

# IPEC

Inland Pacific Engineering Company  
Geotechnical Engineering and Consulting

February 3, 2020  
Project No. 19-1096A

Mr. Mike Kinney  
c/o Todd Whipple  
Whipple Consulting Engineers  
21 S Pines Rd  
Spokane Valley, WA 99206

Re: **Geohazard Evaluation**  
**Proposed Tangle Ridge Development**  
**Parcel No. 34071.0040**  
**Spokane County, WA**

Dear Mr. Whipple:

As you authorized, we have completed a geohazard evaluation for the proposed residential development at the above-referenced site in Spokane County, Washington. The purpose of the evaluation is to address the requirements of the Spokane County Critical Areas Ordinance.

According to the Spokane County Critical Areas Ordinance, geologically hazardous areas are defined as areas that exhibit a potential for erosion, landslide, or seismic hazards having one or more of the following characteristics:

- Slopes of 30 percent or greater.
- Soils identified by the Natural Resource Conservation Service (NRCS) as having a severe potential for erosion.
- Existing surface or groundwater hydraulic factors or changes in hydraulic factors caused by the proposed project that create a severe potential for erosion or landslide hazards.
- Areas that are historically prone to landslides or have alluvium, landslide deposits, or Latah Formation.
- Areas of uncompacted fill.
- Areas that are unstable as a result of rapid stream or stream bank erosion.

P.O. Box 1566, Veradale, WA 99037  
Phone 509-209-6262

Based on the site plan provided by WCE dated August 19, 2019, the site has slopes greater than 30 percent. This report summarizes the results of our site observations, opinions, and recommendations.

## **PROJECT DESCRIPTION**

We understand the project will consist of the construction of a roadway associated with 45 residential lots at the site. The development will encompass about 12 acres. The development will be accessed by an entrance coming off South Tangle Heights Drive.

## **AVAILABLE INFORMATION**

We were provided a preliminary site plan for the project. The plan showed the locations of the proposed roadway and house lots, existing roadways, property lines, and existing elevation contour lines. The plan was prepared by WCE and dated August 19, 2019.

## **GENERAL SOIL CONDITIONS**

Geologic maps indicate the soils in this area consist primarily of loess over glaciofluvial deposits or residuum and/or colluvium derived from basalt. According to the Soil Survey of Spokane County, Washington, the site soils are classified by the Natural Resource Conservation Service (NRCS) as Klickson-Speigle-Rock outcrop complex (2046), Hagen ashy sandy loam (3057), Seaboldt ashy loam (3600), and Urban land-Marble, disturbed complex (7122).

## **FIELD OBSERVATIONS**

The site was visited by a geotechnical engineer on February 3, 2020 to observe the exposed geologic features. The site is undeveloped and mostly grass and tree covered. Several basalt outcroppings were observed along the crest of the slope at the site.

Based on the provided site plan, the proposed roadway area generally slopes down to the north with about 30 feet of relief. In general, Lots 1 through 13 are relatively level. Lots 14 through 45 are also relatively level to about 75 to 110 feet east and north of the proposed roadway. The house lots then slope down to the east and north with up to about 100 feet of relief.

## **OPINIONS AND RECOMMENDATIONS**

Based on the results of our field observations and geologic review, it is our opinion the proposed development is feasible. It is our opinion the potential for severe erosion is low provided good erosion control practices are implemented during construction.

If construction is proposed on or within 25 feet of the crest of steep slopes (3:1 or steeper), we recommend that a site-specific geotechnical evaluation be completed.

It is our opinion that development and construction will likely increase the potential for erosion at the site. We recommend that good construction practices be implemented, including silt fences, erosion control berms, establishment of vegetation as rapidly as possible, retaining walls, and proper grading techniques.

## **REMARKS**

This report is for the exclusive use of the addressee and the copied parties to use in design of the proposed project and to prepare construction documents. In the absence of our written approval, we make no representations and assume no responsibility to other parties regarding this report. The data, analyses, and recommendations may not be appropriate for other structures or purposes. We recommend that parties contemplating other structures or purposes contact us.

Services performed by the geotechnical engineers for this project have been conducted in a manner consistent with that level of care ordinarily exercised by members of the profession currently practicing in this area under similar budget and time restraints. No warranty, expressed or implied, is intended or made.

### GENERAL REMARKS

We appreciate the opportunity to provide our services to you. If you have any questions or need additional information, please do not hesitate to call me at (509) 290-5179 at your convenience.

Sincerely,  
**Inland Pacific Engineering Company**



Gregory J. Voigt, P.E.  
Project Engineer

Attachments: Figure 1, Site Location Map  
Figure 2, NRCS Map  
Figure 3, Preliminary Site Plan

