



**Planning and Community Development
Department**

210 Lottie Street, Bellingham, WA 98225
Phone: (360) 778-8300 Fax: (360) 778-8301 TTY:
(360) 778-8300

**Critical Areas Ordinance Permit
Findings and Decision
Type I**

1909 36th St.
CAP2024-0029

- Critical Area Type:** Geologic Hazards: Landslide Hazard Area
- Proposal:** Construction of a two future single family residences within a Landslide Hazard Area buffer regulated under BMC 16.55.
- Applicant:** Jeremy Disch, PowerTek Surveying, 5426 Barrett Rd. #104, Ferndale WA 98248
- Location:** 1909 36th St., Bellingham WA 98229
Samish Neighborhood Area #4, Residential Single zoning with a 12,000 sf density
- Decision:** Approved
- Date of Decision:** 7/2/2024
- Exhibits:** **A- Land Use Application**
B- Geologic Hazard Review and Stormwater Feasibility Assessment prepared by Joely Marsyla BA & John Gillaspay, MS LEG, Element Solutions dated 3/29/24

I. FINDINGS OF FACT AND CONCLUSIONS

1. The subject property is located within Area 4 of the Samish Neighborhood and zoned Residential Single with a 12,000 sf density.
2. In 2005, the city determined the subject property AP# 370307-465459 is a separate legal lot of record therefore based on the approval of LLD2005-00026, AP# 370307-462459 is also a legal lot of record due to the surrounding public rights of way.
3. The applicant has applied for a lot line adjustment of two legal lots of record for future construction of two single family residences. The applicant is requesting a variance from street improvements to Lindsay Ave. and the abutting alley both of which are undeveloped. The variance to BMC 23 is a Type IIIA decision which must be decided by the Hearing Examiner following a public hearing.
4. A Critical Areas Ordinance (CAO) permit application was submitted on 5/8/24 (Exhibit A & B).

5. The applicant has applied for a lot line adjustment of two legal lots of record for future construction of two single family residences. The applicant is requesting a variance from street improvements to Lindsay Ave. and the abutting alley both of which are undeveloped. The variance to BMC 23 is a Type IIIA decision which must be decided by the Hearing Examiner following a public hearing. The subject property contains a landslide geologically hazard area and associated 50' buffer on the eastern and southern portions of the site.
6. Pursuant to BMC 16.55.460.A.8, land that is located wholly or partially within a landslide hazard area or its buffer may be divided; provided, that each resulting lot has sufficient buildable area outside of, and will not affect, the landslide hazard or its buffer, as determined by a qualified professional. A qualified professional has delineated geologically hazardous areas and a reduced 10' buffer from the slope in Exhibit B. Following review of the information provided by the qualified professional in Exhibit B, staff has determined there is an adequate building envelop on each of the lots and associated access and utilities can be reasonably provided outside of the geologically hazardous areas and associated 10' buffer. In the event a future development proposal encroaches within the geologically hazardous areas along the eastern and southern portion of the subject property and associated buffer the applicant will be required to provide additional information from a qualified professional documenting compliance with the applicable conclusions and recommendations within Exhibit B and BMC 16.55.
7. The proposed development includes the construction of two future single family residences accessed from 36th St., which are located outside of the geologically hazardous area and associated buffer.
8. The regulations for CAO permit applications for geologically hazardous areas are set forth in Bellingham Municipal Code (BMC) section 16.55.410-460.
9. Joely Marsyla BA & John Gillaspy, MS LEG submitted Exhibit B dated 3/29/24, which included an evaluation of the site geology, soils, and surface conditions and assessed the potential for geological hazards with the proposed construction. The information provided by the applicant in Exhibit B was reviewed by staff and determined to comply with the applicable code provisions under BMC 16.55.430-460.
10. The proposal includes the construction of two future single family residences with access and utilities from 36th St. The proposed future single family residences, driveway and utilities shall be located outside of the reduced 10' buffer from the landslide geologically hazardous slope.
11. Based on City IQ the topography on the subject property is similar to other areas in the vicinity to the north, east and south throughout the neighborhood with existing residences located within similar proximity to erosion geologically hazardous areas. The proposal minimizes the impact to the critical area by focusing development outside of the geologically hazardous area and minimizing impacts to the associated buffer.
12. Stormwater runoff from the proposed improvements will be managed by connecting roof drains and impervious surfaces from driveways to the existing stormwater drainage ditch located in 36th St. away from the landslide geologically hazardous area and buffer. Based on the information provided by a qualified professional, the soil on the subject property is not

feasible for stormwater infiltration. Additional stormwater review will be completed under the Building Permits for compliance with BMC 15.42.

13. A qualified professional has determined the proposed construction complies with the general and specific code requirements under the Critical Areas Ordinance (BMC 16.55.450.A, 16.55.460.A.1-6), provided the proper site management and incorporation of the recommendations in Exhibit B are achieved.
14. This activity uses reasonable methods to avoid potential impacts to critical areas. This permit approval does not give permission to degrade a critical area or ignore risk from natural hazards.
15. As conditioned, the proposal does not pose an unreasonable threat to the public health, safety, or welfare on or off the development site.
16. As conditioned, the proposal is consistent with the general purposes of the Critical Areas Ordinance. A permit should be granted for the proposal.

II. DECISION

Based upon the Findings of Fact and Conclusions, the Director of Planning and Community Development or designee, approves Critical Areas Ordinance Permit (CAP2024-0029), for the project described herein and as provided in Exhibits A & B subject to the following conditions:

1. Site construction and maintenance of the proposed development shall be consistent with the recommendations in Exhibit B unless otherwise modified through the Building Permit Application review process.
2. Reasonable measures shall be incorporated into the development of the single family residence to preserve existing trees onsite outside of the proposed building footprint. Removed trees (6" diameter) from the geologically hazardous area or associated buffer shall be replaced at a 3:1 ratio consistent with BMC 16.55.080.C.6.b under the Building Permit review.
3. All activities shall be conducted using the best management practices that result in the least amount of impact to the critical area. Best management practices shall be used for tree and vegetation protection, construction management, erosion and sedimentation control, and water quality protection.

This Type I permit is granted with the conditions specified above pursuant to the Critical Areas Chapter of the Bellingham Municipal Code. It does not excuse the applicant from compliance with any other federal, state or local statutes, ordinances or regulations that may be applicable to this project.

In the event the owner/applicant fails to comply with the terms of the conditions herein, the permit may be rescinded. All work must be completed according to this permit.

III. EXPIRATION

In accordance with BMC 21.10.260, this permit shall expire five (5) years from the date of decision unless a complete building permit application is filed before the end of the five-year

term. In the event the applicant or a person completing the project fails to comply with the terms or conditions herein, the permit may be rescinded.

IV. APPEAL

Any party aggrieved by the decision of the Director may file an appeal within 14 days of the notice of decision in accordance with BMC 21.10.250. Any appeal must be filed with the Planning and Community Development Department on the appropriate forms and be accompanied by a filing fee as established by the City Council.

V. EFFECTIVE DATE

Critical Area permits shall be effective after the close of the appeal period, or if an appeal is filed, after the withdrawal of, or final decision on an administrative appeal (BMC 21.10.240 C.3.). The effective date of this permit is 7/16/24 **unless an appeal is filed.**

Approved By



Ryan Nelson, Planner II
Planning and Community Development
Department



210 Lottie Street, Bellingham, WA 98225

Phone: (360) 778-8300 Fax: (360) 778-8301 TTY: (360) 778-8382

Email: permits@cob.org Web: www.cob.org/permits



Land Use Application

Check all permits you are applying for in the boxes provided. Submit this application form, the applicable materials listed in the corresponding permit application packet(s) and application fee payment.

<input type="checkbox"/> Accessory Dwelling Unit <input type="checkbox"/> Binding Site Plan <input type="checkbox"/> Clearing Permit <input type="checkbox"/> Conditional Use Permit <input checked="" type="checkbox"/> Critical Area Permit <input type="checkbox"/> Minor Critical Area Permit <input type="checkbox"/> Design Review <input type="checkbox"/> Grading Permit <input type="checkbox"/> Home Occupation <input type="checkbox"/> Institutional <input type="checkbox"/> Interpretation <input type="checkbox"/> Landmark – Historic Certificate of Alteration <input type="checkbox"/> Legal Lot Determination <input type="checkbox"/> Nonconforming Use Certificate	<input type="checkbox"/> Parking Adjustment Application <input type="checkbox"/> Planned Development <input type="checkbox"/> Rezone <input type="checkbox"/> SEPA <input type="checkbox"/> Shoreline Permit <input type="checkbox"/> Shoreline Exemption <input type="checkbox"/> Subdivision-Short Plat/Lot Line Adjustment <input type="checkbox"/> Subdivision-Preliminary Plat <input type="checkbox"/> Subdivision-Final Plat <input type="checkbox"/> Variance <input type="checkbox"/> Wireless Communication <input type="checkbox"/> Zoning Compliance Letter <input type="checkbox"/> Other: _____	Office Use Only Date Rcvd: _____ Case #: _____ Process Type: _____ Neighborhood: _____ Area Number: _____ Zone: _____ Pre-App. Meeting: _____ Concurrency: _____
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Project Information

Project Address xxxx 36th St & xxxx Lindsay Ave Zip Code 98229
 Tax Assessor Parcel Number (s) 3703074624590000 / 3703074654590000
 Project Description Lot Line Adjustment

Applicant / Agent

Primary Contact for Applicant

Name Jeremy Disch, PowerTek Surveying
 Mailing Address _____ 5426 Barrett Rd. #104
 City Ferndale State WA Zip Code 98248
 Phone 360.746.8801 Email jdisch@powertek.net

Owner (s)

Applicant Primary Contact for Applicant

Name Skeers Construction (Brandon Priest)
 Mailing Address _____ 1249 Birch Falls Drive
 City Bellingham State WA Zip Code 98229
 Phone 3606710911 Email brandon@skeers.com

Property Owner(s)

I am the owner of the property described above or am authorized by the owner to sign and submit this application. I grant permission for the City staff and agents to enter onto the subject property at any reasonable time to consider the merits of the application and post public notice. I certify under penalty of perjury of the laws of the State of Washington that the information on this application and all information submitted herewith is true, complete and correct.

I also acknowledge that by signing this application I am the responsible party to receive all correspondence from the City regarding this project including, but not limited to, expiration notifications. If I, at any point during the review or inspection process, am no longer the Applicant for this project, it is my responsibility to update this information with the City in writing in a timely manner.

Signature by Owner/Applicant/Agent Date 98229
 City and State where this application is signed: Bellingham WA
 City State



Permit Center

210 Lottie Street, Bellingham, WA 98225

Phone: (360) 778-8300 Fax: (360) 778-8301 TTY: (360) 778-8382

Email: permits@cob.org Web: www.cob.org/permits

Critical Areas Ordinance, BMC 16.55 Minor Critical Area Permit Application

A minor critical area permit may be approved for any of the activities specified in BMC 16.55.080 C 1-9 and for certain expansions of non-conforming uses as specified in BMC 16.55.130 if the activity occurs in a critical area and/or its associated buffer.

REVIEW PROCESS:

The City will use a Type I or Type II process to review the application.

A Type I minor critical area permit process is followed for minor activities that do not require SEPA environmental review. A Type II process is required for minor critical area permits that include a SEPA threshold decision. *NOTE: Other federal, state, and local regulations may also apply.*

Approval from the Planning Director or designee is required prior to commencing any activity in a critical area and/or its associated buffer, unless it is an emergency as defined in BMC 16.55.080 C 1.

CRITICAL AREAS EVALUATION:

Minor activities require submittal of a critical areas "evaluation" as specified in BMC 16.55.205.

Minor activities that include normal maintenance, demolition, deconstruction, repair or modification provided there is NO expansion or further encroachment into a critical area and/or its buffer are not required to submit a critical areas evaluation. The minor activities that do not require a critical area evaluation are found in BMC 16.55.080 2--excluding work in the buffer of a geologically hazardous area--and in BMC 16.55.080 3 as long as there is NO expansion or further encroachment into a critical area and/or its buffer. Minor activities that do not require an evaluation must still obtain a minor critical area permit.

Minor activities specified in BMC 16.55.080 C 1 and 4-9 and expansion of non-conforming structures as identified in BMC 16.55.130 are required to submit a critical areas evaluation (BMC 16.55.205) with this application.

BEFORE YOU APPLY:

A Pre-Application Conference is required for Type II project applications unless a written waiver is granted by the Planning Director. A Pre-Application Conference application and a waiver application are available at <http://www.cob.org/services/permits/pages/forms-land-use.aspx> or at the Permit Center in City Hall.

APPLICATION REQUIREMENTS:

- A completed Land Use Application form
- Application fee payment of \$106.00.
- Pre-Application Conference or waiver (Type II)

- SEPA environmental checklist (Type II)
- Mailing list and labels (Type II)

Specify the critical area(s) in which the activity will occur. (**NOTE:** Associated buffers are also regulated as critical areas under BMC 16.55.)

- Wetland Wetland
- buffer Geohazard
- Geohazard buffer
- Fish and wildlife habitat conservation area (HCA), (includes streams)--specify type of HCA
- Stream buffer
- HCA buffer
- Frequently flooded area

Additional information may be required in order to evaluate a project for consistency with the CAO.

SITE PLAN REQUIREMENTS:

Identify the critical area(s) on two 11"x17" scaled site plans showing the following information:

- 2 Site plans (min. scale 1"=20') with north arrow and 5-foot topographic contours.
- 2 Site plans reduced to 8½ x 11".
- Property lines including dimensions of the project site.
- Location of all existing and proposed structures.
- Adjacent streets, including street names, driveways and/or access roads
- Vicinity map.
- Location of all existing and proposed utilities.
- Location of existing critical areas and buffers, with labels, on the site and adjacent to the site.
- All existing vegetation proposed to remain and all proposed landscaping.

Please note the following additional submittal requirements:

- For wetlands and wetland buffers:** BMC 16.55.290 requires showing all wetlands on site and within 150 feet of the property boundary. Show the wetland buffer in accordance with the buffer width requirements in BMC 16.55.340 B.
- For streams and other habitat conservation areas:** Provide a map of the stream indicating ordinary high water mark (a survey of the stream ordinary high water mark may be required) and the minimum buffer as specified in the table at BMC 16.55.500 A. For habitat conservation areas, provide the designation in BMC 16.55.470 and a map showing the location of the habitat conservation area and the buffer in accordance with BMC 16.55.490 F.
- For geohazard areas:** Provide a map of the subject site with the geologic hazard area designation mapped and labeled. Geologic hazard area designations are in BMC 16.55.420.
- For frequently flooded areas:** Provide a map of the FEMA floodplain and floodway, if applicable, or the designated frequently flooded areas. Consult with the City's Public Works floodplain manager or stormwater staff to verify the frequently flooded area.

PROJECT DATA:

1. Describe the project with details, including the purpose: _____

This project is a 2-Lot LLA. No development or construction is proposed to facilitate the LLA.

The purpose of the adjustment is to help avoid steep slopes and geo-hazardous areas.

The adjustment will allow for homes to be built in a safe portion of the lots.

Additionally, the new lot configuration will help achieve maximum retention of the existing trees located on the subject property

2. Specify the minor activity from BMC 16.55.080 C 1-9 and/or BMC 16.55.130 that applies to the proposal. _____

There is no development activity whatsoever proposed with the Lot Line Adjustment

It is understood that at the time of future development (home construction) additional critical areas permits may be required

3. Describe how the proposal fits the definition of the specified minor activity in BMC 16.55.080.

No activity is proposed

4. List the best management practices (BMPs) to be employed to avoid impacts to critical areas.

Approval of this LLA will reconfigure the lots to maximize avoidance of the critical areas

See attached Geologic Hazard Review prepared by Element Solutions dates 3.29.2024

See attached Tree Inventory and Tree Protection Plan prepared by Certified Arborist

5. Provide a mitigation plan for temporary and/or permanent impacts. Refer to BMC 16.55.260 for components that may be needed. (The critical area evaluation includes this requirement.)

No impacts are proposed as part of this Lot Line Adjustment

See attached Geologic Hazard Review prepared by Element Solutions dates 3.29.2024

See attached Tree Inventory and Tree Protection Pan prepared by Certified Arborist

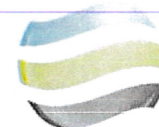
6. List all parties who will conducting the activity. Provide current contact information including address, phone number, and email address. _____

No activity is proposed

Skeers Construction - Brandon Priest (360.671.0911)

7. Does SEPA apply? NO. If so, provide a completed SEPA checklist concurrent with this application.

The information on the following pages is required for Type II permits only



ELEMENT
solutions

March 29, 2024

Client: Brandon Priest, *Owner*
Skeers Construction
1249 Birch Falls Drive, Bellingham, WA 98229

c/o: Jeremy Disch, PLS
Powertek Surveying
5426 Barrett Road, #104, Ferndale, WA 98248

Project: **Two-Lot Boundary Adjustment and Variance Request**
36th Street & Lindsay Avenue, Bellingham, WA
Whatcom County APNs #: 370307462459 & 370307465459

Subject: **Geologic Hazard Review & Stormwater Feasibility Assessment**

Dear Mr. Priest & Mr. Disch:

Element Solutions (ES) was retained by the client, property owner, to perform a Geologic Hazard Review for two parcels at the above-referenced location along the eastern side of 36th Street near Lindsay Avenue in Bellingham, Washington. The project generally entails the boundary adjustment of two lots in an effort to improve the overall function and building viability within the lots of disparate size and access constraints. Currently, the parcels sit alongside each other with one parcel fully bordering the 36th Street frontage and the other adjacent to the east with no frontage access to 36th Street (fronting undeveloped Lindsay Avenue ROW). The client proposes to adjust the lot lines to create two approximately 9,207 square ft equal-size lots both fronting 36th Street and extending west to east to enhance buildability and access.

The parcels are located along a broad, gently to moderately sloping hillside that descends westward, extending north-south between 36th Street and Samish Way. Surrounding vicinity has been largely modified with existing single-family homes that appear to have utilized cut-&-fill development among the sloping grades. The site itself remains well forested. The sloping terrain in the study area accommodates approximately 34 to 38 feet of relief with grades commonly between 15% and 30%, and locally exceeding 40% grade, within and in the close vicinity of the project site. Due to grades locally exceeding 40% grade, the project is required to complete a review of geologic hazards for confirmation of sufficient buildable areas prior to lot adjustment approval. The location of future development is unknown at this time. We assume structures would be located centrally within the proposed parcel configurations. A tiered/stepped foundation and/or daylight basement style of construction is anticipated for the residences built over sloping grades. This critical area geologic hazard review has been conducted pursuant to satisfying the requirements of BMC 16.55 regarding Geologic Hazards, and in general accordance with the standard of care typical of the industry.

Additionally, at request of the client, soils in the downhill area of the parcel were evaluated for on-site stormwater infiltration potential per Department of Ecology (DoE) Stormwater Management Manual of Western Washington (SWMMWW, 2019) guidelines. We assessed infiltration potential, as well as alternatives including collected stormwater off-site disposal options.

The scope of work completed to date has included:

- Desktop review of site topographic features and existing conditions via imagery and GIS analysis.
- Site visit for visual reconnaissance and photo-documentation of potential geohazard areas as well as other conditions of potential concern, if encountered.
- Performance of two (2) hand-operated auger borings with termination depths of 2.5 feet and 2.8 feet below existing grade.
- Documentation and interpretation of soil and groundwater conditions within explorations.
- Assessment of site-specific infiltration feasibility per governing criteria.
- Delineating code-defined geohazard areas and providing recommendations for minimum setbacks / buffers from GHAs, as applicable.
- Providing this letter addressing presence of geohazards (as defined by code), minimum buffers, and the feasibility of on-site stormwater management based on work completed to date.

Attached exhibits include a site vicinity map (Figure 1), an aerial photo topographic site map (Figure 2), an annotated LiDAR-based percent slope map (Figure 3), hand auger exploration logs, and a field photo array (Exhibit A) are attached in the Appendix. Should you have any questions concerning this report, please contact us at (360) 671-9172.

General Site Conditions & Mapping

The study area consists of two contiguous parcels, totaling 4.2 acres, located in the Samish Neighborhood along the east side of 36th Street in Bellingham, Washington. The study area is to the northeast of the existing terminus of Lindsay Avenue at 36th Street, and lies directly north of the undeveloped ROW of Lindsay Avenue east of 36th Street. The vicinity is typically developed with single-family residential properties of small to moderate size in all directions along the subject hillside. The site interior consists of undeveloped, well-forested terrain populated with mature coniferous trees and typical undergrowth, including various ferns and small native brush. The existing road cut along the western boundary of the site, next to 36th Street, is generally vegetated with grass covering with no large vegetation.

The study area topography consists of a gentle to moderately west-facing slope that falls through the lot. The slope is generally planar and consistent, accommodating approximately 34 to 38 feet in total relief through the site among typical grades of 15% to 30%. Local areas within the parcel and in the direct vicinity exceed 40% grades. The margin of the 36th Street ROW consists of a road cut accommodating approximately 8 feet with steep grades, descending towards 36th Street into a roadside stormwater ditch. Slope features relevant to geohazard delineation are discussed in further detail below.

Review of Map & Data Resources

Geological Conditions

1:100,000-scale geologic mapping of the Bellingham Quadrangle, conducted by the Washington Department of Natural Resources (Lapen, 2000; DNR), indicates the site vicinity is underlain by Pleistocene Continental Glacial Drift (Qgd). This map unit covers a wide expanse that begins far north of the project area (at contact with lower-elevation Glaciomarine Drift), and extends southward through the central upland areas of Bellingham. The unit is surrounded by mapped Padden Member of the Chuckanut Formation (Ec_{cp}). The glacial drift unit contains undifferentiated drift deposits that vary in character on the site scale, including moderately to well consolidated and unsorted till and ice-contact drift deposits as well as poorly sorted moraine soils and well sorted outwash lenses. In our experience, despite the described variability, the unit soils are typically competent and suitable for load support as well as maintaining stability of moderate slopes. Drift deposits are assumed to comprise internal slope conditions below the site for the purposes of this review. Bedrock likely underlies the glacial drift deposits at unconfirmed depth.

Soil Mapping

The USDA Natural Resource Conservation Service (NRCS) Web Soil Survey (accessed online) maps the underlying soils within the site as *Squalicum gravelly loam, (5 to 15 percent slopes, unit 156)*. This soil forms on hillslopes from a parent material of volcanic ash, loess, and slope colluvium over glacial drift. Soil unit characteristics are listed as:

- Typical profile of gravelly ashy loam through 60 inches.
- Depth to restrictive feature (dense material / hardpan) is listed as 40 to 60 inches.
- Natural drainage class is moderately well drained.
- Depth to water table (seasonal perched water) is 39 to 59 inches.
- The unit is assigned to Hydrologic Soil Group B (moderate runoff potential).
- Water transmission capacity of the soil is moderately low to very low below cover soils.

As further described below, our limited hand auger borings along the lower western portion of the site appear to correlate with the regional soil survey mapping of the *Squalicum gravelly loam* soil unit. The soils observed at shallow depths generally consists of slope colluvium and weathered glacial drift deposits.

Mapped Slopes and Grades

LiDAR bare-earth imagery was used in ArcGIS to construct site topography with 2-foot and 10-foot contour intervals. Slope gradients were then parsed into categories relevant for geohazard code definitions and geotechnical slope review (see Figure keys). The results of our GIS-based topographic analysis are shown in Figure 3.

GIS analysis illustrates that native slope grades along the majority of the subject parcels are generally between 15% and 30% grade. Grades along the existing road cut (around 6 to 8 feet in height) along the western boundary of the site generally ranges between 40% and 60% with local areas exceeding 60%

grade. Along the eastern margin of the study area, grades typically exceed 30% with local areas exceeding 40% further uphill. Steeper grades observed further east outside of the site appear to be attributed to past site development. A steeper area also borders the southern margin of the study area, within the undeveloped Lindsay Avenue ROW, with grades generally over 40% and accommodating approximately 10 to 14 feet in height. The presence of steep grades exceeding 40% with a vertical relief of greater than 10 feet typically constitutes a potential landslide geologic hazard area by geometric definitions (per City of Bellingham code).

The sloping terrain within the study area is a planar feature that trends north-south through the site and descends westward through the entirety of the site. Surrounding development and related land modification has since disrupted the generally planar character of the slope to the north and south, with various cut-and-fill development apparent throughout the vicinity (including uphill to east and to south of the study area). The critical area slope boundaries (where surface grades are >40% for greater than 10 feet in height) is best delineated by site-scale imagery using GIS data. GIS-delineated landslide hazard areas (LHAs) within or proximal to the study area are shown on Figure 3.

Field Slope Assessment

To assess the existing conditions of the project site for delineation of specific geologic hazard features and observe for evidence of slope activity and holistic stability, an ES Geologist performed a visual reconnaissance of the proposed development area and proximal slopes. The visit was completed on March 13, 2024. Weather conditions were generally dry during the visit with intermittent rainfall on the days leading up to the field visit. During reconnaissance, site conditions were photo-documented and actual grades were measured or visually confirmed as access and visibility / vegetation allowed. A photo array from field reconnaissance (Exhibit A) showing representative conditions is attached.

The project area was traversed on foot as access allowed. We observed vegetation patterns, tree curvatures / tilts, and looked for bare areas of absent vegetation or eroding soils. Evidences or potential signs of shallow slope failure processes and deep-seated instabilities of an active or relict nature (such as scarps, accumulations, back-rotated areas, etc.) were searched for and documented if present. We also observed for surface water and evidence of seepage, including high moisture conditions, ponding above/on/near the slope, and erosion or wasting along the existing road cut at the base of the slope, next to 36th Street. We specifically field-reviewed areas of slopes mapped as 30% to 40% grade or over 40% grade based on our GIS analysis. General site and surrounding conditions were noted while on site.

The gentle to moderately west-facing slope descends along the entirety of the study area and consists of generally planar topography. Grades are generally moderate along the east margin, with gentler grades below descending down the slope towards the western margin of the site. Grades steepen abruptly along the western border of the site, where the road cut bank descends towards 36th Street and extends north-south along the frontage of the site. At the time of the field visit, the majority of the sloping terrain was vegetated with coniferous trees with various shrub regrowth and fallen leaves covering the ground.

No exposed soils or loss of vegetation was observed within the study area. The small trees along the eastern and southeast margin of the site and site vicinity displayed slight curves along the base of the stumps to accommodate for the sloping terrain and as result of minor soil creep on the moderate grades during growth. However, the mature trees along the eastern margin were primarily straight and lacked any indication of significant slope movement over the long term.

The easternmost margin of the sloping terrain, directly east of the subject parcels, is suspected to have been previously altered by historical clearing and grading activities from SFR development, exhibiting locally higher grades. The apparent modified slope was primarily clear of vegetation and consisted of light grass covering with leaves covering the ground. Grades were generally steep and descend into a local 'bench' feature. The slope did not show any indication of eroding soils, downhill accumulations, or visible failure features.

The southern slope area, directly south of the subject parcels within the Lindsay Avenue ROW, consists of locally steeper grades. The slope feature is suspected to be previously modified from prior neighboring site cut-and-fill earthwork. The slope face is generally planar in character and is clear of large vegetation. Some areas of the slope face consist of grass covering with local areas of exposed soils. Despite some areas displaying exposed soils, the modified slope feature is interpreted to be generally stable with little to no indication of active, acute erosion along the exposed face.

The existing roadside cut bank along the western boundary of the site is a localized feature that extends along the 36th Street eastern frontage. The cut bank descends into an existing stormwater drainage ditch with a general slope height below 8 feet as observed in the field. The cutbank is generally clear of large vegetation and consists of grass covering. Though the base of the cutbank is presumably subject to low levels of surface water flow, no exposed soils or evidence of erosion or failure was present along the existing cut bank.

Critical Area Review Conclusions

We have reviewed the site conditions as described above via desktop and field methods from a geologic perspective. Following a review of code application, and based on our professional judgment, we offer our opinion on the presence and relative risk of geologic hazards at the site for development consideration.

Critical Area Determinations

City of Bellingham Municipal Code (BMC) 16.55.420(B) defines *potential landslide hazard areas* as slopes having a consistent grade of 40% or greater and a height change of at least 10 feet which are not composed fully of stable bedrock. Erosion hazard areas (per BMC 16.55.420) include slopes of over 30% that are underlain by sand, silt, or clay soils. There is not a strict definition of size or height for designation of an erosional hazard area, although some lateral continuity is implied. We typically factor out small, isolated or discontinuous areas of 30%+ grade that are surrounded by low-angle topography.

The primary sloping terrain within the subject parcels consists of grades generally between 15% and 30% and is interpreted to be broadly stable. Small, localized spots along the central area of the parcels have grades exceeding 30% grade as shown by GIS mapping. However, the extent of those areas is very limited, and in our opinion should not classify as an erosion hazard area (EHA). Based on our site reconnaissance, there are ***no active or suspected geologic hazards present along the primary sloping terrain within or in close proximity to the study area.***

The ***easternmost uphill margin of the site generally has steeper graded terrain, and is deemed an LHA based on steep grade consistently over 40% for typically over 10 feet vertical.*** The LHA limit generally trends northwest-southeast, consistent with the native terrain surrounding the site, extending through the topmost east end of the proposed parcels. Our site reconnaissance confirmed that there are no active geologic hazards nor suspected activity present along the slope. LiDAR imager does not portray any features of concern.

The southern apparently modified slope feature within the Lindsay Avenue ROW commonly meets the code definition of an LHA by geometry; the LHA limit is delineated along the northern boundaries of the slope face (Figure 3). The modified slope generally has grades between 40% and 66% with a height between 10 and 14 feet. While our site reconnaissance did not show any indications of active erosion, exposed soils along the face suggest a minimal risk of erosion. The limit of the LHA is just outside of the subject parcel limits.

Lastly, the localized, ***steeply graded roadside cut bank along the western boundary of the site is determined to NOT be defined as landslide hazard area,*** based upon the limited height below 10 feet, despite grades generally exceeding 40%. The existing road cut is defined as an erosion hazard area (EHA) due to the steep sustained grades over 30% and potential for erosion over time along the base of the slope related to stormwater runoff and steeply sloping terrain. Our field reconnaissance did not observe any indication of past or active erosion. The slope is generally vegetated with grass covering. The overall level of activity along the existing cut bank is considered low due to the little outside influence on the erosion other than weathering and limited stormwater conveyance within the ditch at its base. Future development is expected to utilize the western frontage of the site at 36th Street as the main access point; therefore, various cut and fill development features may further change the steep geometry of the slope. The presence of an EHA does not preclude reasonable and well planned and constructed development.

In conclusion, the moderate to steeply graded areas of terrain within the eastern margin of the site and adjacent to the southern boundary of the site are code-delineated as ***potential landslide hazard areas*** with grades greater than 40% and heights greater than 10 feet. However, we found no evidence of active or recent historical instability within the project area or its direct vicinity based on conditions seen during the field visit. The remainder of the subject parcels are free of LHA features.

Recommended CA Buffers and Discussion for LLA Review

In the course of geohazard assessment, buffers are established from delineated LHAs based on the findings and recommendations of assessment as well as consideration of the local feature and site. EHAs do not require specific buffers or avoidance measures. The code-standard LHA buffer is 50 feet (16.55.460.A.1), which may be reduced to as little as 10 feet with justification upon assessment and qualified professional conclusions. LHA areas proposed for alteration can have buffers eliminated. Encroachment and alterations of LHAs and their buffers for development is allowed with review/analysis and approval of COB (per A.2 and A.3) on a project specific basis.

For the purposes of parcel establishment, or in this case boundary adjustment, it is necessary to verify that sufficient buildable area is present within each created/modified parcel that is not encumbered by critical areas or their buffers. For this specific consideration, a buffer is assumed to apply regardless of the particulars of future development which are not known at this time. The two LHA features within or adjacent to the site are both generally moderate grade slopes which are localized and small in stature. It is our opinion that reduction of the buffer to the minimum 10-foot width is sufficient for avoidance of these delineated LHA features. Minimum 10-foot buffers are shown on Figure 3 for illustration.

The proposed parcel interior areas occupied by mapped LHAs and minimum buffers are a relatively small portion of the total land area. LHAs and buffers are also limited to the south edge and uphill east margin of the parcels, at the rear of the site. Assuming frontage on 36th Street is approved as proposed, the buildable areas on each parcel are not encumbered by geohazard features.

Adjusting the parcel boundary will allow both sites to be accessed directly from 36th Street, instead of requiring development of Lindsay Avenue to access the current uphill parcel. As noted above and shown on Figure 3, the undeveloped ROW of Lindsay Avenue contains a modified slope defined as an LHA and its buffer. The elevation gain east from 36th Street is also significant along the ROW corridor, which would present additional challenges for extension of Lindsay Avenue uphill of 36th Street. From a geohazard avoidance perspective, and to maximize buildable area on both parcels outside of delineated LHAs, we recommend that the boundary adjustment be completed and that the parcels be developed with access on the west end from 36th Street.

Stormwater Feasibility Assessment

A total of two (2) hand-auger test borings (HA) were advanced along the western, downhill area of the site, in the vicinity of potential areas for on-site stormwater management. Borings were completed to 2.8 feet below present grade (BPG) in hand auger HA-1 and 2.5 feet in HA-2, and were terminated on difficult digging / advancement on cobbles obstructions. Field work was completed on March 13, 2024. Hand auger soil logs are attached in the Appendix, and findings of the explorations are summarized below.

Soil Conditions

Topsoil in both hand augers extended to 0.2 to 1.1 feet depth, consisting of loose/soft sandy silt to silty sand, moist, with roots and organics. Underlying the topsoil was a silty sand with some gravel layer extending to approximately 2.0 feet in both hand augers. This soil consisted of trace cobbles and approximately 35-40% fines and was generally moist, red-brown to brown, loose to medium dense. Underlying the layer was generally coarse-grained silty sand with gravel with approximately 15% to 25% fines and some cobbles with depth. The lower soil was generally tan-brown, medium dense and moist to wet. Advancement became very difficult within the layer at both locations causing practical refusal. Conditions at termination were interpreted as large cobble obstructions.

Groundwater Conditions

Weather and site conditions were generally dry during the field visit with light intermittent rainfall occurring the week prior to the field visit. No surface water features were observed within the subject parcels. A small stormwater drainage ditch lines the western frontage of the site, along 36th Street. Based on the timeframe of exploration, conditions are expected to be indicative of the late winter or early spring wet season, but are likely reduced from peak winter levels.

Soils in borings were generally damp to moist becoming wet with depth. No obvious evidence of soil mottling was observed, although light color variations can be difficult to discern in hand auger borings. Moderate seepage was observed by 2.0 to 2.2 feet BPG, occurring within the coarse-grained sandy layer. The seepage observed is interpreted as shallow perched groundwater that drains downslope through the site within the shallow, relatively permeable silty sand deposits. The overall slope of the site likely prohibits significant perched groundwater development, although shallow soil situation may occur in downhill areas. While the explorations with hand equipment were limited in depth, based on past work in the site area we expect the project area is likely underlain by either hardpan / cemented glacial drift or bedrock resulting in common shallow transient groundwater flow and limited absorption.

Water and moisture conditions are expected to vary by season, and soil moisture observations are valid only for the date of exploration. This study has not included groundwater monitoring, or direct observation of seasonal fluctuations. Discussions and inferences of winter season conditions based on indirect evidence shall be understood as interpretive rather than statements of fact.

Stormwater Infiltration Feasibility Commentary

For on-site infiltration to be feasible as a stormwater management strategy, the subsurface profile must have a combination of suitably transmissive soils and adequate separation to seasonal high groundwater or restrictive layers. Common criteria for single-family residential purposes call for at least 3.0 feet of permeable soils for traditional infiltration systems to be feasible. For residential use, in-ground and pervious surfacing systems (LID features) must be able to maintain at least 1.0 feet of infiltration soil and separation above restrictive soil/rock horizons or seasonal high groundwater (perched) levels (2019 SWMMWW). The site is also within the City of Bellingham jurisdiction, which requires that at least 3.0 feet of permeable soils, and at least 1.0 feet of separation must be available for residential downspout infiltration systems to be feasible (per published feasibility criteria).

Our explorations found generally permeable shallow soils. However, the presence of shallow soil saturation and perched water seepage conditions is not conducive to infiltration of residential stormwater. The study area does not appear to have sufficient transmissive depth to allow for infiltration on site. Hand augers encountered perched water / saturation conditions between 2.0 and 2.2 feet BPG in the area representing the most likely stormwater management location. On-site direct release along the sloping grades above the existing road cut is also not a preferred approach due to the potential for runoff to create or increase risk of erosion along the short but steep cut bank.

We interpret that the site is not feasible for infiltration design according to typical residential stormwater guidelines and their local municipal application. We recommend stormwater to be collected on site and conveyed via gravity tightline downhill to below the existing road cut bank to be released at the stormwater ditch lining the western frontage of the site.

Assumptions and Limitations

The depths and extents of hand-operated explorations performed for this study were limited by reasonable feasibility constraints, available time and site access, and the hand equipment utilized. Exploration logs presented in this report represent the locations and dates of field work. Conditions may not be fully representative of areas of the site not explored, or other times of the year. A typical degree of natural variations should be anticipated for native subsurface conditions.

No subsurface explorations or analyses were performed in regards to future building development. The findings and conclusions for the geohazard assessment rely on visual reconnaissance interpretations, available information and imagery, and our past experience with similar conditions in the project vicinity. Additional work can be undertaken in support of building design and construction at request of the client.

The client shall understand that the project site is within or closely associated with a designated geologically hazardous critical area slope, and has elected to develop and/or reside at this location. The findings of this report are not intended to provide a guarantee or give warranty of future site conditions which may change as a result of natural processes as well as surrounding influences. We have conducted this work in accordance with typical industry standards for geologic hazard assessment, and provided recommendations intended to minimize but not necessarily eliminate risks as possible from a geotechnical perspective. However, it is not feasible to fully anticipate all potential future risks or evolution of site conditions that may occur. It is the client's choice to pursue the project action upon review of this report and acceptance of its findings. The client shall accept that there are inherent risks associated with geologically active slope areas, and assumes sole responsibility for its future consequences, both as detailed herein and unknown. Element Solutions, its staff and owners, shall be indemnified and held harmless from the consequences of development and residence in a geologically hazardous area.

References

Lapen, T.J., Geologic Map of the Bellingham 1:100,000 Quadrangle, Washington. Washington State Department of Natural Resources, Division of Geology and Earth Resources Open-File Report 2000-5, December 2000.

Natural Resources Conservation Service, Web Soil Survey, U.S. Department of Agriculture. Accessed online March, 2024 at <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>

Washington State Department of Ecology, *Stormwater Management Manual for Western Washington*. Publication No. 19-10-021. July 2019.

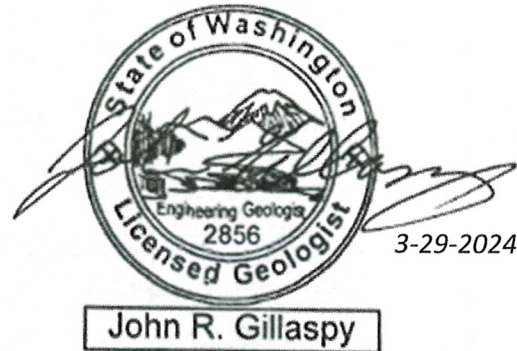
Closure

Thank you for the opportunity to contribute our expertise to your project. Please feel free to contact us at (360) 671-9172 if you have any questions or comments regarding this report.

Sincerely,



Joely Marsyla, B.A.
Staff Geologist



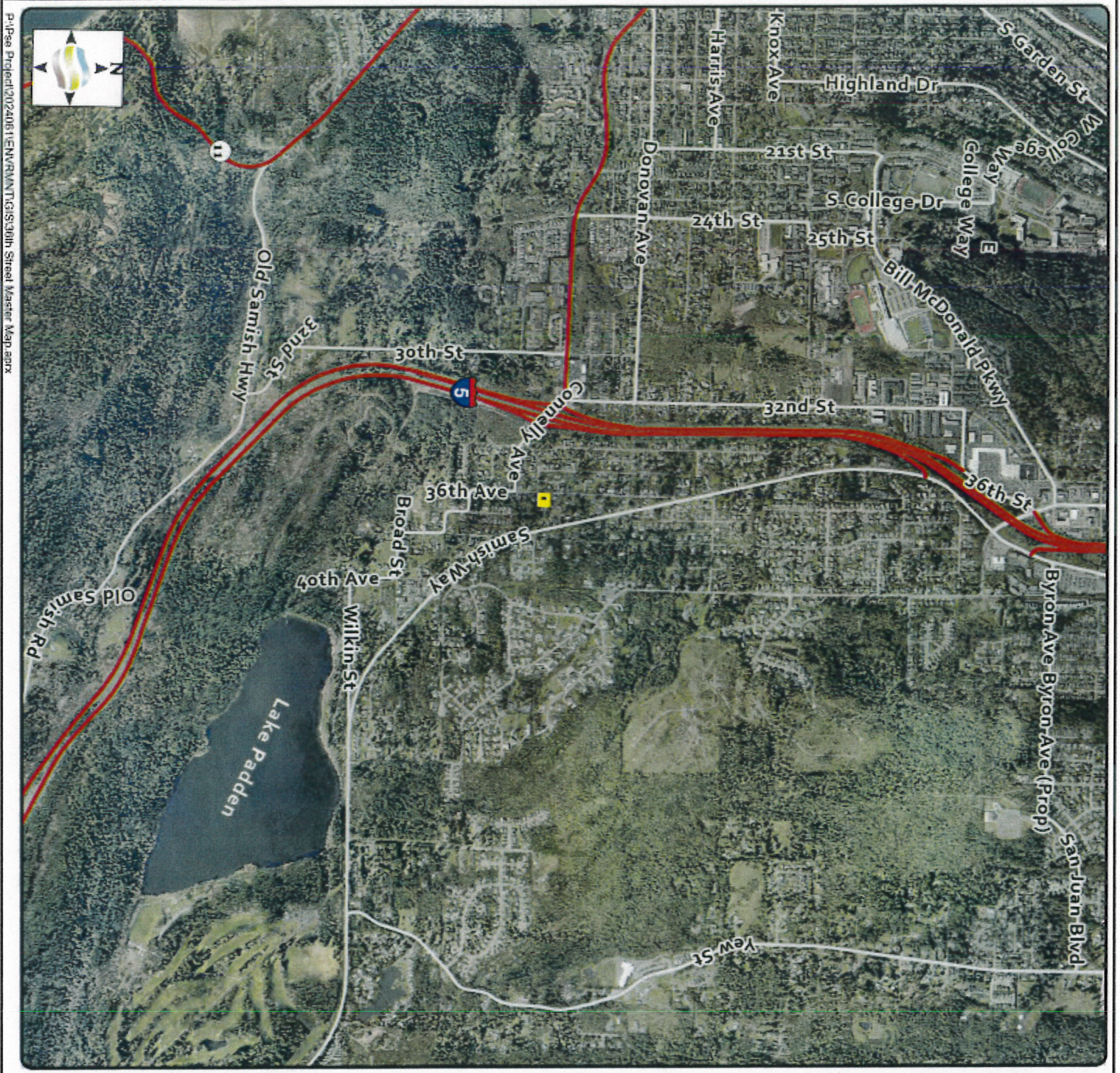
John Gillaspay, M.S., LEG
Environmental Services Manager

Attached: Figure 1 – Site Location & Vicinity Map
 Figure 2 – Aerial Photo Topographic Site Map with Hand Auger Locations
 Figure 3 – LiDAR-Based Percent Slope Map of Site
 Hand Auger Boring Logs (3-13-2024)
 Exhibit A – Photos of Site Reconnaissance (3-13-2024)

Statement of Limitations

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If the client elects to retain another consultant to continue work on the project in a similar capacity, that firm or individual must be responsible for fully reviewing this report and any associated documents. They shall either accept responsibility for the findings and implementing the recommendations presented in this report, or shall offer their own conclusions and recommendations superseding those of Element Solutions as they see fit. In no way will Element Solutions be held responsible for misapplication or disregard of our recommendations by the client, contractors, or other consultants. Element Solutions is not responsible for misuse or misunderstanding of our recommendations, and recommends that we be contacted in the event that clarification or guidance is needed. Non-compliance of these stipulations or to the recommendations in this report will release Element Solutions from any associated liability.



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 Subject Parcels



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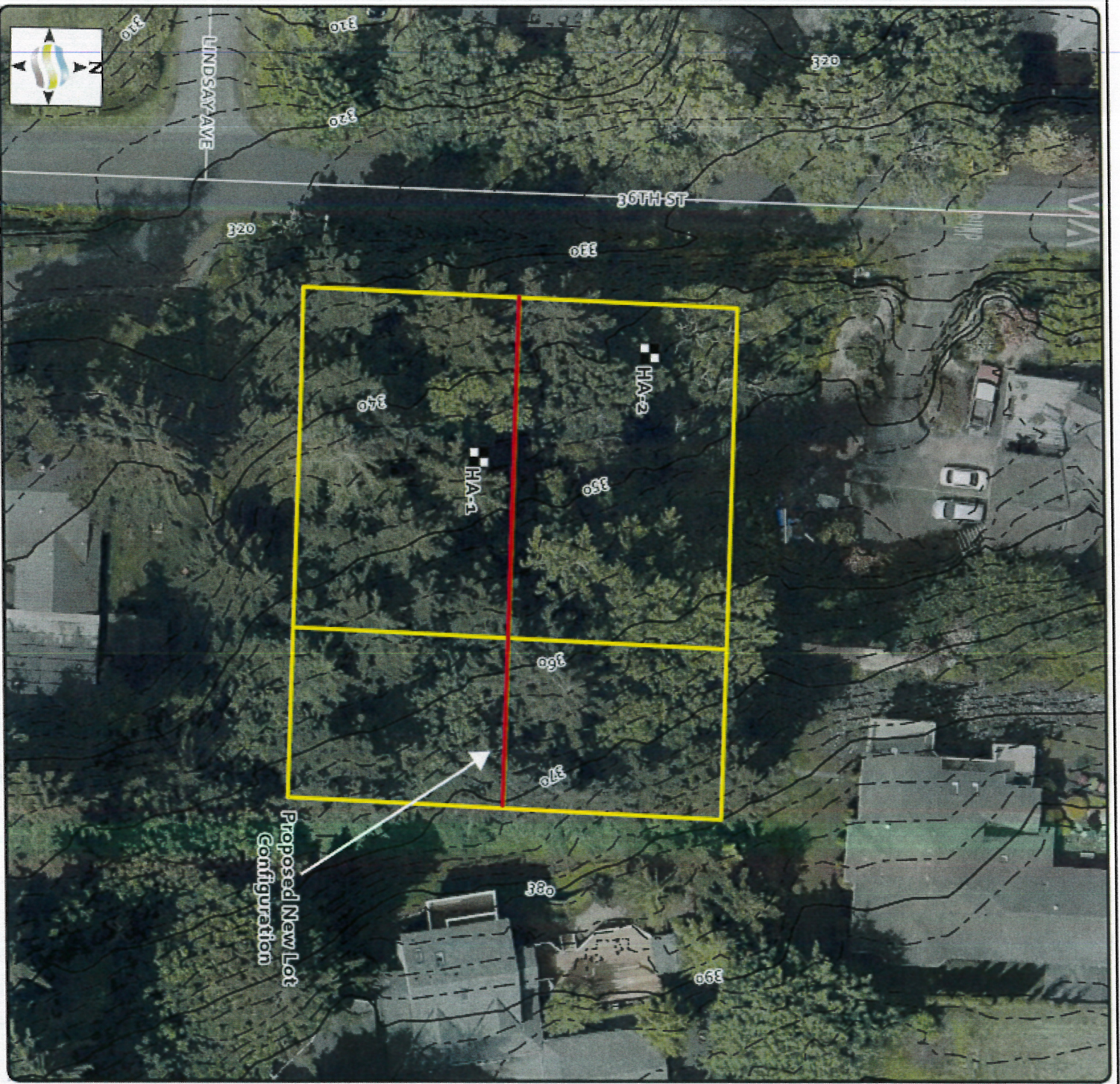
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Figure 1
 36th Street Geohazard Assessment
 36th Street, Bellingham, WA
 Site Vicinity Map

Date: 3/26/2024



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- Subject Parcels
- Hand Auger
- 10ft Contour
- 2ft Contour

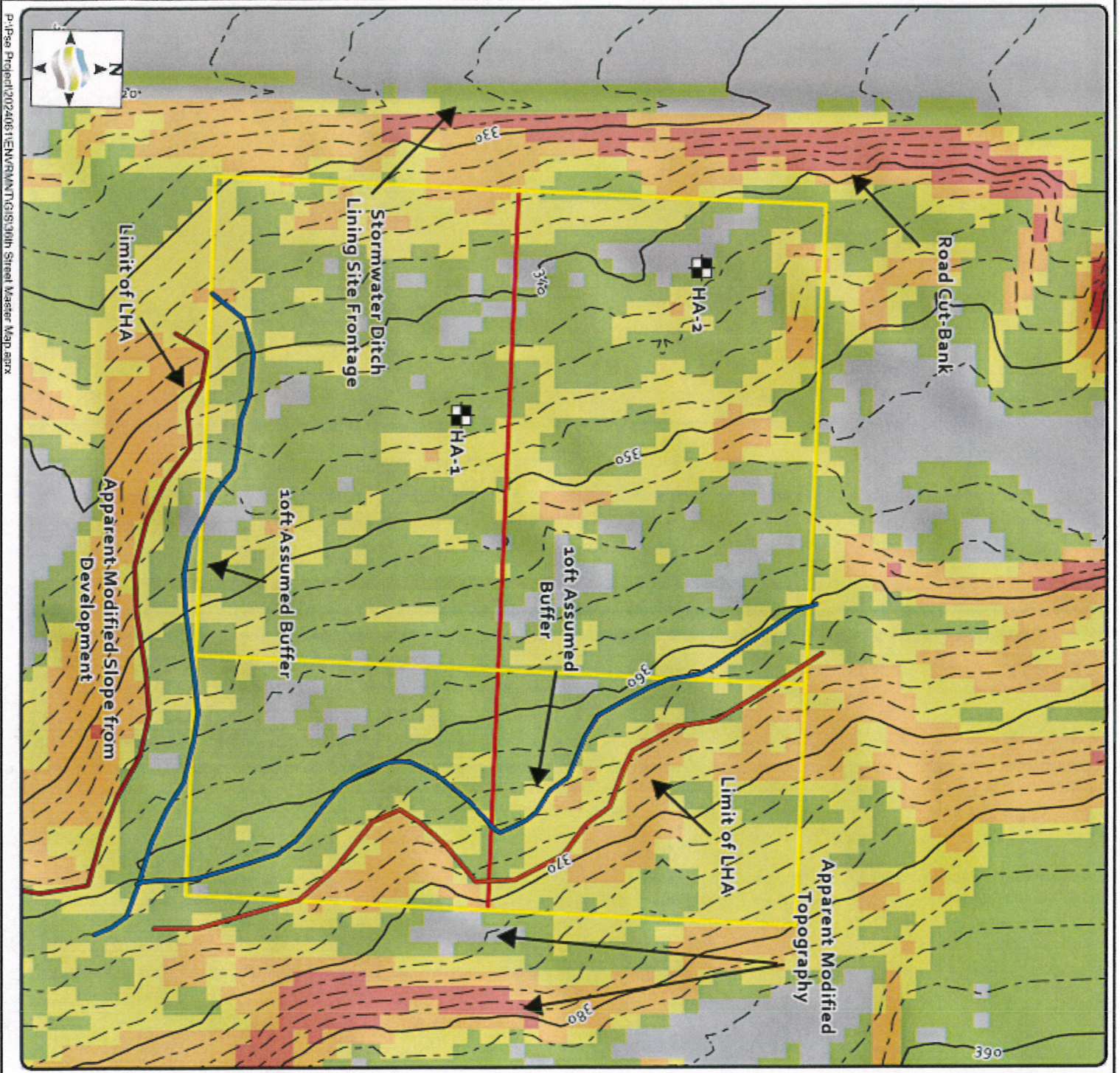
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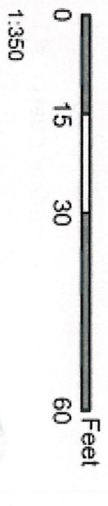
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Figure 2
 36th Street Geohazard Assessment
 36th Street, Bellingham, WA
 Aerial Site Map
 Date: 3/27/2024



Data Credits:
 [Parcels] Whatcom County 2018
 [Roads] COB 2018
 [Imagery] Whatcom 2019

- Subject Parcels
- Hand Auger
- Base of GHA Slope
- Crest of GHA Slope
- 10ft Assumed Buffer from GHAs
- 10ft Contour
- 2ft Contour



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Figure 3
 36th Street Geohazard Assessment
 36th Street, Bellingham, WA
 LIDAR Percent Slope Map

Date: 3/27/2024



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BORING NUMBER HA-1



CLIENT Brandon Priest PROJECT NAME Geohazard & Stormwater Assessment

PROJECT NUMBER 2024061 PROJECT LOCATION 36th Street, Bellingham, WA

DATE STARTED 3/13/24 COMPLETED 3/13/24 GROUND ELEVATION _____ HOLE SIZE _____

DRILLING CONTRACTOR Element GROUND WATER LEVELS:

DRILLING METHOD Hand Auger AT TIME OF DRILLING ---

LOGGED BY Joely Marsyla CHECKED BY John Gillaspay AT END OF DRILLING ---

NOTES Seepage observed at 2.0 feet AFTER DRILLING ---

GENERAL_BH / TP / WELL - GINT STD US.GDT - 3/28/24 10:37 - P:\PSE PROJECT\2024061\EN\VRM\LOGS\36TH STREET HAND AUGERS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
		ML		(ML) SILTY SAND to SANDY SILT, organic-rich, brown, moist, loose/soft TOPSOIL
		SM		(SM) SILTY SAND, some gravel, some large cobbles, many organics and roots, brown to red-brown, damp to very moist with depth, loose to medium dense, ~35-45% fines
1				
		SM		Very moist below 1.8 feet
2				
		SM		(SM) SILTY SAND WITH GRAVEL, some cobbles, coarse-grained sand, tan, very moist to wet, medium dense, ~25% fines Moderate seepage at 2.0 feet BPG
				Very hard digging at termination - suspected large cobbles
				Bottom of borehole at 2.8 feet.



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BORING NUMBER HA-2



CLIENT Brandon Priest PROJECT NAME Geohazard & Stormwater Assessment
 PROJECT NUMBER 2024061 PROJECT LOCATION 36th Street, Bellingham, WA
 DATE STARTED 3/13/24 COMPLETED 3/13/24 GROUND ELEVATION _____ HOLE SIZE _____
 DRILLING CONTRACTOR Element GROUND WATER LEVELS:
 DRILLING METHOD Hand Auger AT TIME OF DRILLING ---
 LOGGED BY Joely Marsyla CHECKED BY John Gillaspy AT END OF DRILLING ---
 NOTES Seepage observed at 2.2 feet AFTER DRILLING ---

GENERAL BH / TP / WELL - GINT STD US.GDT - 3/28/24 10:37 - P:\PSE PROJECT\2024061\ENVR\MT\LOGS\36TH STREET HAND AUGERS.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				
0 to 1.1		ML		(ML) SILTY SAND to SANDY SILT, some gravel, organic-rich, dark brown, moist, loose/soft TOPSOIL
1.1 to 2.0		SM		(SM) SILTY SAND, some gravel, trace cobbles, some charcoal and organics, moist to very moist with depth, loose to medium dense
2.0 to 2.5		SM		(SM) SILTY SAND WITH GRAVEL, some cobbles, coarse-grained sand, tan-brown, very moist to wet with depth, medium dense, ~15-25% fines Moderate seepage at 2.2 feet BPG Difficult digging at termination - suspected large cobbles

Bottom of borehole at 2.5 feet.

Exhibit A – March 13, 2024 Field Photos (36th Street 2-Lot)



Photo 1: Western frontage of study area – note stormwater ditch



Photo 2: Road Cutbank along western frontage. Note grass covering and no exposed soils.



Photo 3: Stormwater drainage ditch culvert along SW corner of site.



Photo 4: Southwest corner of site. Looking east.



Photo 5: Southern modified slope feature. Note minimal vegetation cover.



Photo 6: Conditions within the subject parcels.



Photo 7: Some areas of curved tree trunks along the northeast margin of the site.



Photo 8: Assumed modified topography directly east of the site.



Photo 9: Southeast sloping conditions of the site. Looking south.