SK&A

May 14, 2012

Ms. Lauren Jezienicki
The JBG Companies
4445 Willard Avenue, Suite 400
Chevy Chase, MD 20815

Re: Atypical Structural and Foundation WMATA Mandated Requirements
Florida Avenue Residential
SK&A Project # 1-11207-00

Dear Ms. Jezienicki:

The following is a list of the Washington Metropolitan Area Transit Authority (WMATA) project mandated requirements due to the proposed building structures falling within the metro tunnel and vent structure "zone of influence" (ZOI), as defined in WMATA's latest adjacent construction manual. These requirements are dubbed atypical since a similar building to the proposed development constructed outside the WMATA ZOI would not require these measures:

1) The building's above-grade superstructure needs to be designed for a design wind load capacity of no less than 50 psf. This is significantly above and beyond what the minimum requirements of the local jurisdictional and International Building Codes are (approximately 2.5 times the magnitude of wind force). For the proposed light stick-built residential structures, this would require lateral force resistance systems unique to the DC metro area and more common in high seismic or hurricane prone regions to meet the WMATA mandated design wind force.
2) As the top of the existing tunnels are only approximately 15 feet below the proposed basement level, the only possible foundation system in the zone of influence of the tunnels (most of the planned building area) is a mat foundation system. This system better distributes the column load on broader areas of soil and mitigates the stresses imparted on the tunnels from the new buildings. A mat foundation system requires significantly more excavation, concrete and concrete reinforcing than a traditional shallow spread foundation system as it covers the entire building footprint with an approx. 30" concrete mat. A spread footing system only requires a local concrete pad around each column base. For stick-built residential construction of the height of this proposed development constructed anywhere outside the zones of influence of WMATA structures, a spread footing system is most common.
3) The temporary sheeting and shoring system used for the support of excavation (SOE) of the proposed building basements is not capable of encroaching into a zone within 10' above the top of the existing WMATA metro tunnels. As the proposed building basement is only approx. 15' above the tunnels and a 2'-6" thick

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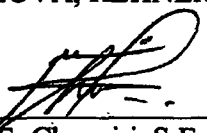
mat footing is required, this only leaves an approx. 3' zone that the SOE can encroach into, not enough to construct a conventional soldier pile and lagging system. As such, unique and proprietary systems are required, possibly involving jet grouting the soils for strengthening in that 3' zone in order to accommodate the temporary sheeting and shoring system.

4) The existing WMATA metro tunnels beneath the planned development are bored tunnels with segmented precast liners, which, of all the types found in metro's transit system, are the most sensitive to adjacent construction. These tunnels are more sensitive to unloading of existing soil above the tunnels than they are to loading scenarios. That is, in the interim period when the complete excavation of the site has occurred and no new construction has been put back in place, the loss of overburden pressure from the soil makes the segmented pieces of the lining system susceptible to intolerable movement. A specialty consultant is required by WMATA to be retained by the ownership to analyze the magnitude of movement with finite element analysis during the design phase. The results of this analysis, which is now being done, could show that basement levels have to be eliminated and have the required parking accommodated on levels currently planned as retail or residential. In addition to the analysis, an extensive tunnel monitoring program must be implemented by an owner's consultant to ensure that the adjacent construction SOE and foundation systems are functioning as designed. This monitoring has to be done at a minimum weekly by a professional engineer throughout the duration of construction and requires a system of sophisticated electronic instrumentation, documentation, reporting, and contingency measures.
5) Certain portion of our mat foundation system immediately adjacent to a WMATA cast-in-place concrete structure will require being placed on a deep foundation system known as caissons (or cast-in-place concrete drilled piers). This increases the foundation premiums further and involves introducing a new trade performed by a separate subcontractor for the foundation system.
6) The WMATA Adjacent Construction division has a substantial fee, to be paid by the owner, to cover the agency's costs of reviewing the adjacent construction documentation and reports.

Sincerely,

SMISLOVA, KEHNEMUI & ASSOCIATES, P.A.



Walid E. Choueiri, S.E., P.E.
Principal

WC:ps
cc. John Maisto, AIA, LEED AP (BKV Group)