

to:	David Schaeffer Engineering Limited - Mr. Adam Fobert - afobert@dsel.ca
re:	Grading Plan Review Proposed Residential Development - 146 Mountshannon Drive - Ottawa
date:	July 24, 2013
file:	PG0267-MEMO.02
from:	Michael Laflamme

Further to your request, Paterson Group (Paterson) reviewed the following grading plan prepared by DSEL for the aforementioned residential development:

- Grading Plan - Drawing No. GP-1 - Project 09-396 - Revision 7 dated June 13, 2013

A summary of the relevant grading information for the subject blocks is presented in Table 1 attached. For identification purposes, the residential units were labelled as A, B, C.... with Unit "A" located along the left side of the block if facing the front of the block.

Based on our review, grading at several blocks have minor exceedances of our permissible grade raise recommendations provided in Report PG0267-2 dated March 17, 2010. However, no remedial measures, such as lightweight fill, are required due to the proposed grading with the exception of Blocks 9 and 12. Several units at Blocks 9 and 12 are located over an existing drainage ditch where grade raises of up to 2.4 m are required to achieved finished grading over the invert of the existing ditch. Lightweight fill is recommended to reduce the loading associated with the backfill due to the significant volume of in-filling required within the existing ditch at the front and sides of the blocks. Our lightweight fill recommendations for Blocks 9 and 12 are presented in Table 1 attached.

Upon further review of the subsoil conditions encountered at the test hole locations, a permissible grade raise restriction of 1.5 m is recommended for grading around the proposed buildings. It is expected that the underlying silty clay deposit can tolerate a higher grade raise than previously reported without excessive settlement (ie.- less than 25 mm total settlement) occurring. Several properties of the silty clay deposit encountered on site are favourable for significant grade raises without excessive settlement, such as silty clay layer depth (which extended to a maximum 6 m depth) and firm to stiff consistency of the deposit. These factors were considered in the updating of the permissible grade raise restriction. It should be further clarified that the permissible grade raise restriction noted within our Report PG0267-2 dated March 17, 2010 was a conservative value, which was expected to be sufficient for the proposed development at that time. It should be further noted that the proposed grade raises for the roadways throughout the development are considered acceptable from a geotechnical perspective and no remedial works are required from a geotechnical perspective to accommodate the proposed grade raises.

Mr. Adam Fobert
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We trust that this information satisfies your requirements.

Best Regards,

Paterson Group Inc.



Michael Laflamme, GIT.



David J. Gilbert, P.Eng.

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Table 1 - Summary of Grading Plan Details and Grade Raise Recommendations

Richcraft Homes - 146 Mountshannon Drive

	Original GS Front (m)	Proposed GS Front (m)	Original GS Rear (m)	Proposed GS Rear (m)	Permissible Grade Raise (m)	Exceeding Permissible Grade Raise Front (m)	Exceeding Permissible Grade Raise Rear (m)	Lightweight Fill Recommendations (m)
Block 1 - Unit A	92.15	92.81	91.80	92.81	1.00	n/a	0.01	n/a
Block 1 - Unit B	92.20	92.81	92.80	92.81	1.00	n/a	n/a	n/a
Block 1 - Unit C	92.20	92.81	93.05	92.81	1.00	n/a	n/a	n/a
Block 1 - Unit D	92.30	92.81	92.68	92.81	1.00	n/a	n/a	n/a
Block 2 - Unit A	92.05	92.68	91.82	92.81	1.00	n/a	n/a	n/a
Block 2 - Unit B	92.05	92.68	91.82	92.81	1.00	n/a	n/a	n/a
Block 2 - Unit C	92.20	92.68	91.76	92.81	1.00	n/a	0.05	n/a
Block 2 - Unit D	92.25	92.68	91.80	92.81	1.00	n/a	0.01	n/a
Block 3 - Unit A	92.00	92.76	91.69	92.87	1.00	n/a	0.18	n/a
Block 3 - Unit B	92.00	92.76	91.71	92.87	1.00	n/a	0.16	n/a
Block 3 - Unit C	91.90	92.76	91.71	92.87	1.00	n/a	0.16	n/a
Block 3 - Unit D	91.95	92.76	91.71	92.87	1.00	n/a	0.16	n/a
Block 4 - Unit A	91.98	92.71	91.62	92.91	1.00	n/a	0.29	n/a
Block 4 - Unit B	92.00	92.71	91.64	92.91	1.00	n/a	0.27	n/a
Block 4 - Unit C	92.00	92.71	91.70	92.91	1.00	n/a	0.21	n/a
Block 4 - Unit D	91.95	92.71	91.70	92.91	1.00	n/a	0.21	n/a
Block 4 - Unit E	91.95	92.71	91.70	92.91	1.00	n/a	0.21	n/a
Block 5 - Unit A	91.93	92.52	91.88	92.87	1.00	n/a	n/a	n/a
Block 5 - Unit B	91.95	92.52	91.85	92.87	1.00	n/a	0.02	n/a
Block 5 - Unit C	91.99	92.52	91.88	92.87	1.00	n/a	n/a	n/a
Block 5 - Unit D	91.88	92.52	91.65	92.87	1.00	n/a	0.22	n/a
Block 6 - Unit A	92.15	92.87	91.97	92.87	1.00	n/a	n/a	n/a
Block 6 - Unit B	91.90	92.87	91.85	92.87	1.00	n/a	0.02	n/a
Block 6 - Unit C	91.82	92.87	91.82	92.87	1.00	0.05	0.05	n/a
Block 6 - Unit D	91.79	92.87	91.82	92.87	1.00	0.08	0.05	n/a
Block 6 - Unit E	91.76	92.87	91.77	92.87	1.00	0.11	0.10	n/a
Block 6 - Unit F	91.73	92.87	91.70	92.87	1.00	0.14	0.17	n/a
Block 7 - Unit A	91.66	92.87	91.72	92.87	1.00	0.21	0.15	n/a
Block 7 - Unit B	91.64	92.87	91.76	92.87	1.00	0.23	0.11	n/a
Block 7 - Unit C	91.65	92.87	91.77	92.87	1.00	0.22	0.10	n/a
Block 7 - Unit D	91.72	92.87	91.78	92.87	1.00	0.15	0.09	n/a
Block 7 - Unit E	91.79	92.87	91.80	92.87	1.00	0.08	0.07	n/a
Block 7 - Unit F	91.76	92.87	91.85	92.87	1.00	0.11	0.02	n/a
Block 8 - Unit A	92.50	92.87	92.10	92.87	1.00	n/a	n/a	n/a
Block 8 - Unit B	92.30	92.87	92.05	92.87	1.00	n/a	n/a	n/a
Block 8 - Unit C	92.10	92.87	91.94	92.87	1.00	n/a	n/a	n/a
Block 8 - Unit D	91.90	92.87	91.90	92.87	1.00	n/a	n/a	n/a
Block 8 - Unit E	91.88	92.87	91.75	92.87	1.00	n/a	0.12	n/a
Block 8 - Unit F	91.90	92.87	91.72	92.87	1.00	n/a	0.15	n/a
Block 9 - Unit A	91.95	92.87	92.02	92.87	1.00	n/a	n/a	n/a
Block 9 - Unit B	92.09	92.87	92.18	92.87	1.00	n/a	n/a	n/a

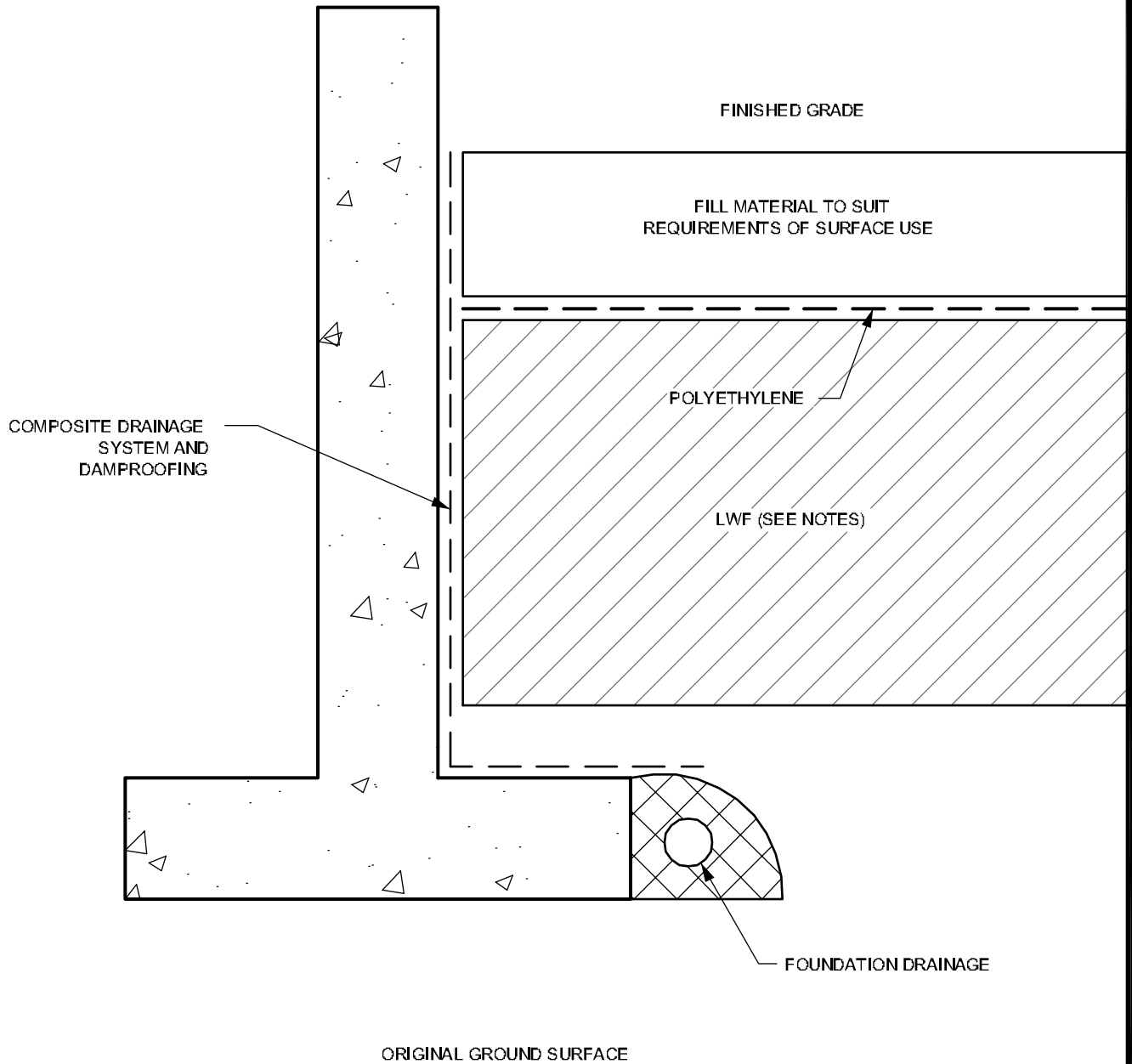
Table 1 - Summary of Grading Plan Details and Grade Raise Recommendations

Richcraft Homes - 146 Mountshannon Drive

	Original GS Front (m)	Proposed GS Front (m)	Original GS Rear (m)	Proposed GS Rear (m)	Permissible Grade Raise (m)	Exceeding Permissible Grade Raise Front (m)	Exceeding Permissible Grade Raise Rear (m)	Lightweight Fill Recommendations (m)
Block 9 - Unit C	91.00	92.87	91.97	92.87	1.00	0.87	n/a	0.3 m thick layer of LWF along front building face extending at least 2.4 m beyond the building's foundation wall
Block 9 - Unit D	90.45	92.87	92.00	92.87	1.00	1.42	n/a	0.5 m thick layer of LWF along front building face extending at least 2.4 m beyond the building's foundation wall
Block 9 - Unit E	91.00	92.87	91.93	92.87	1.00	0.87	n/a	0.3 m thick layer of LWF along front building face extending at least 2.4 m beyond the building's foundation wall
Block 9 - Unit F	91.50	92.87	91.90	92.87	1.00	0.37	n/a	n/a
Block 10 - Unit A	91.64	92.87	91.58	92.87	1.00	0.23	0.29	n/a
Block 10 - Unit B	91.64	92.87	91.65	92.87	1.00	0.23	0.22	n/a
Block 10 - Unit C	91.64	92.87	91.63	92.87	1.00	0.23	0.24	n/a
Block 10 - Unit D	91.65	92.87	91.66	92.87	1.00	0.22	0.21	n/a
Block 11 - Unit A	91.70	92.87	91.77	92.87	1.00	0.17	0.10	n/a
Block 11 - Unit B	91.55	92.87	91.71	92.87	1.00	0.32	0.16	n/a
Block 11 - Unit C	91.63	92.87	91.61	92.87	1.00	0.24	0.26	n/a
Block 11 - Unit D	91.60	92.87	91.59	92.87	1.00	0.27	0.28	n/a
Block 12 - Unit A	91.60	92.87	91.75	92.87	1.00	0.27	0.12	n/a
Block 12 - Unit B	91.60	92.87	91.75	92.87	1.00	0.27	0.12	n/a
Block 12 - Unit C	91.61	92.87	91.70	92.87	1.00	0.26	0.17	n/a
Block 12 - Unit D	91.67	92.87	91.63	92.87	1.00	0.20	0.24	0.5 m thick layer of LWF within existing ditch area extending at least 2.4 m beyond the building's foundation wall
Block 13 - Unit A	91.68	92.87	91.60	92.87	1.00	0.19	0.27	n/a
Block 13 - Unit B	91.65	92.87	91.62	92.87	1.00	0.22	0.25	n/a
Block 13 - Unit C	91.64	92.87	91.67	92.87	1.00	0.23	0.20	n/a
Block 13 - Unit D	91.60	92.87	91.68	92.87	1.00	0.27	0.19	n/a
Block 14 - Unit A	91.55	92.87	91.59	92.87	1.00	0.32	0.28	n/a
Block 14 - Unit B	91.60	92.87	91.51	92.87	1.00	0.27	0.36	n/a
Block 14 - Unit C	91.69	92.87	91.50	92.87	1.00	0.18	0.37	n/a
Block 14 - Unit D	91.78	92.87	91.78	92.87	1.00	0.09	0.09	n/a
Amenity Building - South Block	92.00	92.87	92.05	92.80	1.00	n/a	n/a	n/a
Amenity Building - East Block	92.14	92.75	92.00	92.80	1.00	n/a	n/a	n/a
Amenity Building - North Block	91.75	92.85	91.85	92.27	1.00	0.10	n/a	n/a

Proposed grade raise information was based on the following grading plan prepared by DSEL:

Grading Plan - Drawing No. GP-1 - Project 09-396 - Revision 7 dated June 13, 2013



NOTES:

1. USE EPS19 BELOW GARAGE, FRONT PORCH AND DRIVEWAY
2. USE EPS15 BELOW LANDSCAPED AREAS
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
4. PLACEMENT OF LWF SHOULD BE ON A LEVELED SURFACE (SAND CAN BE USED TO PROVIDE AN ADEQUATE LEVELLING SURFACE).