



LADD GEOSERVICES LLC

October 26, 2016

Save Madison Valley
2811 E. Madison St., Ste. 205D
Seattle 98112

Sarah Trethaway, Treasurer
Penelope Karovsky, Member
c/o Tony Hacker, Member

Re: **Geotechnical Review and Comment**
Proposed 2925 East Madison Street Development

Dear Ms. Trethaway, Ms. Karovsky, and Mr. Hacker:

This letter provides geotechnical comments and opinions related to the planned mixed-use development located at 2925 East Madison Street (Site), on a parcel currently occupied by City People's Garden Store (City People's), King County parcel number 5016000007. The potential developer, Velmeir Acquisition Services, LLC (Velmeir), has provided a geotechnical report by GeoEngineers, Inc. (GeoEngineers) (2015) to support the permit process.

Ladd GEOServices LLC (Ladd GEOServices) was contracted to the Save Madison Valley (SMV) organization [a Washington 501(c)(3) organization] to provide technical review services of the proposed redevelopment in a contract signed October 24, 2016.

It is Ladd GEOServices opinion that the proposed development should be required to meet the City of Seattle's (City) Environmental Critical Areas (ECA) ordinance regulating development on steep slopes and landslide prone areas. Specifically, the Site has slopes that meet or exceed the City's definition for steep slopes under SMC Chapter 25.09, and most of these slopes do not meet the definition for being legally graded. Accordingly, the Site should be subject to application of the ECA steep slope development standards.

Slopes and Landslide Conditions

The Site contains ECA steep slopes (i.e., slopes greater than 40% with heights over 30 feet), and the City's GIS mapping has identified steep slopes on the east part of the Site. There have been slides in the Site vicinity, including a slide just north and east of the Site, on public property (City of Seattle 2016a, see Exhibit I). Figure 2 in GeoEngineers' report (2015) shows detailed site topography with slopes generally inclined at 40% and steeper over most of the east side of the parcel. Exhibit II to the letter shows the site layout and topography based on this figure with annotations to show the portion of the Site slope that appears to be related to the East Madison Street roadway embankment, and the portion of the Site slope that appears to be related to a fill pad for private development.

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Subsurface Conditions

GeoEngineers advanced three boreholes at the site (GEI-1, GEI-2, and GEI-3). All boreholes were the building pad occupied by City People's. GEI-1 and GEI-2 are located on the edge of the site adjacent to the East Madison Street roadway; GEI-3 is located on the south part of the site, approximately 130 feet from the roadway. These boreholes showed fill of variable composition and density, generally loose to medium dense, extending to as much as approximately 30 feet deep (GEI-1). The boreholes closest to East Madison Street (GEI-1 and GEI-2) show an "asphalt treated sand" layer at the base of the fill that may be associated with a historic roadway; the borehole GEI-3 does not show this layer beneath the fill.

The quality of the soils in the boreholes, particularly the generally low soil density / consistency, is not consistent with what would be constructed in more recent times. It appears that the fill slope was not engineered and was constructed with relatively little compaction - a condition we would now call "uncontrolled and undocumented" fill. Because of this condition, it is likely that the steep slopes on the site would not have an acceptable factor of safety for development under current requirements.

City of Seattle ECA Site Conditions and Development Standards

It is our understanding that Velmeir has applied for a Master Use Permit for a planned development the Site. The project geotechnical report (GeoEngineers 2015) includes an interpretation of the fill slopes on the site. Specifically, GeoEngineers notes:

- *"Based on the topography and fill thickness, we conclude that the steep slope present on the site was completed as part of fill placement/grading activities associated with construction of the East Madison Street embankment."*

GeoEngineers uses this information to justify an exemption to the ECA steep slope ordinance:

"... it is our opinion that the existing slopes that meet the City of Seattle steep slope criteria would not meet the steep slope criteria without previous legal grading activities at the site."

As indicated above, GeoEngineers presented information that suggests the roadway embankment fill slopes may have been legally graded. However, there is no documentation presented that shows other parts of the Site fill slopes were historically legally graded. As shown on Exhibit II, most of the Site slopes appear to have been constructed to support a fill pad for private development. Only the north portion of the Site steep slopes appear to be associated with the roadway embankment.

It is Ladd GEOServices' opinion that most of the existing steep slopes on the Site do not meet the criteria to provide relief from the steep slope development requirement because most of the Site's slopes were not created through previous legal grading activities and were outside the fill that would have been historically associated with the roadway right-of-way.

It should be noted that the City specifically recognizes this condition, as noted in the City's development Tip 327A (2016b), page 2, Item b: *"This provision [for relief] does not extend beyond the cut or fill created by the street, alley, sidewalk or other right-of-way improvement."*

Conclusions and Closure

Ladd GEOServices (on behalf of SMV) has reviewed City critical areas mapping, geotechnical information, site topography, and historical documents and it is our opinion that the slopes on the Site should not be provided relief from the City's steep slope development requirements for the following reasons:

- The site contains slopes that are ECA steep slopes because of their inclination and height.
- Most of the site slopes appear to be associated with building pad fill supporting private development, not public roadway embankment fill. Accordingly, most steep slopes on the Site should not be considered as legally graded.
- All of the steep slopes on the site (including the roadway embankment) appear to be constructed with uncompacted and poor quality soils that could lead to slope instability, particularly during heavy precipitation or a seismic event. The landslide shown in City GIS mapping adjacent to the Site appears to have occurred in part of the roadway embankment fill. The ECA steep slope ordinance is intended, in part, to protect the public from unsafe slopes. Thus application of the ECA steep slope requirements seems appropriate for the planned Site development.

In summary, the slopes on the Site should not be provided relief from the City's steep slope development requirements under SMC Chapter 25.09.

This letter has been prepared exclusively for the use of the Save Madison Valley organization. The technical opinions presented in this document are based on the review of documents provided by the Project team and other information available publicly. No explorations were completed for this Ladd GEOServices. The information presented in this letter is not intended, nor should it be construed to represent, a warranty regarding the findings in this letter.

Judgment has been applied in interpreting geological conditions as presented in boreholes by other firms. Variations in subsurface conditions are common, and actual conditions encountered may be different from those observed in the borings. The evaluations for this project were performed in general accordance with locally accepted geotechnical engineering practice, subject to the time limits and financial and physical constraints applicable to the services for this project.

We appreciate the opportunity to be of service on this project and look forward to continued involvement. If you have any questions regarding this letter, or any aspects of the project, please feel free to contact the undersigned below.

Sincerely,

LADD GEOSERVICES LLC



Deborah Ladd, PE LHg
Owner – Principal Engineer



Exhibits:

Exhibit I - Screen Print, City of Seattle GIS Mapping

Exhibit II - Annotated Site Map Based on GeoEngineers' Figure 2

References

City of Seattle 2016a. Department of Construction and Inspections, GIS mapping. <http://web6.seattle.gov/DPD/Maps/dpdgis.aspx>. Accessed October 24.

City of Seattle 2016b. Seattle Department of Construction and Inspections, Tip 327A, Environmentally Critical Areas Exemptions, Relief from Prohibition on Steep Slope Development, and Modifications to Submittal Requirements - Application Instructions and Submittal Requirements. July 6.

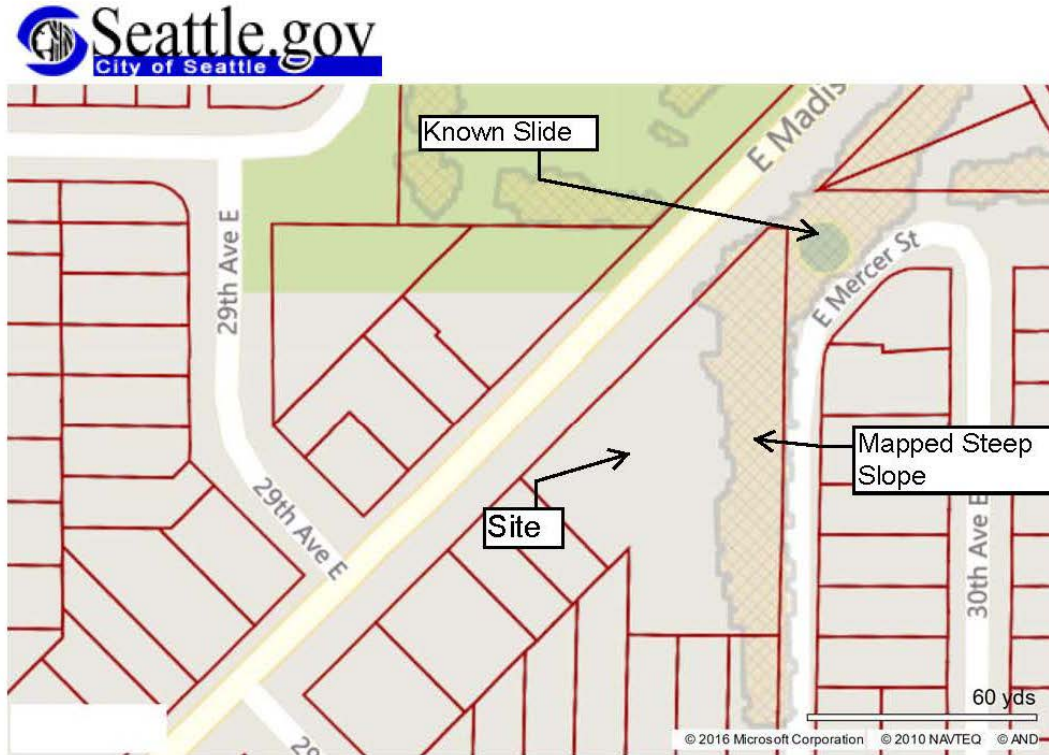
GeoEngineers 2015. Geotechnical Master Use Permit Report. 2925 East Madison Street Development, Seattle Washington. Prepared for Velmeir Acquisition Services, LLC. November 17.

Exhibit I

Screen Print, City of Seattle GIS Mapping

inspections: Printable GIS map

<http://web6.seattle.gov/DPD/Maps/DPDGISPrint.aspx?ctrLatLc>



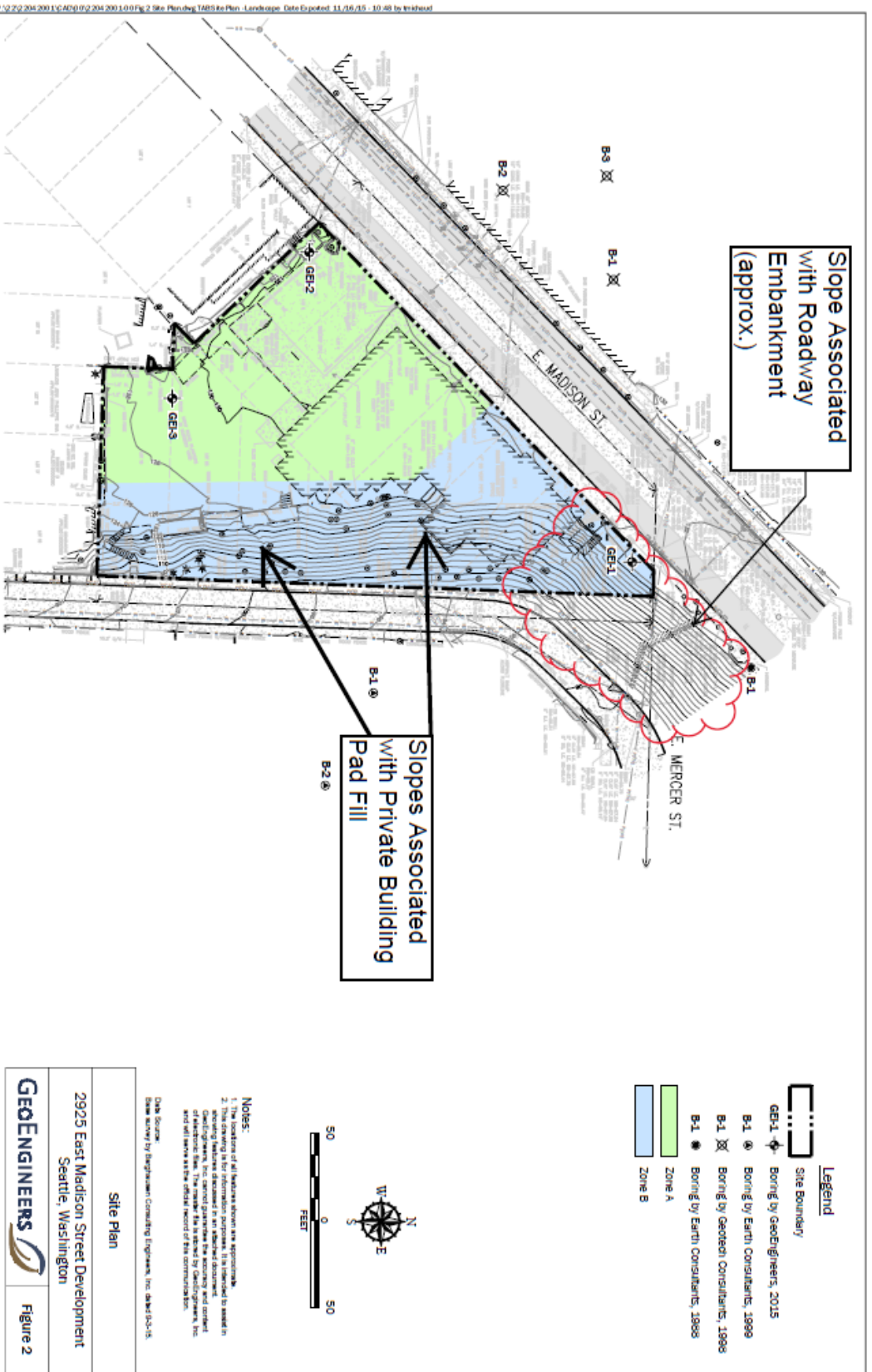
Displaying layers:
KnownSlideAreas
SteepSlope
PotentialSlide
Parcels

No warranties of any sort, including accuracy, fitness, or merchantability accompany this product.
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Source: City of Seattle 2016a

Exhibit II

Annotated Site Map Based on GeoEngineers' Figure 2



Source: GeoEngineers 2015