

April 17, 2017 ES-5034

Earth Solutions NW LLC

- · Geotechnical Engineering
- Construction Monitoring
- Environmental Sciences

Mr. Jack Bumgardner c/o Polygon Northwest PO Box 1349 Bellevue, Washington 98009

Attention:

Ms. Brenda Fodge

Subject:

Critical Areas Report

11035 Northeast 26th Place Bellevue, Washington

Reference:

Milbrandt Architects

Site Plan

Bumgardner Residence Dated November 29, 2016

Dear Ms. Fodge:

In accordance with your request, Earth Solutions NW, LLC (ESNW) has prepared this letter providing recommendations regarding the stability of the slopes on the subject site to satisfy the City of Bellevue critical areas report format as described in LUC 20.25H.140, LUC 20.25H.145, and LUC 20.25H.250.

The site is located on the south side of Northeast 26th Place cul-de-sac and southeast of the intersection with 110th Avenue Northeast in Bellevue, Washington. The site is comprised of a single tax parcel, and is to be re-developed with a single-family residential structure and associated improvements following the demolition of the existing single-family residence occupying the site.

There is a slope on the subject site that meets the criteria for geologic hazard areas based on the City of Bellevue municipal code. The slopes ascend towards the neighboring property to the east from the east side of the residential structure location. The existing residence is sited adjacent to the toe-of-slope. The slope is on the order of up to 30 feet in height in the eastern side of the site, and the entire slope is inclined up to 38 percent. Areas within the slope complex are on the order of 40 percent, and over ten feet in vertical relief.

During our site visit (January 2017) the slopes were vegetated with native deciduous trees, blackberry brambles, and groundcover foliage typical of the region.

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The client wishes to demolish the existing residence, and construct a new single-family structure that will mimic the current slope setback.

The undersigned project geologist observed the excavation of test pits on the slope and site. The test pits were sited in such a manner as to formulate a thorough idea of the subsurface conditions present in the sloped region on-site. As such, test pits were located at the top-of-slope, middle-of-slope, and toe-of-slope. The test pits were excavated using hand tools, and were advanced to a depth of a minimum of four feet below the surface elevation at each location. Topsoil on the order of four to six inches was observed to transition to dense silty sand with gravel (Unified Soil Classification, SM) at all of the test pit locations.

The subsurface conditions were observed to be homogeneous in nature, with no indications of interbedding of gravels or silt which would increase the likelihood of slope instability. No groundwater was observed during the subsurface exploration. In our opinion, the slope is stable in its present condition and configuration.

Based on our observation of the subsurface conditions on the slope, throughout the site, and knowledge of the area, the site is underlain by competent glacially consolidated soil consisting of medium dense to dense silty sand with gravel. As a part of the geotechnical assessment of the slopes on the east side of the site ESNW representatives performed a slope reconnaissance. During the reconnaissance, ESNW representatives observed no signs of instability in the form of hummocky terrain, down-sets, surface seeps, or tension cracks which would be indicative of instability in a slope.

In our opinion, the proposed steep slope buffer reduction on the subject site is suitable from a geotechnical standpoint. We base this opinion on the lack of geotechnical evidence of instability on and around the sloped areas on the subject site.

LUC 20.25H.145 Critical areas report - Approval of modification.

Section A: Will not increase the threat of the geological hazard to adjacent properties over conditions that would exist if the provisions of this part were not modified.

Based on our site reconnaissance and subsurface exploration within the sloped areas under concern, it is our opinion that the proposed buffer reduction and construction will not increase the threat of geological hazard to adjacent properties beyond the level of which currently exist.

Section B: Will not adversely impact other critical areas.

The proposed site development will not adversely impact other critical areas, based on our review of the proposed development, available information, and site exploration.

Section C: Is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the provisions of this part were not modified.

In our opinion, through site reconnaissance, subsurface exploration, and analysis described in this report, the proposed re-development is designed so that the hazard to the project is eliminated or mitigated to a level equal to or less than would exist if the buffers and critical areas were not modified. In our opinion, no increase in instability to the critical slopes on and around the subject site will result from the proposed development.

Section D: Is certified as safe as designed and under anticipated conditions by a qualified engineer or geologist, licensed in the state of Washington.

Based on our analysis of the proposed development, ESNW certifies the planned modifications to the geologic hazard critical area buffers as safe from a geotechnical standpoint.

LUC 20.25H.250 Critical areas report

B1. Identification and classification of all critical areas and critical area buffers on the site.

The client provided a site plan delineating and classifying the geologic critical areas and buffers within the eastern portion of the site.

The City of Bellevue on-line GIS resource describes steep slope hazards and erosion hazards for the slope on the east side of the site. The entirety of the site is described as possessing an erosion hazard, and the slopes to the southeast and northeast of the residence are described as steep slopes (>40%) by the on-line GIS mapping application. However, the portion of the slope located immediately adjacent (uphill) of the proposed structure footprint is not described as a steep slope.

B2. Identification and characterization of all critical areas and critical area buffers on those properties immediately adjacent to the site.

ESNW has reviewed the City of Bellevue critical areas on-line resource, and has determined there are not critical areas on the properties immediately adjacent to the subject site that will be affected by the planned modifications to the slopes.

B3. Identification of each regulation or standard of this code proposed to be modified.

The proposed development requires the reduction of the steep slope buffers to approximately ten feet. However, there are no planned modifications to the sloped regions on the site; and the proposed development will mimic the foot print of the existing residence.

B4. An assessment of the probably cumulative impacts to the critical areas resulting from development of the site and the proposed development.

Based on our review of the proposed development, and from a geotechnical standpoint there will be no impact to the sloped regions on the subject site, as modifications are not planned for the slopes.

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B5. An analysis of the level of protection of critical area functions and values provided by the regulations or standards of this code, compared with the level of protection provided by the proposal.

The current value of the critical areas (steep slope) buffer is negligible in our opinion. The state of the slopes during our site visits could be classified as stable, with no evidence of past soil movement. Based on this conclusion, there is no value in maintaining the buffers, given the proposed development will not include construction on the sloped regions, which would present a net increase in the potential for global instability now and in the future.

Limitations

The recommendations and conclusions provided in this letter are professional opinions consistent with the level of care and skill that is typical of other members in the profession currently practicing under similar conditions in this area. Our recommendations are based on the information available at the time of this letter preparation. A warranty is not expressed or implied.

We trust this letter meets your current needs. If you have any questions, or if additional information is required, please call.

Sincerely,

EARTH SOLUTIONS NW, LLC

Stephen H. Avril Project Geologist

Attachments: Test Pit Location Plan

Test Pit Logs

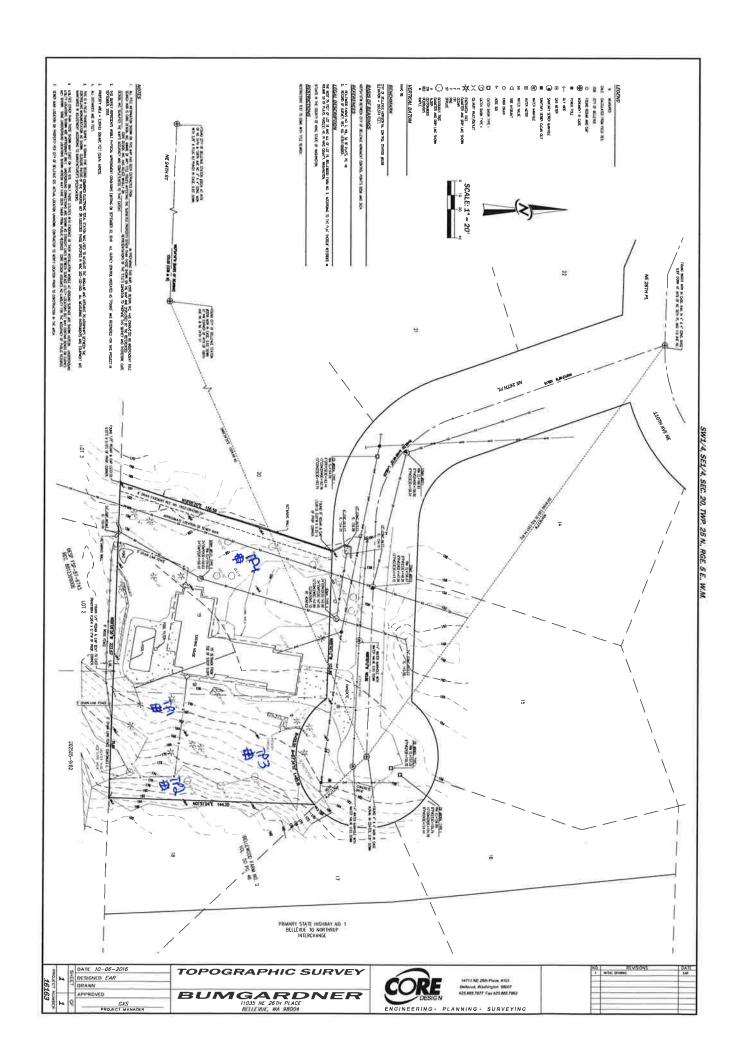
TO WATER OF WATER OF

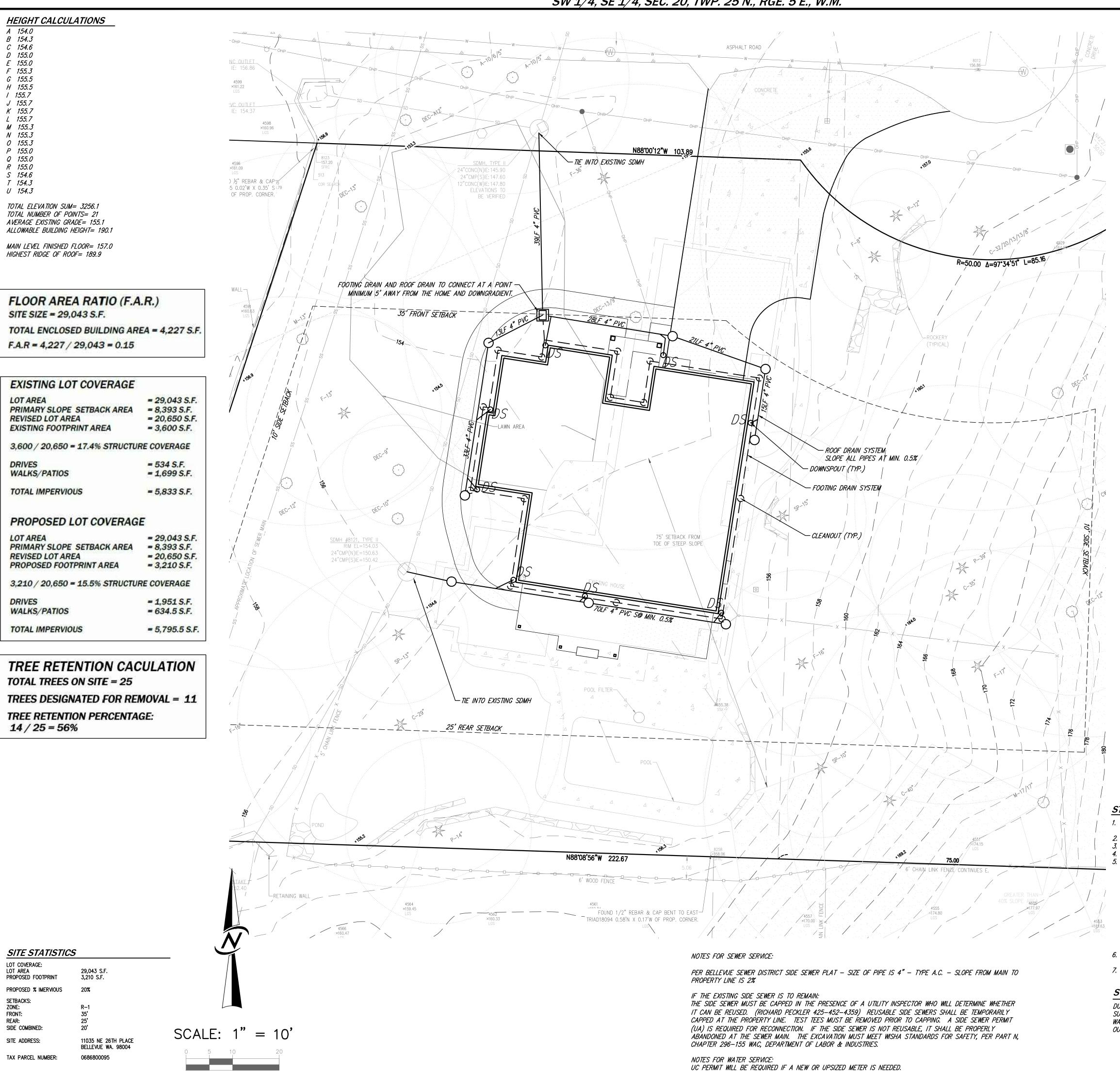
Kyle R. Campbell, P.E. Principal

Test Pit Logs

ES-5034

<u>TP-1</u>		
	TPSL SM	Topsoil, Loose, Moist Brown Silty Sand with Gravel, Medium Dense to Dense, Moist
TP-2		
		Topsoil, Loose, Moist Brown Silty Sand with Gravel, Dense, Moist
TP-3		
		Topsoil, Loose, Moist Brown Silty Sand with Gravel, Dense, Moist
<u>TP-4</u>		
0'-6" 6"-4'		Topsoil, Loose, Moist Brown Silty Sand with Gravel, Medium Dense to Dense, Moist





TREE LEGEND **LEGEND** TREE TYPE FIRE HYDRANT -OHP- OVERHEAD POWER AP APPLE -SS- SANITARY SEWER MAINLINE STREET LIGHT BE BEECH C CEDAR WATER VALVE ---SD--- STORM DRAIN MAINLINE CN CHESTNUT CY CHERRY -WA- WATER MAINLINE DW DOGWOOD EXISTING TREE F FIR GUY ANCHOR G GINKGO SANITARY SEWER H HAWTHORNE MANHOLE K KATSURA LAUREL MA MAGNOLIA POWER VAULT OAK PINE HORIZONTAL BOARD FENCE SPRUCE ROCKERY SB SERVICE BERRY SPLASH BLOCKS SG SWEETGUM Đ **VERTICAL DATUM**

NAVD 88 **BENCHMARK**

> CITY OF BELLEVUE HORIZONTAL CONTROL STATION #0056. ELEVATION = 205.574 FEET.

BASIS OF BEARINGS

N87'54'19"W BETWEEN CITY OF BELLEVUE MONUMENT CONTROL POINT'S 0056 AND 3034.

REFERENCES

BELLEWOOD FARMS NO. 2, VOL. 50 OF PLATS, PG. 46. RECORD OF SURVEY, REC. NO. 197611089001.

THE WEST 75 FEET OF LOT 18 AND ALL OF LOT 19, BELLEWOOD FARM NO. 2, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 50 OF PLATS, PAGE(S) 46, IN KING COUNTY, WASHINGTON;

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

. THIS SITE IS SUBJECT TO A DRAINAGE EASEMENT DELINEATED AND/OR DEDICATED ON THE FACE OF THE PLAT OF BELLEWOOD FARM NO. 2, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 50 OF PLATS, PAGE(S) 46, IN KING COUNTY,

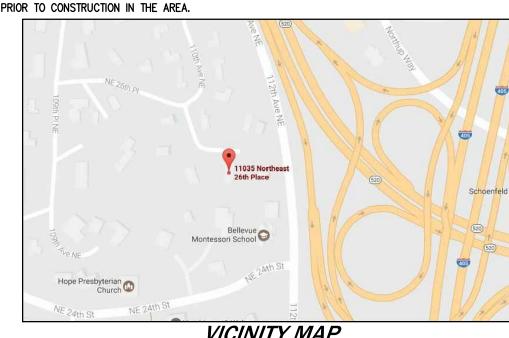
THIS SITE IS SUBJECT TO A SEWER EASEMENT AS DISCLOSED BY INSTRUMENT RECORDED UNDER RECORDING NO. 5994088. SEWER LINE SHOWN HEREON. DOCUMENT NOT AVAILABLE TO SURVEYOR AT THE TIME OF THE SURVEY.

THIS SITE IS SUBJECT TO RESTRICTIONS AS NOTED ON THE FACE OF THE PLAT OF BELLEWOOD FARM NO. 2, ACCORDING TO THE PLAT THEREOF RECORDED IN VOLUME 50 OF PLATS, PAGE(S) 46, IN KING COUNTY, WASHINGTON. NOTED HERE.

4. THIS SITE IS SUBJECT TO THE COVENANTS AND RESTRICTIONS AS DISCLOSED BY INSTRUMENT RECORDED UNDER RECORDING NO. 4263751. NOTED HERE.

5. THIS SITE IS SUBJECT TO AN EASEMENT FOR GRADING OF STREET SLOPES OVER A PORTION OF PREMISES ADJOINING ANY STREET OR ALLEY. NOTED HERE.

- ALL TITLE INFORMATION SHOWN ON THIS MAP HAS BEEN EXTRACTED FROM WASHINGTON TITLE COMPANY COMMITMENT NO. R259708-1, THIRD REPORT DATED FEBRUARY 7, 2003. IN PREPARING THIS MAP, CORE DESIGN, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS CORE DESIGN, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND DISCLOSED BY THE REFERENCED WASHINGTON TITLE COMPANY COMMITMENT. CORE DESIGN, INC. HAS RELIED WHOLLY ON WASHINGTON TITLE'S REPRESENTATIONS OF THE TITLE'S CONDITION TO PREPARE THIS SURVEY AND THEREFORE CORE DESIGN, INC. QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
- 2. THIS SURVEY REPRESENTS VISIBLE PHYSICAL IMPROVEMENT CONDITIONS EXISTING ON SEPTEMBER 22, 2016. ALL SURVEY CONTROL INDICATED AS "FOUND" WAS RECOVERED FOR THIS PROJECT IN SEPTEMBER, 2016.
- 3. PROPERTY AREA = $2,9042\pm$ SQUARE FEET (0.67 \pm ACRES).
- 5. THIS IS A FIELD TRAVERSE SURVEY. A SOKKIA FIVE SECOND COMBINED ELECTRONIC TOTAL STATION WAS USED TO MEASURE THE ANGULAR AND DISTANCE RELATIONSHIPS BETWEEN THE CONTROLLING MONUMENTATION AS SHOWN. CLOSURE RATIOS OF THE TRAVERSE MET OR EXCEEDED THOSE SPECIFIED IN WAC 332-130-090. ALL MEASURING INSTRUMENTS AND EQUIPMENT ARE MAINTAINED IN
- 6. UTILITIES OTHER THAN THOSE SHOWN MAY EXIST ON THIS SITE. ONLY THOSE UTILITIES WITH EVIDENCE OF THEIR INSTALLATION VISIBLE AT GROUND SURFACE ARE SHOWN HEREON. UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY. UNDERGROUND CONNECTIONS ARE SHOWN AS STRAIGHT LINES BETWEEN SURFACE UTILITY LOCATIONS BUT MAY CONTAIN BENDS OR CURVES NOT SHOWN. SOME UNDERGROUND LOCATIONS SHOWN HEREON MAY HAVE BEEN TAKEN FROM PUBLIC RECORDS. CORE DESIGN ASSUMES NO LIABILITY FOR THE ACCURACY OF PUBLIC RECORDS.
- 7. SEWER MAIN LOCATION ON PROPERTY PER CITY OF BELLEVUE GIS. ACTUAL LOCATION UNKNOWN. CONTRACTOR TO VERIFY LOCATION



VICINITY MAP

STORMWATER POLLUTION PREVENTION AND SPILL NOTES

- NO LIQUIDS INCLUDING PETROLEUM PRODUCTS, FUEL, SOLVENTS, DETERGENTS, PAINT, PESTICIDES, CONCRETE ADMIXTURES, FORM OILS, ETC. SHALL BE STORED ON SITE.
- CONSTRUCTION MATERIALS AND WASTES SHALL BE STORED IN A STOCKPILE AREA ON—SITE.
- ALL FUELING SHALL BE PROVIDED BY A FUELING TRUCK. NO FUEL SHALL BE STORED ON SITE. ALL VEHICLE MAINTENANCE AND REPAIRS SHALL BE DONE OFFSITE. CONCRETE WASTE SHALL BE HANDLED AS LISTED:
- UNUSED CONCRETE REMAINING IN THE TRUCK AND PUMP SHALL BE RETURNED TO ORIGINATING BATCH PLANT
- CONCRETE TRUCK CHUTES, PUMPS, INTERNALS, HAND TOOLS INCLUDING, BUT NOT LIMITED TO, SCREEDS, SHOVELS, RAKES, FLOATS, AND TROWELS SHALL BE WASHED OFF ONLY INTO FORMED AREAS AWAITING
- INSTALLATION OF CONCRETE OR ASPHALT. EQUIPMENT THAT CANNOT BE EASILY MOVED, SUCH AS CONCRETE PAVERS, SHALL ONLY BE WASHED IN AREAS

THAT DO NOT DIRECTLY DRAIN TO NATURAL OR CONSTRUCTED STORMWATER CONVEYANCES.

- WHEN NO FORMED AREAS ARE AVAILABLE, CONCRETE WASTE SHALL BE DISCHARGED TO A PAVED OR LINED SUMP. WASTE WATER WITHIN THE SUMP SHALL EITHER BE NEUTRALIZED PRIOR TO DISCHARGE TO THE SEDIMENTATION FACILITY OR DISPOSED OF IN A MANNER THAT DOES NOT VIOLATE GROUNDWATER OR SURFACE
- WATER QUALITY STANDARDS. SLURRY, CUTTINGS, AND PROCESS WATER FROM SAWCUTTING AND SURFACING SHALL BE DISCHARGED TO FORMED AREAS AWAITING INSTALLATION OF CONCRETE OR ASPHALT OR TO PAVED OR LINED SUMP.
- THE CONTRACTOR SHALL DESIGNATE A PERSON AS THE RESPONSIBLE REPRESENTATIVE IN CHARGE OF EROSION CONTROL AND MAINTENANCE OF ALL EROSION CONTROL AND STORMWATER POLLUTION PREVENTION FACILITIES.

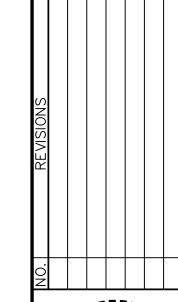
STORMWATER POLLUTION PREVENTION AND SPILL NOTES

DUST FROM CLEARING, GRADING, AND OTHER CONSTRUCTION ACTIVITIES SHALL BE MINIMIZED AT ALL TIMES. ANY DUST SUPPRESSANTS USED SHALL BE APPROVED BY THE DIRECTOR. PETROCHEMICAL DUST SUPPRESSANTS ARE PROHIBITED. WATERING THE SITE TO SUPPRESS DUST IS ALSO PROHIBITED UNLESS IT CAN BE DONE IN A WAY THAT KEEPS SEDIMENT OUT OF THE PUBLIC DRAINAGE SYSTEM.

GRID NO.: UTILITY NO .:

24 HOUR EROSION CONTROL CONTACT: TO BE DETERMINED

SITE ADDRESS: 11035 NE 26th PL. PERMIT NO: 17-XYZxyz BS





SITE & BUMGARDNEH

SHEET OF

PROJECT NUMBER *16163*