PATERSON GROUP

memorandum

re: **Grading Plan Review**
Proposed Residential Development
Trails Edge West – Block 140 - Ottawa, Ontario

to: Richcraft **- Ms. Fairouz Wahab** – fwahab@richcraft.com

date: April 29, 2025

file: PG6406-MEMO.01 Revision 1

Further to your request, Paterson Group (Paterson) prepared the current memorandum to provide a grading plan review for the proposed residential development to be located at 640 Compass Street in the City of Ottawa. This memo should be read in conjunction with the current Geotechnical Investigation Report (Paterson Group Report PG6406-1 Revision 1 dated October 10, 2024).

Relevant design information is presented in Table 1 - Summary of Design Details for the subject blocks, which is attached following this memorandum. The relevant design information includes the following:

- ❑ Legal block/lot and unit number
- ❑ Original ground surface elevation
- ❑ Proposed finished grade elevation
- ❑ Proposed underside of footing (USF) elevation
- ❑ Bearing resistance value at SLS
- ❑ Seismic site class
- ❑ Soil cover for frost protection
- ❑ Maximum permissible grade raise
- ❑ Estimated engineered fill thickness below USF, if applicable
- ❑ Lightweight fill (LWF) recommendations, if applicable

Grading Plan Review

Paterson reviewed the following grading plans prepared by Stantec for the aforementioned residential development:

- ❑ Grading Plan - Project No. 160401759 – Drawing No. GP-1 - Revision 2 dated January 6, 2025

The lot-by-lot grading summary is provided on the attached Table 1. Based on the grading plans provided, the proposed grading does, at a small number of units, marginally exceed the permissible grade raise recommendations provided in the above-referenced Geotechnical Investigation Report. Therefore, lightweight fill (LWF) is recommended below the garage (if applicable) and front porch of the subject units.

Landscaping Considerations

Tree Planting Setbacks

In general accordance with the City of Ottawa's *Tree Planting in Sensitive Marine Clay Soils (2017 Guidelines)*, Paterson completed a soils review of the site to determine applicable tree planting setbacks. Atterberg limits testing and grain size distribution analysis were completed for recovered silty clay samples at selected locations throughout the subject site. The above-noted test results were completed between the anticipated underside of footing elevation and a 3.5 m depth below the expected finished grade. The results of our testing are presented in Tables 1 and 2 in Section 4.2 and in Appendix 1 of the Geotechnical Investigation Report referenced above.

A medium to high sensitivity clay soil was encountered between the anticipated underside of footing elevations and 3.5 m below anticipated finished grades at the subject site. Based on our Atterberg Limits test results, the plasticity index limit exceeds 40% across the subject site. Therefore, the following tree planting setbacks are recommended for the medium to high-sensitivity areas.

Large trees (mature height over 14 m) can be planted within this area provided a tree to foundation setback equal to the full mature height of the tree can be provided (e.g. in a park or other green space). A tree planting setback limit of **7.5 m** is applicable for small (mature tree height up to 7.5 m) and medium size trees (mature tree height 7.5 m to 14 m) provided that the following conditions are met:

- ❑ The underside of footing (USF) is 2.1 m or greater below the lowest finished grade must be satisfied for footings within 10 m from the tree, as measured from the centre of the tree trunk and verified by means of the Grading Plan as indicated procedural changes below.

- ❑ A small tree must be provided with a minimum of 25 m^3 of available soil volume while a medium tree must be provided with a minimum of 30 m^3 of available soil volume, as determined by the Landscape Architect. The developer is to ensure that the soil is generally un-compacted when backfilling in street tree planting locations.

- ❑ The tree species must be small (mature tree height up to 7.5 m) to medium size (mature tree height 7.5 m to 14 m) as confirmed by the Landscape Architect.

- ❑ The foundation walls are to be reinforced at least nominally (minimum of two upper and two lower 15M bars in the foundation wall).

- ❑ Grading surrounding the tree must promote drainage to the tree root zone (in such a manner as not to be detrimental to the tree), as noted on the subdivision Grading Plan.

Based on correspondence with the client and the landscape architect, it is understood that a 7.5 m setback may be unavailable within portions of the subject site. From our review and discussions with the landscape architect, Paterson considers a reduced tree planting setback limit of **4.5 m** to be acceptable for small (mature tree height up to 7.5 m) trees provided that the following conditions are met:

- ❑ The tree species must be an Amur Maple, Serviceberry, Japanese Lilac, or Thornless Cockspur Hawthorne. From our discussions with the landscape architect, these are low water demanding trees with shallow root systems, and are therefore considered acceptable for reduced tree planting setbacks, from a geotechnical perspective.

- ❑ The underside of footing (USF) is 2.1 m or greater below the lowest finished grade must be satisfied for footings within 10 m from the tree, as measured from the centre of the tree trunk and verified by means of the Grading Plan as indicated procedural changes below.

- ❑ A small tree must be provided with a minimum of 25 m^3 of available soil volume while a medium tree must be provided with a minimum of 30 m^3 of available soil volume, as determined by the Landscape Architect. The developer is to ensure that the soil is generally un-compacted when backfilling in street tree planting locations.

- ❑ The foundation walls are to be reinforced at least nominally (minimum of two upper and two lower 15M bars in the foundation wall).

- ❑ Grading surrounding the tree must promote drainage to the tree root zone (in such a manner as not to be detrimental to the tree), as noted on the subdivision Grading Plan.

Swimming Pools

The in-situ soils are considered to be acceptable for swimming pools. Above ground swimming pools must be placed at least 5 m away from the residence foundation and neighbouring foundations. Otherwise, pool construction is considered routine and can be constructed per the manufacturer`s requirements.

Aboveground Hot Tubs

Additional grading around the hot tub should not exceed permissible grade raises. Otherwise, hot tub construction is considered routine and can be constructed in accordance with the manufacturer’s specifications.

Installation of Decks or Additions

Additional grading around a proposed deck or addition should not exceed permissible grade raises. Otherwise, standard construction practices are considered acceptable.

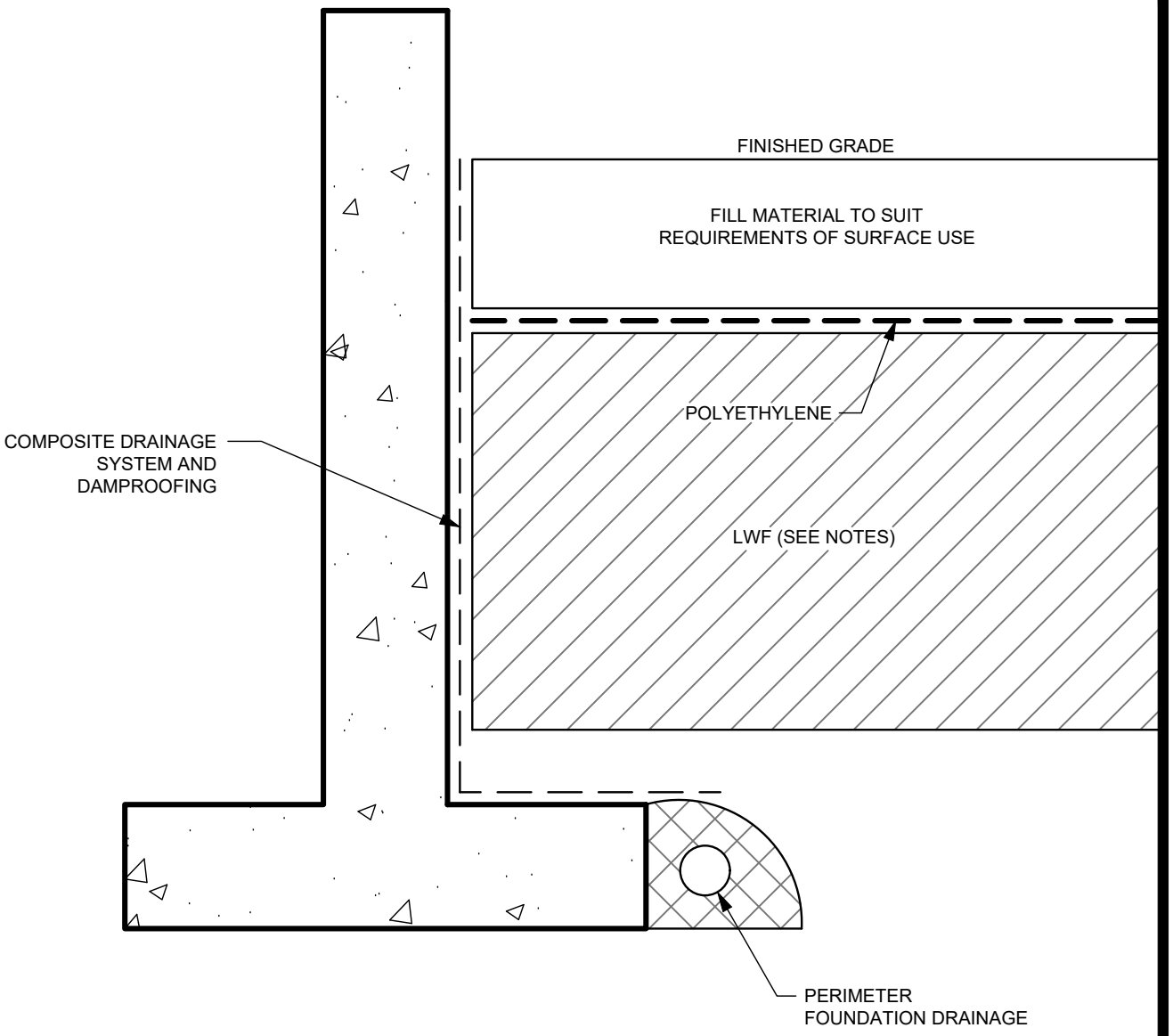
We trust that the current submission meets your immediate requirements.

Best Regards,

Paterson Group Inc.

Owen R. Canton, B.Eng.

Scott S. Dennis, P.Eng.



NOTES:

1. USE EPS12 BELOW FRONT PORCH AND LANDSCAPED AREAS
2. USE EPS15 BELOW GARAGE AND DRIVEWAY
3. MINIMUM GRANULAR THICKNESS OVER LWF SHOULD BE AS FOLLOWS:

FRONT PORCH	150mm OF OPSS GRANULAR A
GARAGE	300mm OF OPSS GRANULAR A
DRIVEWAY	450mm OF OPSS GRANULAR A
LANDSCAPED	500mm OF APPROVED BACKFILL SOIL

4. PLACEMENT OF LWF SHOULD BE ON A LEVELED SURFACE (SAND CAN BE USED TO PROVIDE AN ADEQUATE LEVELLING SURFACE).

PATERSON GROUP

Title: **EPS BLOCK INSTALLATION AROUND RESIDENTIAL BUILDINGS**

Scale:	Date:
N.T.S.	07/2022
Drawn by: NFRV	Checked by: FA
Drawing No.: **FIGURE 1**	

p:\autocad drawings\geotechnical\eps lwf figure.dwg

Table 1 - Summary of Design Details
PG6406 - Richcraft - 640 Compass Street

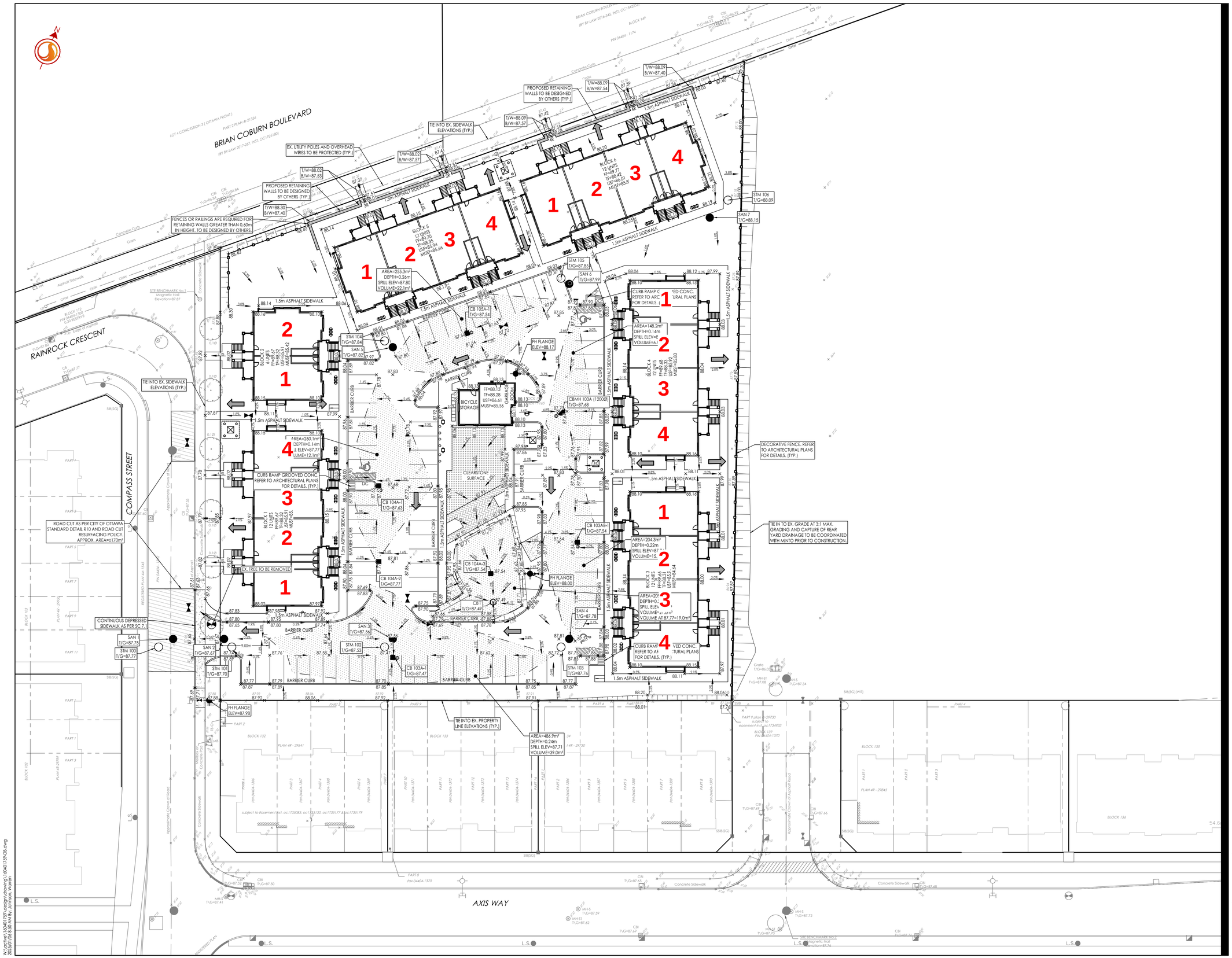
Block Number	Lot Number	Original GS Front (m)	Proposed GS Front (m)	Original GS Rear (m)	Proposed GS Rear (m)	Underside of Footing Elevation (m)	Bearing Resistance Value at SLS* (kPa)	Seismic Site Class*	Soil Cover (Frost Check) Front	Soil Cover (Frost Check) Rear	Permissible Grade Raise (m)	Above Permissible Grade Raise Front (m)	Above Permissible Grade Raise Rear (m)	Engineered Fill Thickness (m)	Minimum Thickness LWF in Garage and Front Porch (m)	Minimum Thickness LWF and Extents and /or Foundation Insulation (m)	Tree Planting Setback Required
Block 1	**1 - 1**	87.75	88.07	87.64	88.02	85.91	150	E	2.16	2.11	1.00	0.00	0.00	0.00	0.00	n/a	Yes
	1 - 2	87.62	88.15	87.51	88.02	85.91	150	E	2.24	2.11	0.50	0.03	0.01	0.00	0.00	n/a	Yes
	1 - 3	87.62	88.15	87.51	88.02	85.91	150	E	2.24	2.11	0.50	0.03	0.01	0.00	0.00	n/a	Yes
	1 - 4	87.51	88.10	87.39	88.15	85.91	150	E	2.19	2.24	0.50	0.09	0.26	0.00	1.00	0.3 m thick LWF along rear and rear half of sides, extending a minimum of 2.4 m from the exterior footing face	Yes
Block 2	**2 - 1**	87.33	88.10	87.33	88.15	85.91	150	E	2.19	2.24	0.50	0.27	0.32	0.00	1.50	0.3 m thick LWF along front, rear and sides, extending a minimum of 2.4 m from the exterior footing face	Yes
	2 - 2	87.33	88.10	87.33	88.16	85.91	150	E	2.19	2.25	0.50	0.27	0.33	0.00	1.50	0.3 m thick LWF along front, rear and sides, extending a minimum of 2.4 m from the exterior footing face	Yes
Block 3	**3 - 1**	87.02	88.10	86.94	88.16	85.90	150	E	2.20	2.26	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	3 - 2	87.02	88.14	86.94	88.01	85.90	150	E	2.24	2.11	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	3 - 3	87.02	88.14	86.94	88.01	85.90	150	E	2.24	2.11	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	3 - 4	87.02	88.10	86.94	88.15	85.90	150	E	2.20	2.25	1.50	0.00	0.00	0.00	0.00	n/a	Yes
Block 4	**4 - 1**	87.20	88.10	87.20	88.15	85.92	150	E	2.18	2.23	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	4 - 2	87.13	88.14	87.13	88.04	85.92	150	E	2.22	2.12	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	4 - 3	87.13	88.14	87.13	88.04	85.92	150	E	2.22	2.12	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	4 - 4	87.13	88.10	87.13	88.16	85.92	150	E	2.18	2.24	1.50	0.00	0.00	0.00	0.00	n/a	Yes

Table 1 - Summary of Design Details
PG6406 - Richcraft - 640 Compass Street

Block Number	Lot Number	Original GS Front (m)	Proposed GS Front (m)	Original GS Rear (m)	Proposed GS Rear (m)	Underside of Footing Elevation (m)	Bearing Resistance Value at SLS* (kPa)	Seismic Site Class*	Soil Cover (Frost Check) Front	Soil Cover (Frost Check) Rear	Permissible Grade Raise (m)	Above Permissible Grade Raise Front (m)	Above Permissible Grade Raise Rear (m)	Engineered Fill Thickness (m)	Minimum Thickness LWF in Garage and Front Porch (m)	Minimum Thickness LWF and Extents and /or Foundation Insulation (m)	Tree Planting Setback Required
Block 5	**5 - 1**	87.25	88.10	87.25	88.18	85.94	150	E	2.16	2.24	1.00	0.00	0.00	0.00	0.00	n/a	Yes
	5 - 2	87.20	88.17	87.20	88.15	85.94	150	E	2.23	2.21	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	5 - 3	87.14	88.17	87.14	88.15	85.94	150	E	2.23	2.21	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	5 - 4	87.09	88.15	87.09	88.16	85.94	150	E	2.21	2.22	1.50	0.00	0.00	0.00	0.00	n/a	Yes
Block 6	**6 - 1**	87.02	88.17	87.02	88.16	86.01	150	E	2.16	2.15	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	6 - 2	87.02	88.25	87.02	88.20	86.01	150	E	2.24	2.19	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	6 - 3	87.02	88.25	87.02	88.20	86.01	150	E	2.24	2.19	1.50	0.00	0.00	0.00	0.00	n/a	Yes
	6 - 4	87.02	88.25	87.02	88.27	86.01	150	E	2.24	2.26	1.50	0.00	0.00	0.00	0.00	n/a	Yes
Storage and Amenity Rooms	**-**	87.44	88.13	86.99	88.13	86.61	150	E	1.52	1.52	1.50	0.00	0.00	0.00	0.00	n/a	Yes

Notes:

- Proposed grade raise information was based on the following grading plans prepared by Stantec:
- Block 140 - 640 Compass Street - Grading Plan - Project No. 160401759, Drawing No. GP-1, Revision 2 dated January 6, 2025.
- Units are numbered left to right from an interior parking lot view perspective.
- Geotechnical Investigation - Proposed Residential Development - 640 Compass Street - completed by Paterson Group, dated October 10, 2024 (Report No. PG6406-1Rev.1).



Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

87.77	ORIGINAL GROUND ELEVATION
99.99	PROPOSED ELEVATION
99.99 / 99.99	PROPOSED LOT CORNER ELEVATION / EXISTING ELEVATION AT LOT CORNER
2.0%	FLOW DIRECTION AND GRADE
FF=99.99	FINISHED FIRST FLOOR ELEVATION
TF=99.84	TOP OF FOUNDATION WALL ELEVATION
USF=97.14	UNDERSIDE OF FOOTING ELEVATION
3R	NUMBER OF RISERS
B/S	BACKSPLIT TYPE UNIT
W/O	WALK-OUT TYPE UNIT
E.F.	ENGINEERED FILL REQUIRED
	TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN)
	PROPOSED SWALE
	DIRECTION OF OVERLAND FLOW
	PROPOSED VALVE BOX
	PROPOSED VALVE CHAMBER
	PROPOSED FIRE HYDRANT
	PROPOSED SANITARY SEWER MANHOLE
	PROPOSED STORM SEWER MANHOLE
	PROPOSED CATCHBASIN MANHOLE
	PROPOSED CATCHBASIN
	PROPOSED CATCHBASIN 'T'
	CATCHBASIN TO BE INSTALLED WITH CIRCULAR ORIFICE (SEE DWG SD-1)
D.C.	PROPOSED DEPRESSED CURB LOCATION
BARRIER CURB / MOUNTABLE CURB	PROPOSED MOUNTABLE/BARRIER CURB LOCATIONS

Notes

No.	Revision	By	Appd.	YY.MM.DD
2	REVISED SITE PLAN	WAJ	SGG	25.01.06
1	ISSUED FOR REVIEW	WAJ	SGG	24.11.04

File Name: 160401759-D8.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	WAJ	SGG	WAJ	24.09.03

Permit-Seal

Client/Project
RICHCRAFT HOMES LTD.

640 COMPASS STREET
BLOCK 140
OTTAWA, ON

Title
GRADING PLAN

Project No.	Scale				
160401759	1:300	0	3	9	15m
Drawing No.	Sheet			Revision	
GP-1	3 of 6			2	

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2025.01.06 8:50 AM By: Jonathon Warren

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