To: CLIENT

From: KRCMAR SURVEYORS LTD.

Re: TTC-related Developments
Professional Surveying Services for Developing Adjacent to or on Top of TTC Tunnels

Based on our experience with projects involving TTC subway tunnels, the standard procedure is set out below (may vary depending on complexity of specific site):

1. Research of available TTC Records, obtaining TTC drawings, signing a non-disclosure agreement. (Process will take approximately 2 weeks)
2. If subject property is not directly on top of subway tunnel, or is adjacent to tunnel, then reliance will be exclusively on TTC as-built drawings.
3. Ensure field crew are certified to operate on TTC premises (called Subway Rule Book Training):
    i. Certification is only good for one year.
    ii. If not certified, must schedule a one-day training session. *(Contact the TTC for more information)*
    iii. Please note TTC employees are given priority for enrollment, therefore non-TTC employees may be waitlisted for the training session.
4. Formal request to the TTC Track and Structure Department for access to tunnel, including a cover letter, the Work Plan and $5,000 partially reimbursable fee. (Process will take approximately one to two months)
5. Field work verification; TTC-certified field personnel to attend site and conduct field work, tie in tunnel(s) and other relevant structures both horizontally and vertically (in three dimensions).
6. If TTC tunnels exist by way of an easement (or not), a three-dimensional stratified reference plan will be required to describe and transfer subject lands to TTC.
7. Preparation of a Strata Reference Plan to facilitate the transfer of the current TTC easement to fee simple and buffer areas. Part of the property will be transferred to the TTC and the plan will show the aerial limit imposed by the City. Air rights/fee simple above this limit to be transferred to the city.
8. Please note site at grade and area above and adjacent to the tunnel will need to be surveyed, and is usually done before the tunnel survey. Geodetic elevations will need to be transferred to local bench marks that are usually located on the passenger platform and at the same time traverse base lines are set up on the platforms.

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The complexity of projects involving TTC-related issues is dependent upon site proximity to TTC tunnels. Listed below is Krcmar's experience and process with recent notable TTC-related projects:

(1) Subject site located **adjacent** to TTC tunnels:

Bloor & Yonge Project –

We were involved with this site from the outset, and continue to be involved with the complex construction layout. We prepared a detailed boundary and topographic survey of the subject site for the client. It was a multi-step process to obtain all the information necessary for the survey. Firstly, to determine the location of Yonge Subway Line and separate Bloor Subway Line we had to attend at offices of TTC, review countless drawings, determine as-built location and draft it accordingly, with some field verification. Field crews also surveyed easterly building to verify the elevations of the TTC station entrances. Important note here was that since the subject site was west of the actual tunnel, we were able to rely mostly upon their as-built drawings, with some field verification (as opposed to some of the other sites). Since the Yonge/Bloor tunnels do not cross the subject site, no additional legal reference plans were required.

Finch & Yonge Project –

Similar to the Bloor & Yonge project, since the Yonge subway tunnel is east of our site (mostly within Yonge Street right of way) we were able to rely upon their as-built drawings, with some field verification. No additional legal reference plans were required.

(2) Subject site located **directly on top** of TTC tunnels:

Bloor & University Project –

We've been involved with this site from the outset, and continue to be involved with the condominium and future complex construction layout. Essentially, the declarant land owner owned the lands upon which the TTC tunnels were constructed. TTC/City of Toronto required lands to be transferred to TTC as a condition of development. We prepared a reference plan for the client that provided the legal description for the transfer of lands. Important note here was that since Bloor subway line runs right under the site, our field crews were required to survey the actual as-built subway tunnels, and we could not rely upon TTC as-built drawings. Work was undertaken Saturday and Sunday night after midnight.

Sheppard & Yonge Project –

This site was another of the complex ones. TTC line runs virtually under front portion of site. We prepared a detailed topographic survey, which was the result of post-midnight field work to survey the interior of tunnel. There is no issue of transferring of lands, as the tunnel sits within the Yonge Street right of way, but the level of detail was immense and expensive.