



Date:	July 9, 2011
To:	XXXXXX
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No. Pages:	2+2 = 4 pages total

Site Report (SAMPLE)

Subject: Site Visit to review Foundation Walls –XXX Main St., Toronto, ON
Project No: 11225N
Permit No: N/A

Dear Mr. XXXXXX:

Further to our site visit of Friday, July 8, 2011, we wish to follow-up and summarize our findings.

Present during our site visit were Mr. XXXXXXXXXXXX, the Homeowner.

During our site visit we were shown the basement foundation walls of the above noted residence which have undergone moderate deterioration since the date of original construction. The date of original construction is estimated to be around 1930

Observations:

During our visit we observed that the foundation walls consist of double wythe brick masonry walls. We report that it is unusual for only double wythe brick masonry to be used for a basement foundation wall of a house (rather than a triple wythe brick masonry wall which is considerably stronger and more robust) and as such we report that this foundation wall was somewhat deficient from the moment that it was constructed. The foundation wall does not meet the minimum requirements of the 2006 Ontario Building Code, however in view of the fact that it has performed adequately to date, we do not feel that the wall presents an unsafe condition. We observed during our visit that just below the grade level some inwards “bowing” of the wall is present. Near the corners of the basement, the adjacent foundation wall sections are able to resist the inwards pressure of the soil fill around the exterior of the foundation wall and little movement was observed. Significant inwards deflections up to a maximum of about 1” were observed between corners of the basement and were particularly noticeable near the basement windows where the foundation walls are discontinuous (due to the windows) and laterally unsupported.

The inwards deflection or “bowing” of the foundation walls should be monitored and once the inward deflection reaches as much as 1.5” the wall will be considered to be bordering on unsafe and remedial measures are essential. We note that the presence of some brick pilasters along the length of the wall provide for some additional strength beyond just the double wythe brick wall itself.

We report that masonry foundation walls such as those noted above do not contain any reinforcing steel bars and do not behave in a ductile manner when reaching the point of failure. Since brick masonry foundation walls can fail suddenly, we feel that it is important to take remedial action to stabilize the existing wall (by buttressing the wall from the interior) or by replacing the foundation wall entirely within the next 5-10 years, or possibly earlier depending upon further movement of the wall.

Buttressing of foundation walls such as this can be carried out by simply constructing an interior pressure treated stud wall (typically double-2x6 studs @ 12” on centre) are used such that the new interior studs are fastened to both the



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concrete floor and to the main floor joists above (details can be provided for permit application if you decide to proceed with strengthening.)

Replacement of a foundation wall such as this is often done in short sections; a new concrete block foundation wall having a thickness of approximately 10" would be recommended, or a new concrete foundation wall having a thickness of at least 8" would be recommended. In either case, new footings approximately 18" x 6" would be recommended. We report that the average cost to completely replace a foundation wall with a new concrete block masonry foundation wall is in the neighborhood of \$750 per linear foot.

During our site visit, we also observed that the underside of the foundation wall footings is very close to the level of the existing top of basement floor slab, suggesting that the basement floor was likely lowered slightly from its original level. A proper foundation wall and floor slab detail would have the foundation wall sitting on top of a strip footing measuring approximately 18" to 20" wide, and having a thickness of approximately 4" to 6". The existing footing appears to be a thin layer of concrete (at best) and may be completely lacking in other areas. We did not observe any significant foundation settlement and as such, we report that the existing footings are performing adequately despite the lack of substantial footings. Ideally, the foundation walls would be underpinned in short segments approximately 2"-3" in length so that a proper footing could be provided below the foundation walls (cost for underpinning only around \$250 per linear foot) however in view of the already sub-standard foundation walls, it would seem more prudent to consider complete foundation wall replacement for a very permanent long-term solution.

We trust that the above is satisfactory for your purposes. Please call the undersigned if you have any questions or concerns about this report.

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Yours very truly,
K.H. Davis Engineering Consultants Ltd.



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