



**ADDENDUM No. 1
GEOTECHNICAL INVESTIGATION REPORT
2720 RICHMOND ROAD
OTTAWA, ONTARIO**

Bernard Benoit Project Management Inc

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Table of Contents

1. INTRODUCTION	1
5.1.1 Square Footings	1
5.3 Lateral Earth Pressure	2
5.3.1 Dynamic Earth Pressure	2
2. CLOSURE.....	4

List of Tables

Table 5.1 Geotechnical resistances and reactions for square footings on native undisturbed soil 2

Table 5.2 Acceptable soil parameters for use in seismic pressure analyses 3

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1. INTRODUCTION

This addendum identifies additions to the Geotechnical Investigation Report, 2720 Richmond Road, Ottawa, Ontario. Due to the requests by Bernard Benoit Project Management Inc. for additional footing options and direction regarding Section 4.1.8.16 (4) of the Ontario Building Code 2006 it is required to evaluate additional foundation conditions and provide review of OBC 2006 Section 4.1.8.16 (4). It is not anticipated that any additional changes will be made.

This addendum report provides additional foundation analyses that shall supplement Section 5.1.1 Square Footings submitted in the final report and additional information regarding dynamic earth pressure which shall be included as Section 5.3.1 Dynamic Earth Pressures.

5.1 Shallow Foundations

9.1.1 Square Footings

Square Footing elements for the building should be founded on the native inorganic undisturbed sand and silt soil. Spread footings may be designed using limit state static bearing pressures listed in the Table 5.1. For these bearing pressure to be realized soil covers of 0.5 m, 1.0 m and 1.5 m are required respectively above the footing as described below. Minimum and maximum footing widths of 1.0 m and 2.5 m are recommended respectively. A minimum distance of one footing width is also required between adjacent footings.

Table 5.1 Geotechnical resistances and reactions for square footings on native undisturbed soil

Depth (m)	Width of Footing (B) (m)	Ultimate Bearing Capacity (kPa)	Resistance at ULS (kPa)	Reaction at SLS (kPa)
1.8	2	1080	540	210
	2.5	1100	550	175
	3	1120	560	150
	3.5	1140	570	130
2.1	2.5	1260	630	195
	3	1280	640	165
2.4	3	1450	725	175
3.2	1.5	1820	910	375
4.7	1.5	2640	1320	305

9.3 Lateral Earth Pressure

9.3.1 Dynamic Earth Pressure

Dynamic active and passive earth pressures conditions can be evaluated using the Mononobe-Okabe (M-O) Method and is based on a pseudostatic analysis of seismic earth pressure on retaining structures. Detail regarding the application of the M-O Method can be found in Section 6.7.1.1 of the Canadian Foundation Engineering Manual (CFEM), 2006. Acceptable parameters for use in the required calculations are provided in Table 5.2 based on the following assumptions:

- $\phi = 32^\circ$, soil angle of internal friction,
- $\theta = 0^\circ$, slope of backfill with horizontal,
- $\beta = 0^\circ$, slope of the back face of the retaining wall with vertical,
- $\delta = 22^\circ$, angle of friction of wall-backfill interface.

Table 5.2 Acceptable soil parameters for use in seismic pressure analyses

Parameter	Value
Dynamic Active Earth Pressure Coefficient, K_{AE}	1.3
Dynamic Passive Earth Pressure Coefficient, K_{PE}	3.0
Horizontal Seismic Coefficient, k_h	0.42
Vertical Seismic Coefficient, k_v	0.28

2. CLOSURE

We trust that this satisfies your present needs. If you have any further questions or comments, please contact the undersigned at your convenience.

For DST CONSULTING ENGINEERS INC.



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