



May 11, 2015
ES-3206.02

Earth Solutions NW LLC

- Geotechnical Engineering
- Construction Monitoring
- Environmental Sciences

DevCo, Inc.
10900 Northeast 8th Street, Suite 1200
Bellevue, Washington 98004

Attention: Mr. David Ratliff

**Subject: Response to Comments
Proposed Promenade Apartments
31110 – 129th Avenue Southeast
Auburn, Washington**

Reference: City of Auburn, Washington
Application Review Comments, dated February 9, 2015

City of Auburn, Washington
Design Standards, August 2004

Earth Solutions NW, LLC
Geotechnical Engineering Study
Project No. ES-3206, dated March 4, 2014

CPH Consultants, LLC
Submittal Plan Set, dated May 12, 2015

CPH Consultants, LLC
Slope Analysis, dated February 13, 2015

Dear Mr. Ratliff:

As requested, Earth Solutions NW, LLC (ESNW) has prepared this letter responding to comments prepared by the City of Auburn (City). The project-specific geotechnical comments, as well as our responses, are provided in this letter. With respect to the referenced review document, the page number in parentheses indicates where the comment is found.

Auburn Comment No. B.1.1. (Page 4) – The Geotechnical Report does not address consistency with the City’s critical areas regulations as requested in the pre-application meeting discussion and the pre-application summary notes. The pre-application meeting summary notes state: “Based on the City’s contour layers, slopes in the western portion of the subject property appear to approach 30 percent. Pursuant to ACC 16.10.020, Critical Landslide Hazard Areas include lands or areas where there is a high (Class III) or very high (Class IV) risk of landslide due to a combination of slope, soil permeability, and water. A Geotechnical Report shall be prepared to include City of Auburn Landslide Hazard Area Classifications per ACC 16.10.080(G)(2). If the Report finds that Critical Landslide Hazard Areas exist on the subject property, the Report shall include recommendations on buffer widths and land use intensities for the on-site Landslide Hazard Areas per ACC 16.10.090(E)(4).” The Report does not address the proposal’s relation to [the] City’s critical area regulations as needed.

ESNW Response – According to the referenced slope analysis map, slopes within the bounds of the property are primarily between 15 to 40 percent. Slopes greater than 40 percent are found within the western stream and wetland space and along the frontage of Southeast 312th Street and 132nd Way Southeast. Isolated areas of 40 percent slopes are identified across the majority of the property but will be regraded in accordance with project plans.

We have reviewed the applicable City codes for relation to the subject project. Based on our review, areas with slopes of between 15 to 40 percent are defined as having moderate (Class II) susceptibility to landslides. In our opinion, a buffer width should not be applicable to the Class II slopes. This opinion is based on our field observations of competent, dense subgrade conditions and the predominance of native Vashon till across the site. Areas with slopes greater than 40 percent are defined as having very high (Class IV) susceptibility to landslides. The minimum buffer width of 15 feet should be established from the top or toe of Class IV slopes. This buffer should be incorporated into the project plans within the western stream and wetland space. In our opinion, slopes greater than 40 percent along the frontage of Southeast 312th Street and 132nd Way Southeast should be exempt from the required 15-foot buffer width, as the slopes were likely created as a result of previous legal grading associated with roadway and storm drainage improvements.

With respect to the subject development, the majority of proposed land use intensities are appropriate from a geotechnical standpoint. Slopes of between 15 to 40 percent, as well as over 40 percent, are isolated and discontinuous and may be successfully regraded due to the presence of competent Vashon till. Proposed development near the western stream and wetland space should incorporate the 15-foot buffer as recommended in this section. Based on our review of the submittal plan set, the wetland and stream buffer(s) that have already been incorporated into project plans adequately encompass the recommended 15-foot buffer. From a geotechnical standpoint, the buffer(s) included in the submittal plan set are appropriate.

Auburn Comment No. B.1.2. (Page 4) – The Report notes on Page 1 that the western central portion of the site contains a stream and wetland system. However, the Report doesn’t acknowledge the three other smaller wetlands that exist on site except to identify that the site is characterized by high groundwater... and that iron oxide staining was evident in nearly all test pits.

ESNW Response – Project plans indicate the smaller wetlands (east of the western stream and wetland space) will be regraded and removed in lieu of the new development. From a geotechnical standpoint, the smaller wetlands are relevant only to identify areas where higher groundwater seepage volumes may be encountered during construction. Groundwater seepage conditions on site are typical of glacial till environments and can be successfully managed with standard construction practices.

Auburn Comment No. B.1.3. (Pages 4 and 5) – The Report notes on Page 2: “Cuts on the order of 10 feet are identified to achieve design elevations except possibly at areas where detention vault cuts will be more significant.” However, elsewhere in the report it notes that, based on excavation pits, groundwater was encountered at 1.5 feet to a depth of 11 feet below grade. The high groundwater conditions are evaluated in relation to use of infiltration and detention vaults.

The use of detention vaults and storm filter cartridges is the only method of flow control and water quality management for the project. This method is acceptable for privately maintained storm facilities. For any public storm facilities (required in conjunction with new public roadways and frontage improvement areas), the City requires alternative methods for detention and water quality treatment. Other methods are not addressed within the stormwater management recommendations of the Geotechnical Report, except to note that infiltration is not feasible.

ESNW Response – Please refer to the Civil plan set for specific design information regarding public storm facilities. It should be noted that basic dispersion and limited infiltration are prepared for portions of the roof area adjacent to the wetland and stream buffers to meet Best Management Practice requirements.

Auburn Comment No. B.1.4. (Page 5) – The Report does not address any recommendations for management and disposal from de-watering excavations during construction based on observed high groundwater conditions.

ESNW Response – Specific plans for management and disposal of groundwater from excavation de-watering are provided within the Civil plan set. Typical de-watering considerations include, but are not limited to, the following elements: interceptor swales and rock check dams (typically spaced 50 feet apart), construction dewatering tanks, temporary pumps, and sediment traps. Specific observations of field conditions during construction will dictate the precise placement of de-watering elements, but at a minimum, should include those outlined above.

Auburn Comment No. B.1.5. (Page 5) – The Report states: “We anticipate mass grading will primarily use a balanced approach, with cut soils utilized elsewhere on site as structural fill”. The Report does not reference or seem to have been developed in conjunction with, and considerate of, the Proposed Grading Plan (Sheet C2.00) that is provided in the plan set... The Grading Plan indicates that 17,000 cubic yards of fill will be imported.

ESNW Response – Our anticipation of a balanced grading approach was based on earlier project discussions and speculations. We acknowledge that fill import will be necessary to achieve design subgrade and finish elevations. On-site soils that are generated from grade cuts may be used elsewhere on site, provided the soils can be reworked to the specifications of structural fill, as outlined in the referenced report.

Auburn Comment No. B.1.6. (Page 5) – The Report says that on-site soils are moisture sensitive and can only be re-used as structural fill during dry periods when soil moisture is appropriate. The Report also addresses the importation of structural fill material, should optimal soil moisture of on-site soils not be achieved. Again, the Report does not reference or seem to be considerate of the Proposed Grading Plan (Sheet C2.00) that has been developed and provided.

ESNW Response – An earlier site plan was considered during the production of our report; nonetheless, the recommendations provided in the referenced report, with specific respect to site soils and related grading activities, remain applicable to the subject project.

Auburn Comment No. B.1.7. (Page 5) – The Report recommends that foundation drains be constructed around all buildings and around the unground [*sic*] detention vaults (Pages 8 and 9) and directed to an approved discharge location. Some of the buildings are located near the wetland and stream system to be retained and incorporated into the site design. Neither the Geotechnical Report nor [the] Critical Areas Report evaluates if these drains will have a deleterious effect on the hydrologic support for the stream and wetlands. The same consideration needs to be addressed for utility trench backfill locations and proximity to critical areas.

ESNW Response – We have considered the potential hydrologic and hydrogeologic effects on the existing streams and wetlands from proposed footing drains and utility trench backfill locations. Based on our field observations, the site is underlain primarily by weathered and unweathered Vashon till. Approximately three to seven feet of weathered till is bedded atop the unweathered till. During our January 2014 fieldwork, we observed discrete zones of perched groundwater seepage within the upper weathered till at varying depths. From a geotechnical standpoint, the relatively shallow footing drains around new building perimeters will not have a significant impact on the hydrologic support for the western stream and wetland space. Utility trench excavations will likely interrupt existing seepage zones in some areas; however, due to the discrete and seasonal nature of the seepage zones, we do not expect utility trench excavations will significantly impact the current flow regime. Additionally, to offset any potential impacts, it is our understanding recharge of the wetland and stream areas will be provided through dispersion of clean roof runoff at some locations.

Auburn Comment No. B.1.8. (Page 5) – The pavement section recommendations are based on lightly loaded pavement and [are] not considerate or suitable for a public street (130th Avenue Southeast or Southeast 312th Street).

Auburn Comment No. 3.A.6. (Page 8) – The [Geotechnical Report] recommends that foundation drains be constructed around all buildings and around the underground detention vaults (Pages 8 and 9) and directed to an approved discharge location. Some of the buildings are near to the wetland stream system to be retained and incorporated into the site design. Will these drains have a deleterious effect on the hydrologic support for the stream and wetlands? The same consideration needs to be addressed for utility trench backfill. The effect of this ground and surface water diversion is not addressed in the Critical Areas Report when the Critical Areas Report notes that the hydrology for the on-site wetlands appears to be supported, for the most part, by shallow groundwater levels. Additional evaluation of impacts is necessary.

ESNW Response – Please refer to our response earlier in this letter, as this comment is essentially a duplicate of Comment No. B.1.7.

Auburn Comment No. 3.B.1. (Page 10) – ...The [Geotechnical Report] notes that the site is characterized by high groundwater that has the potential to affect construction. Groundwater may be required to be withdrawn to accomplish construction and the geotechnical report recommends that foundation drains be constructed around all buildings and around the unground [sic] detention vaults (Pages 8 and 9) and directed to an approved discharge location. Some of the buildings are near to the wetland stream system to be retained and incorporated into the site design. The affect of the drains on site wetlands and stream have not been evaluated. Will these drains have a deleterious effect on the hydrologic support for the stream and wetlands? Additional evaluation of impacts is necessary.

ESNW Response – Please refer to our response earlier in this letter, as this comment is essentially a duplicate of Comment No. B.1.7.

We trust this letter meets your current needs. Should you have questions regarding the content herein, or require additional information, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC



Keven D. Hoffmann, E.I.T.
Project Engineer



Raymond A. Coglas, P.E.
Principal

cc: CPH Consultants, LLC
Attention: Mr. Jamie Schroeder, P.E. (Email only)