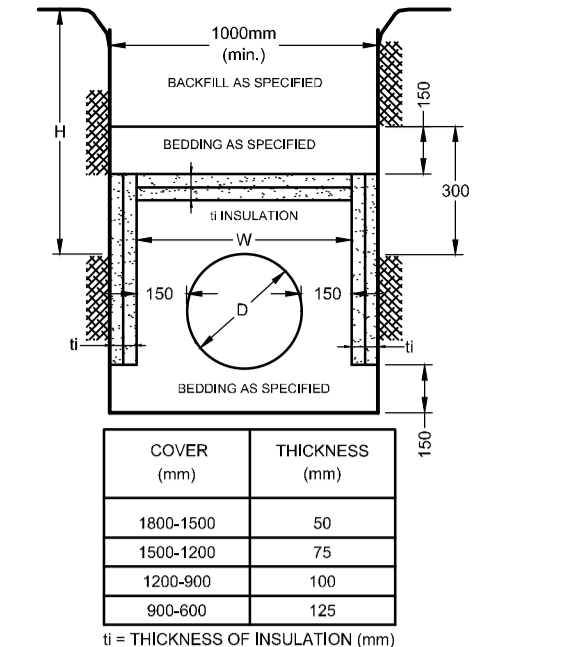


INTERNAL SWM STORAGE SYSTEM

DESIGN EVENT	STORAGE SYSTEM CONTROLLED FLOW	STORAGE VOLUMES	
		REQUIRED	PROVIDED
1:2 YR		5.7 m³	>30 m³
1:5 YR		9.1 m³	
1:100 YR		22.8 m³	
1:100+20%		29.2 m³	

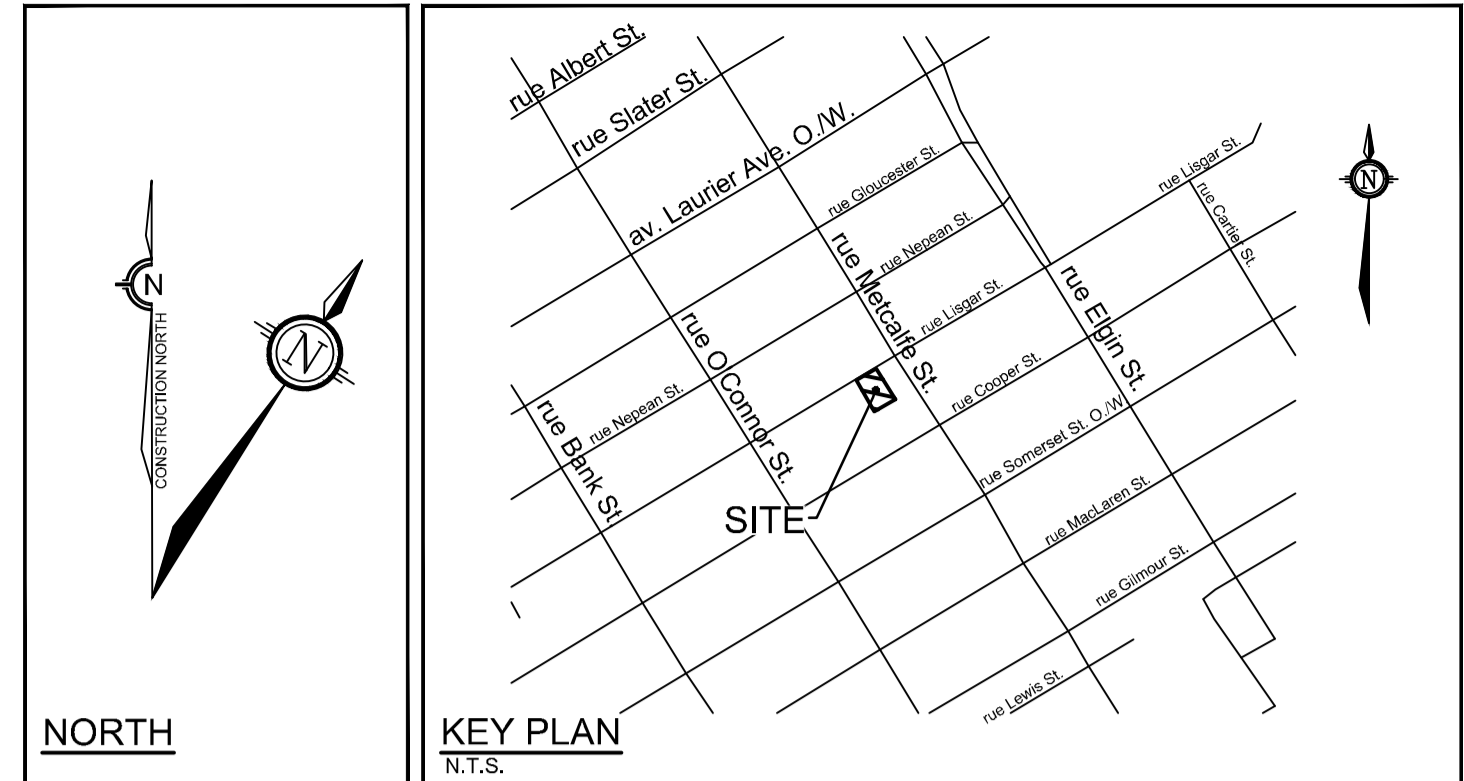
NOTES:

- ALL DRAINAGE FROM AREA A-2 (PROPOSED AMENITY AREA DECK DRAINS AND ALL ROOF DRAINS) TO BE DIRECTED TO THE INTERNAL STORMWATER STORAGE SYSTEM. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR DETAILS.
- REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR EXACT SIZE AND DETAILS OF INTERNAL STORMWATER STORAGE SYSTEM.
- REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR LOCATION AND CONNECTIONS AND DETAILS OF THE INTERNAL STORMWATER STORAGE SYSTEM.



LEGEND

- PROPERTY LINE
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- CBMH
- AD-1
- RD1
- (M) (M)
- DC
- 150mmØ
- SP
- TEE
- ROAD REINSTATEMENT LIMIT
- Y
- PROPOSED SIMISE CONNECTION
- PROPOSED CAP
- PROPOSED BUILDING ENTRANCE UNDERGROUND PARKING LIMIT
- RETAINING WALL
- REMOVALS
- FFE
- TF
- USF
- EXISTING CONCRETE CURB
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- CB
- WK
- EX UP
- EXISTING UTILITY POLE C/W ANCHOR WIRES
- EXISTING RETAINING WALL



GENERAL NOTES:

- COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
- DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
- OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
- BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR \$5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
- COMPLETE ALL WORKS IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS USING THE CURRENT GUIDELINES, BYLAWS AND STANDARDS INCLUDING MATERIALS OF CONSTRUCTION, DISINFECTION AND ALL RELEVANT REFERENCES TO OPSS, OPSD & AWWA GUIDELINES - ALL CURRENT VERSIONS AND 'AS AMENDED'.
- RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF MUNICIPAL AUTHORITIES.
- REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
- ALL ELEVATIONS ARE GEODETIC.
- REFER TO GEOTECHNICAL INVESTIGATION REPORT (PG6401-1, DATED OCTOBER 26, 2022), PREPARED BY PATERSON GROUP INC., CONSTRUCTION RECOMMENDATIONS AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
- REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARD SURFACED AREAS AND DIMENSIONS.
- REFER TO THE 'DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT' (R-2022-151) PREPARED BY NOVATECH.
- SAW CUT AND KEYGRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE-IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).

SEWER NOTES:

- SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS - ALL CURRENT VERSIONS AND 'AS AMENDED'.
- SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
STORM / SANITARY MANHOLE (12000)	701.010	OPSD
SANITARY MANHOLE FRAME AND COVER	401.010 - TYPE 'A'	OPSD
STORM/CATCHBASIN MANHOLE (18000)	701.012	OPSD
STORM/CBHM FRAME AND COVER	401.010 - TYPE 'B'	OPSD
WATERTIGHT MANHOLE FRAME AND COVER	401.030	CITY OF OTTAWA
CATCHBASIN (600Ø)	705.010	OPSD
CATCHBASIN FRAME & COVER	S19	CITY OF OTTAWA
SEWER TRENCH	S6	CITY OF OTTAWA
STORM SEWER	PVC DR 35 (450mmØ PIPE AND SMALLER)	CITY OF OTTAWA
SANITARY SEWER	CONCRETE 65-D (600mmØ PIPE AND LARGER)	CITY OF OTTAWA
	PVC DR 35	
- THE SANITARY SERVICE LATERAL SHALL BE EQUIPPED WITH BACKFLOW PREVENTERS WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14.1 OR S14.2. REFER TO MECHANICAL PLANS FOR DETAILS.
- THE STORM SERVICE LATERAL SHALL BE EQUIPPED WITH A BACKFLOW PREVENTER WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14. REFER TO MECHANICAL PLANS FOR DETAILS.
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
- PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
- INSULATE ALL PIPES (SAN / STM) THAT HAVE LESS THAN 1.8m COVER WITH HI-40 INSULATION PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
- CONCRETE MANHOLES ARE TO BE 1200mmØ STRUCTURES UNLESS OTHERWISE NOTED ON THE DRAWING. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
- TYPICAL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SUMP UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR IS TO TELEVIEW (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES. PROVIDE A COPY OF ALL CCTV INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.
- CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL APPLICABLE SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS AND ANY ALIGNMENT CHANGES, ETC.
- THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.

WATERMAIN NOTES:

- SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS - ALL CURRENT VERSIONS AND 'AS AMENDED'.
- SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
HYDRANT INSTALLATION	W19	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
THERMAL INSULATION BY OPEN STRUCTURES	W23	CITY OF OTTAWA
VALVE BOX ASSEMBLY	W24	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWERS	W25	CITY OF OTTAWA
CATHODIC PROTECTION FOR PVC WATERMANS	W40	CITY OF OTTAWA
WATERMAIN MATERIAL	PVC DR 18 (100mm AND LARGER)	
- EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMANS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
- WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
- PROVIDE MINIMUM 0.5m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS, UNLESS OTHERWISE INDICATED.
- WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

BENCHMARK NOTES:

- ELEVATIONS ARE GEODETIC AND ARE REFERRED TO CITY OF OTTAWA CONTROL POINT 2011-0007 HAVING A PUBLISHED ELEVATION OF 80.55 METRES.
- IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE SITE BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON THIS DRAWING.
- BENCHMARK WAS PROVIDED ON SURVEYOR'S REAL PROPERTY REPORT WITH TOPOGRAPHIC DETAILS PART 1 - PLAN SHOWING LOT 47 (SOUTH SIDE OF LISGAR STREET), REGISTERED PLAN NO. 12281, CITY OF OTTAWA, SURVEYED BY J.D. BARNES LIMITED (REF. # 21-10-108-00).

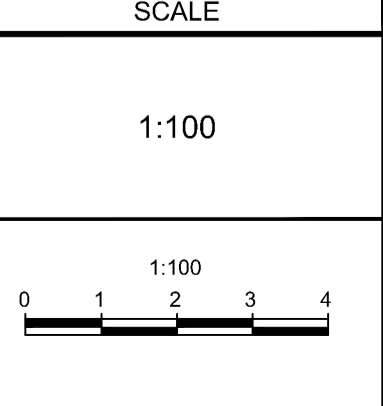
NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

OWNER INFORMATION

230 LISGAR STREET INC.
c/o THE FALSETTO COMPANY INC.
1524 ARNHEM ST.
OTTAWA, ON, K2C 1V1

CONTACT: ALBERT FALSETTO
Tel: (613) 281-5224
Email: a.falsetto@rogers.com

No.	REVISION	DATE	BY
2.	REVISED PER CITY COMMENTS	MAR 08/23	FST
1.	ISSUED FOR SPC APPLICATION	NOV 11/22	FST



FOR REVIEW ONLY

DESIGN	CV
CHECKED	FST
DRAWN	CV
CHECKED	FST
APPROVED	FST

NOVATECH

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Suite 200, 240 Michael Cowpland Drive
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LOCATION
CITY OF OTTAWA
230-232 LISGAR STREET

DRAWING NAME
GENERAL PLAN OF SERVICES

PROJECT No.
122160

REV # 2

DRAWING No.
122160-GP

PLAN #18902

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