

**Zipper Geo Associates, LLC**  
**Geotechnical and Environmental Consulting**

January 9, 2017

Washington Department of Ecology  
Southwest Regional Office  
P.O. Box 47600  
Olympia, WA 98504-7600

Attn: Mr. Tim Mullin

**Re: Submittal of Supplemental Site Characterization Report**

Gibraltar Senior Living  
10816 – 18<sup>th</sup> Avenue East  
Tacoma, Pierce County, Washington 98445  
ZGA Project No. 1757.24  
ECY VCP No. SW1472

Dear Mr. Mullin:

Zipper Geo Associates, LLC (ZGA) is pleased to present the attached Draft Supplemental Site Characterization Report (“Report”) for the above-referenced Site, dated August 29, 2016, prepared by Terracon Consultants, Inc. (Terracon). The Report presents the methodologies and resulting data generated during a subsurface investigation and crawlspace air sampling effort performed by Terracon in June 2016 to address Ecology’s request for further site characterization activities, as outlined in a letter dated January 27, 2016.

Ms. Elizabeth Rachman, L.G., L.Hg., prepared the scope of work to complete the additional site characterization activities when she was employed at Terracon. Execution of the work was performed (air sampling) and overseen (direct-push explorations) by Ms. Rachman. The Report was largely complete in August 2016, when Ms. Rachman left Terracon. It is not clear why the Report was not finalized and submitted to Ecology. Ms. Rachman is now a senior hydrogeologist at ZGA, and is submitting the Report at this time.

Ms. Rachman has reviewed the attached Report and has concluded that it accurately reflects the work completed at the Site under her direction. While Ms. Rachman generally concurs with the conclusions and recommendations provided in the Report, the following comments are provided in anticipation of items that may require clarification:

1. The Report discusses crawlspace air samples collected beneath the building near UST #2, where elevated levels of naphthalene were detected previously in the sub-slab vapor sample. The only

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portion of the building that rests on a slab is the western portion of the boiler room, situated immediately north of the UST #2 location. The remaining building areas are underlain by crawlspace.

2. The exhibits prepared by Terracon omitted some of the previous sampling locations that are referenced in the Report itself. ZGA has revised the relevant exhibits (Exhibit 3 and Exhibit 4) to include those locations for clarification.
3. Wet soils were encountered during the subsurface investigation only in soil boring EB-18. No groundwater was observed in the remaining six borings advanced at the Site.
4. As indicated by Terracon, naphthalene was detected in crawlspace air samples CS-1, CS-2 and the ambient air sample at concentrations of 0.50 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), 0.47  $\mu\text{g}/\text{m}^3$  and 0.38  $\mu\text{g}/\text{m}^3$ , respectively. Terracon compared the detected concentrations to the Method B Indoor Air Cleanup Level (CUL) of 0.0735  $\mu\text{g}/\text{m}^3$ . The detections at CS-1 and CS-2 exceeded the ambient concentration by 0.12  $\mu\text{g}/\text{m}^3$  and 0.09  $\mu\text{g}/\text{m}^3$ , respectively, which are the values that should be compared to the CUL. Both differences in concentration exceed the CUL of 0.0735  $\mu\text{g}/\text{m}^3$ ; however, the magnitude of the exceedance is much lower than that suggested by Terracon.
5. In its concluding discussion regarding the characterization of the UST #3 area, Terracon states that “although it appears unlikely that soils adversely affected by diesel TPH at concentrations higher than the MTCA Method B CUL remain in or around the excavation for UST #3, it should be noted that they are bound by clean soils to the north (EB-17), east (STS Sample “P”), south (EB-16), and west (STS Sample “W”).” However, Terracon boring locations EB-16 and EB-17 are not shown on Exhibit 5, which details the UST #3 sample locations, due to the scale of the exhibit. Boring EB-16 was advanced approximately 50 feet south of UST #3, on the south-adjointing Franklin Pierce High School property. Boring EB-17 was located approximately 60 feet north of UST #3. For reference, borings EB-16 and EB-17 can be found on Exhibit 2.
6. Soil borings EB-15 (6/28/2016), EB-16 (06/28/2016), EB-17 and EB-17A were advanced east, south, and west of EB-14. Ms. Rachman cannot recall their exact distances from EB-14 and is not in possession of the notes from the investigation activities, nor were they depicted on the CAD files provided to Ms. Rachman by Terracon. If further clarification on this is required, ZGA can facilitate the collection of this data from Terracon.

On July 8, 2016, Mr. Nick Acklam, of Ecology’s Southwest Regional Office, Assistant Attorney General Ms. Allyson Bazan, Site owner Mr. Vinson Latimore, attorney Ms. Erica Doctor, and Ms. Rachman (“Technical Assistance Group”) met at Ecology’s Southwest Regional Office to discuss the Site and a path toward obtaining an NFA opinion letter. After discussion regarding the Site history and work to date, the Technical Assistance Group agreed that a final report should be submitted summarizing the most recent phase of work and a mitigation plan should be drafted to address the elevated naphthalene concentrations detected in the crawlspace air in the vicinity of UST #2. It was also agreed that if the findings in the final

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report suggested that the Site was characterized in accordance with Chapter 173-340-350 WAC and Ecology deemed the mitigation plan sufficient to address the elevated air concentrations, Ecology would issue an "NFA Likely" letter. A formal NFA letter would be issued upon execution of the mitigation plan, including the collection of confirmation samples showing that the remedy is effective, and recording an Environmental Covenant on the property.

Accordingly, the attached report is being submitted to Ecology, along with this cover letter, to support the conclusion that the Site has now been fully characterized in accordance with Chapter 173-340-350 WAC. Electronic communications between Ms. Rachman and Mr. Mullin indicated that Ecology approves this method of report submittal. ZGA is currently preparing a mitigation plan that will be submitted to Ecology to address the elevated naphthalene detections in the crawlspace air adjacent to UST #2.


We appreciate the opportunity to be of service to you on this project. If there are any questions regarding this report or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,

**Zipper Geo Associates, LLC**



Elizabeth Rachman, L.G., L.Hg.  
Senior Hydrogeologist



Jon Einarsen, L.G.  
Principal